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JANUARY - 1911

THE CLAY-WORKER



Published Monthly by
T.A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

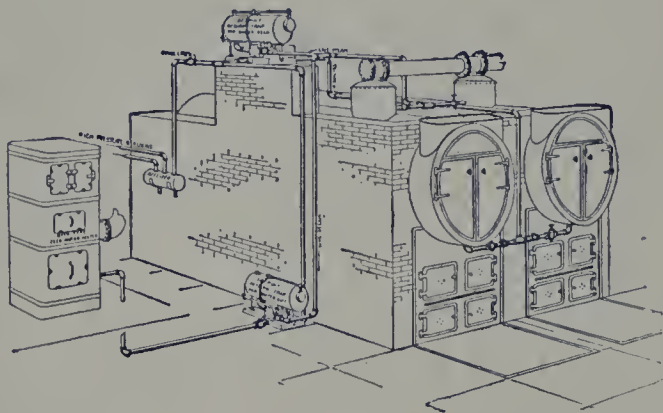
"Detroit" Return Traps

Will Keep the Steam Dryers Free of Condensation

Will Automatically Return the Hot Condensation to Boilers Without Pumping

The economy lies in the difference in fuel required to evaporate cool feed water and the small amount to revaporize the pure hot

condensation back into steam. Then, too, the troublesome uneconomical pump is done away with, and the trap uses but about ten per cent. of the steam required to drive a pump.

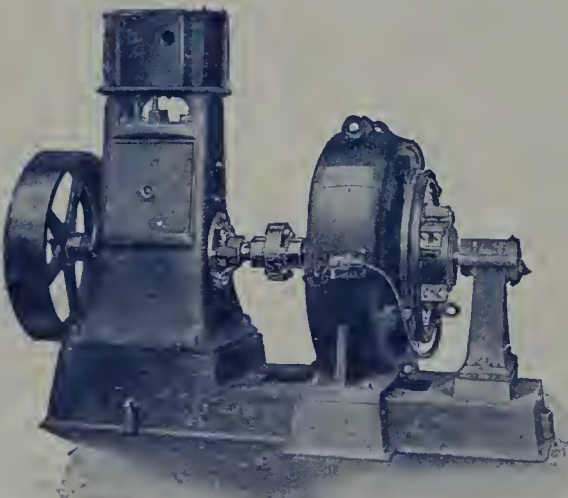


Tell us how many feet of pipe you have

in your dryer, make of dryer, number of boilers, h. p. of boilers, and let us quote you on a "Detroit" Return Trap System. IF our guarantee alone is not strong enough, you can try the system.

Read booklet No. 266 C, anyway.

EVERY YARD Using a Steam Boiler Should Have a Small Generating Set for Electric Lighting



An "ABC" Vertical Enclosed Self-Oiling Engine will pay for itself in a short time in savings of fuel and oil, contrasted with the ordinary steam engine.

Largest and best dynamo manufacturers direct-connect to the "ABC" Engine.



We direct-connect to any good generator.

You cannot overlook thorough investigation of the "ABC" Engine if contemplating the installation of an Electric Light Plant.

NEW YORK
PHILADELPHIA

PITTSBURG
ATLANTA

AMERICAN BLOWER COMPANY
DETROIT, MICH.
U. S. A.

CHICAGO
ST. LOUIS

SAN FRANCISCO
SEATTLE

Ablest Engineering Organization in the Blower Business. Designers of Steam and Waste Heat Dryers, Scott System Conveying, Drying and Burning Brick. Manufacturers of "Sirocco" Waste Heat and Mechanical Draft Fans.



AUGER BRICK MACHINES

Chambers Brothers Company, Philadelphia, Pa.

THE USE OF CHAMBERS BRICKMAKING MACHINERY

**Means More than Merely the Purchase
of a Good Machine.**

We aim to render our customers a continuous service in which recognition of their interests is identified with our own success. Increasing connections based upon this principle has necessitated a substantial increase in our works and equipment.

We are meeting the demands of a normal, healthy growth, providing for a reasonable further development of inventions in our chosen field, and adopting methods and improvements that tend to better and cheapen the handling of our product. We are safeguarding the drawings and machinery records of some of the best and most successful clayworking establishments in the world.

We think this is worth while and expect to profit by it, as well as insure continued prompt and reliable execution of our customers' orders.

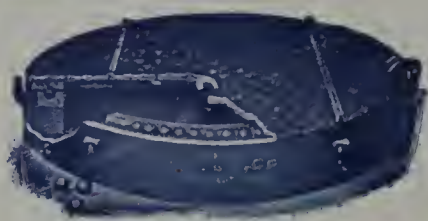
These facilities are at your service.

CHAMBERS BROTHERS COMPANY

BUILDERS OF

CLAYWORKING MACHINERY

PHILADELPHIA AND CHICAGO



RAIL,
SWITCHES,
FROGS.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

TURNTABLES,
WHEELS,
AXLES.

THE ATLAS CAR & MFG. CO.,
CLEVELAND, OHIO.

The Taplin-Rice-Clerkin-Co.

The Machinery Folks of Akron, Ohio, U. S. A.

STOP

at Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny, Renton Co., Seattle, Wash.
The Gladding-McBean Co., San Francisco, Cal.

The Pacific Clay Products Co., Los Angeles, Cal.

W. S. Dickey Clay Mfg. Co., Kansas City, Mo.

Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.

at San Antonio Sewer Pipe Co., San Antonio, Tex.

Henry Stevens Sons & Co., Macon, Ga.
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Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.

Dominion Sewer Pipe Co., Swansea, Ont., Can.

The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.

LISTEN

to British Columbia Clay Products Co., Vancouver, B. C.

Send for Catalog No. 27.



PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

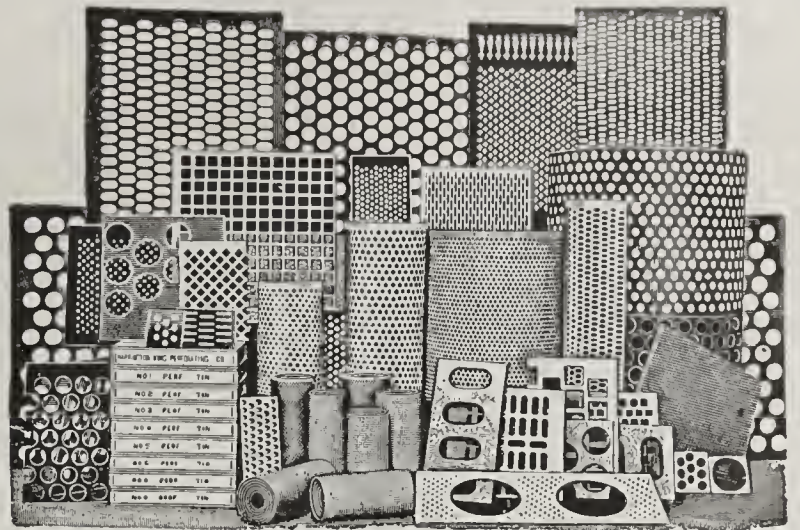
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



YOU ARE HEREBY INVITED

to turn over to us any clay drying trouble of which you may be possessed.

LOOKING FOR TROUBLE—

drying trouble—is our business. If you have any of that nature you'd be glad to be relieved of, we'll accept it cheerfully and, for a reasonable remuneration, relieve you of it **PERMANENTLY** and to your **ENTIRE SATISFACTION**.

We have solved drying troubles for the leading brick plants in the middle west. We can solve yours for you if invited.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

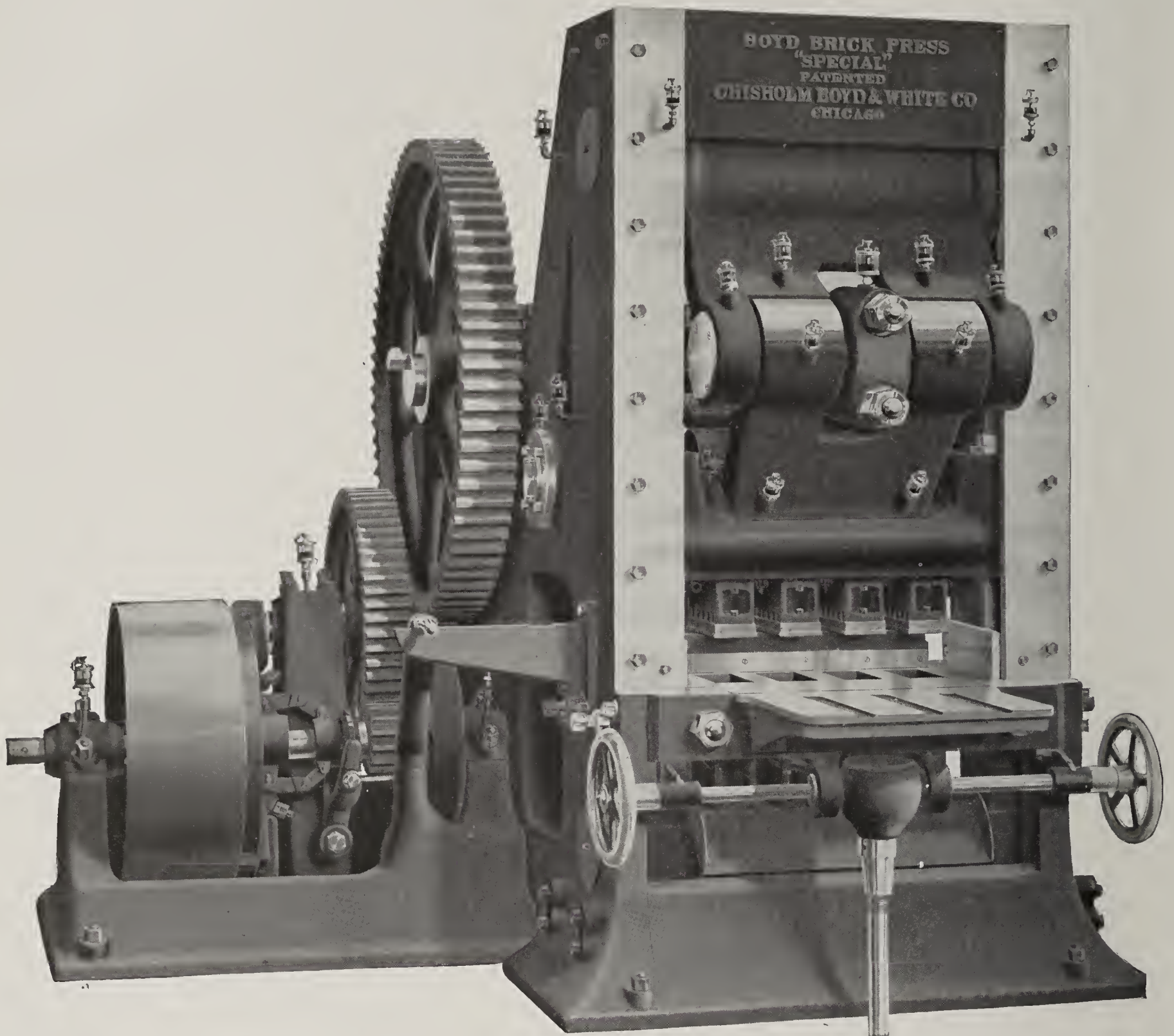
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.

BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

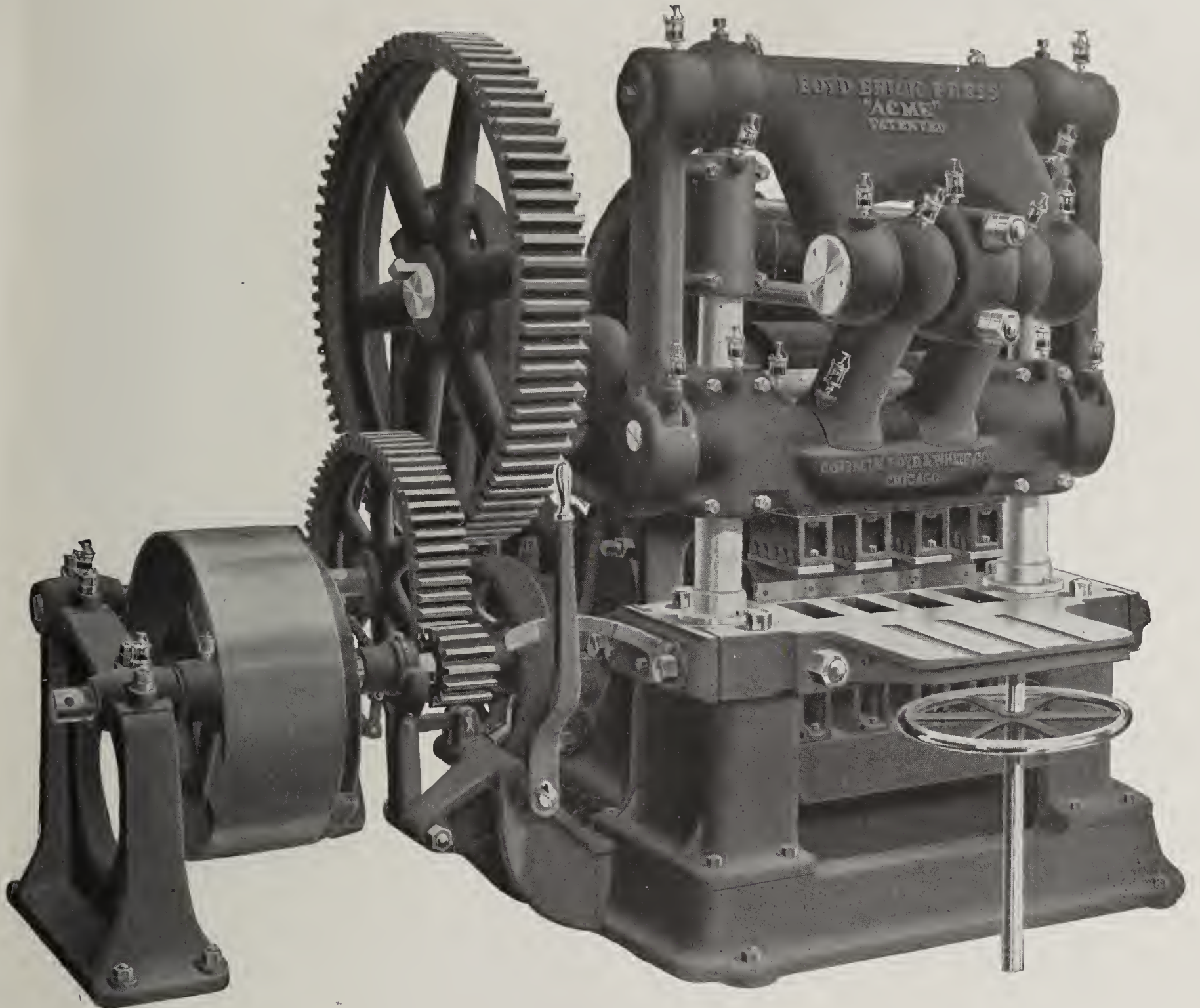
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

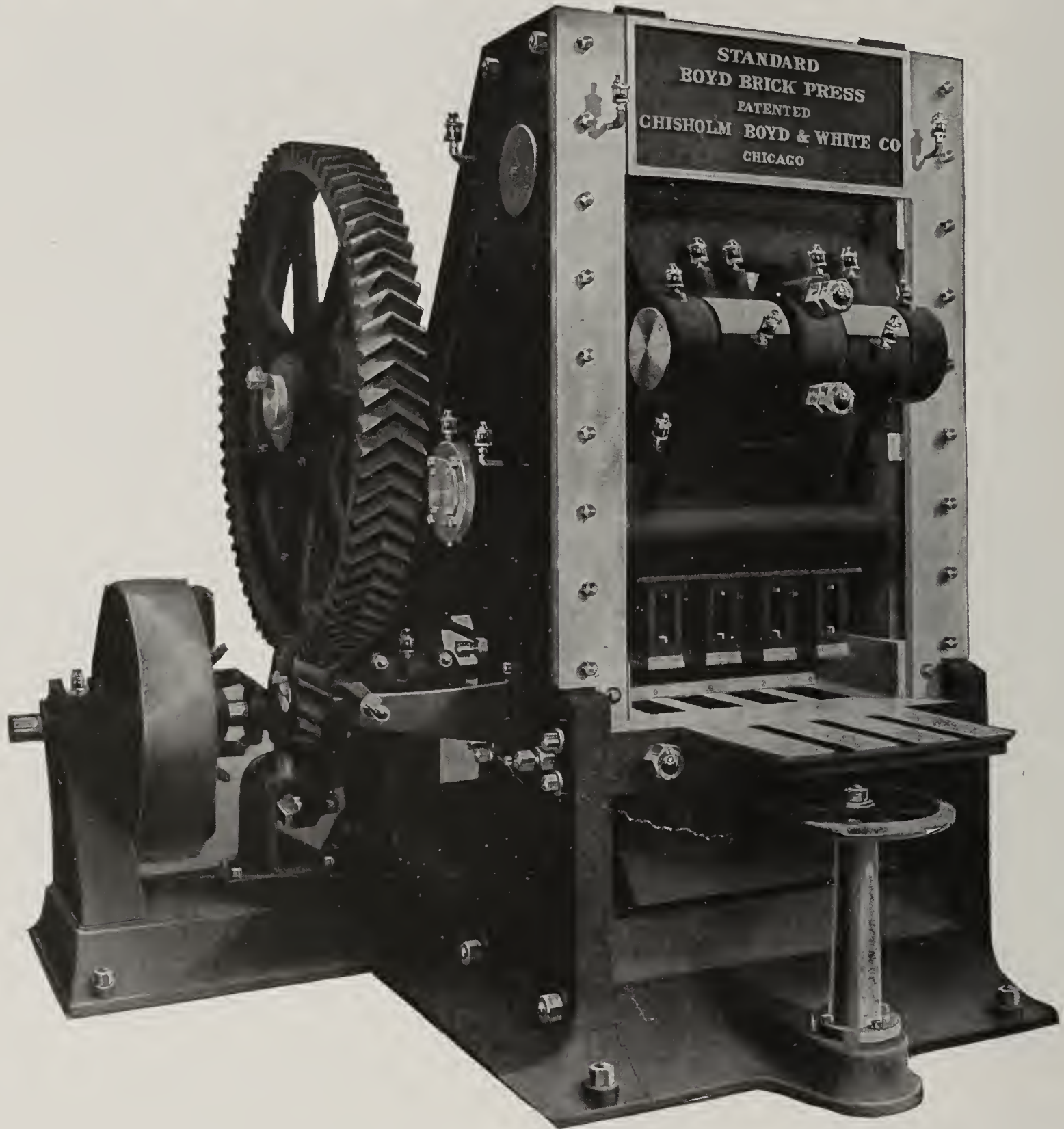
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.

STANDARD BOYD BRICK PRESS.



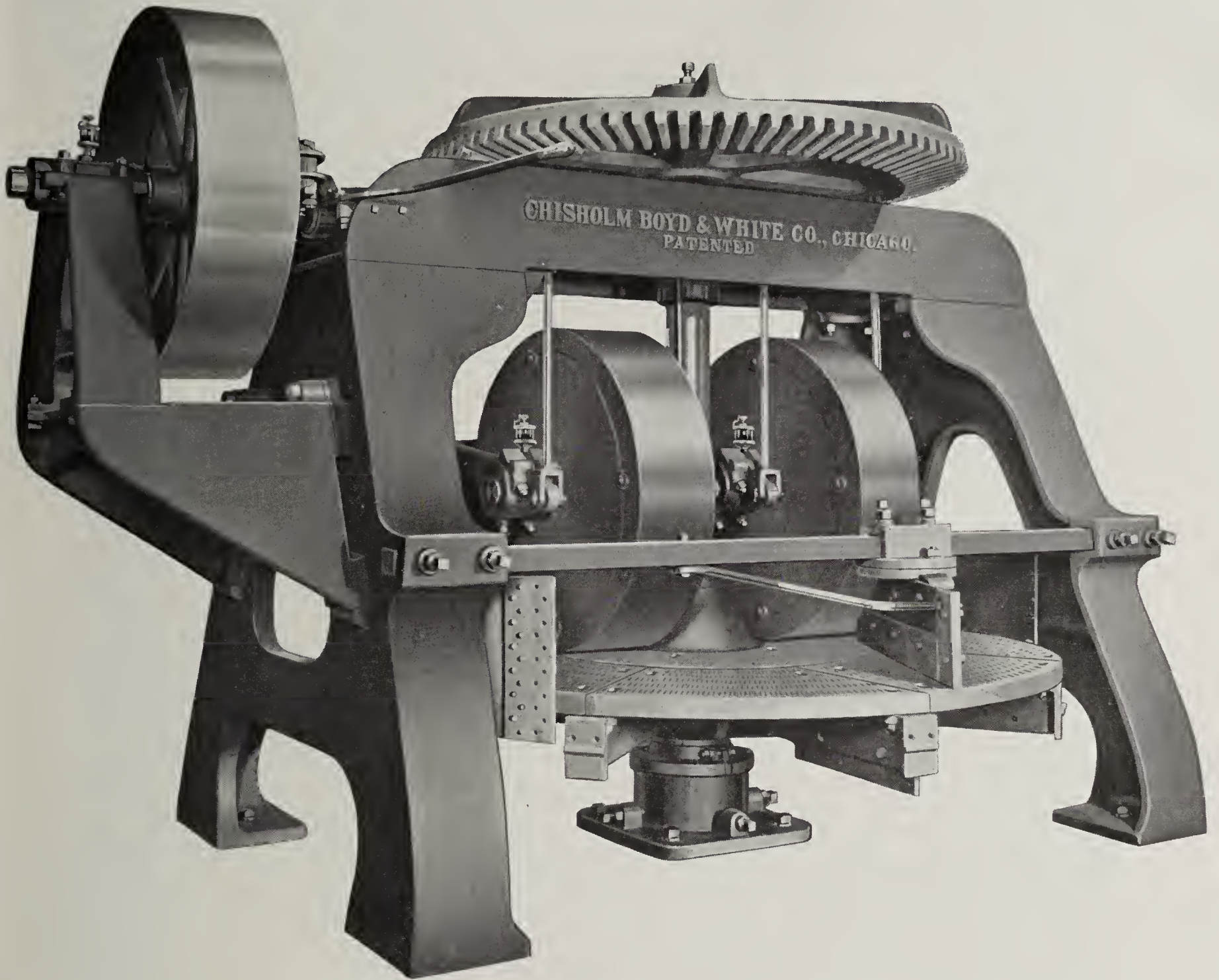
OUR NEW STANDARD BOYD BRICK PRESS
Is the Limit of Perfection in Brick Pressing Machines.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Mention THE CLAY-WORKER.

DRY PANS.

BOYD QUALITY.



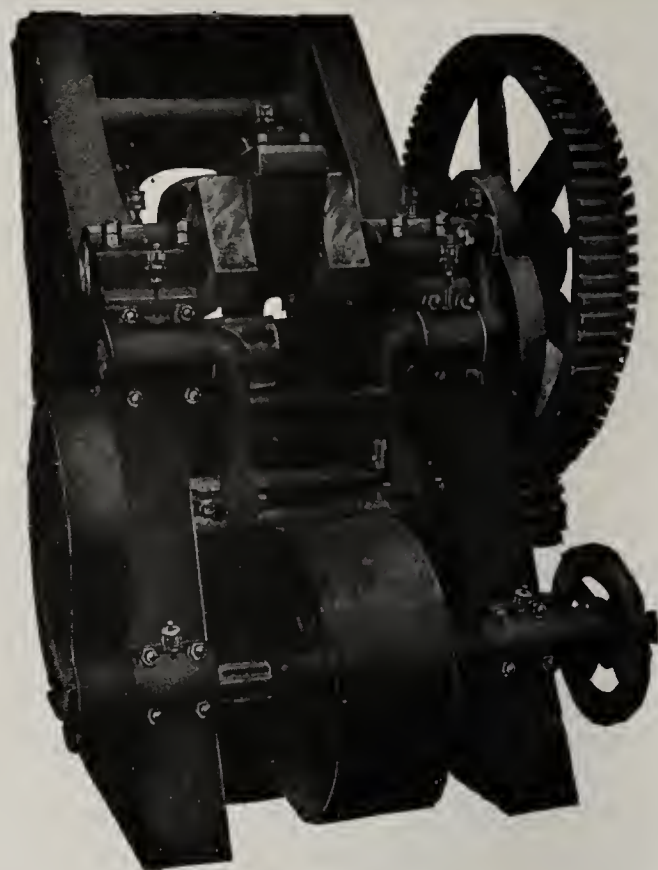
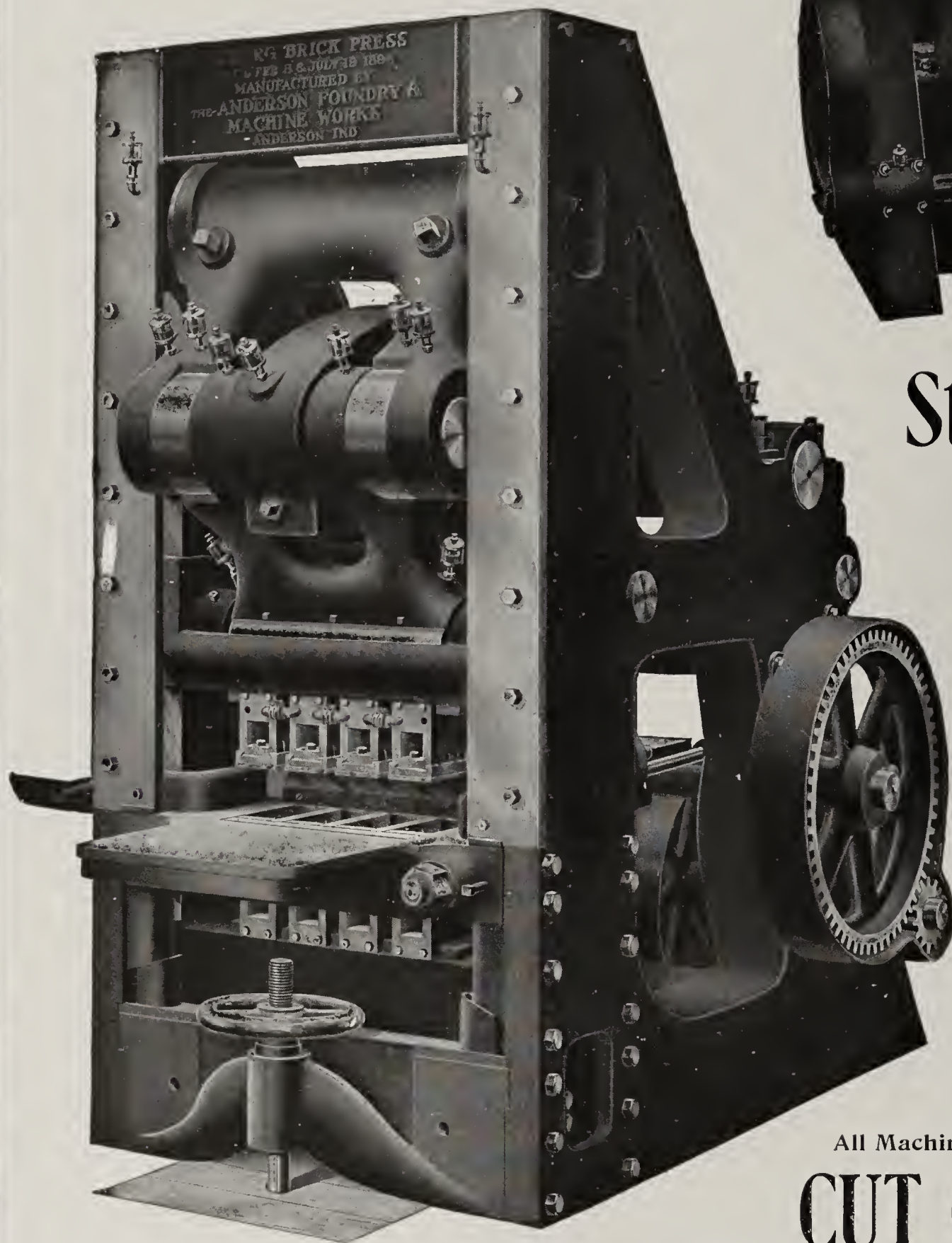
OUR NEW NINE-FOOT HEAVY DUTY DRY PAN.

For design, strength, durability and efficiency
this Dry Pan has no equal.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Mention THE CLAY-WORKER.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

All Machines Are Equipped With

CUT GEARING

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS,

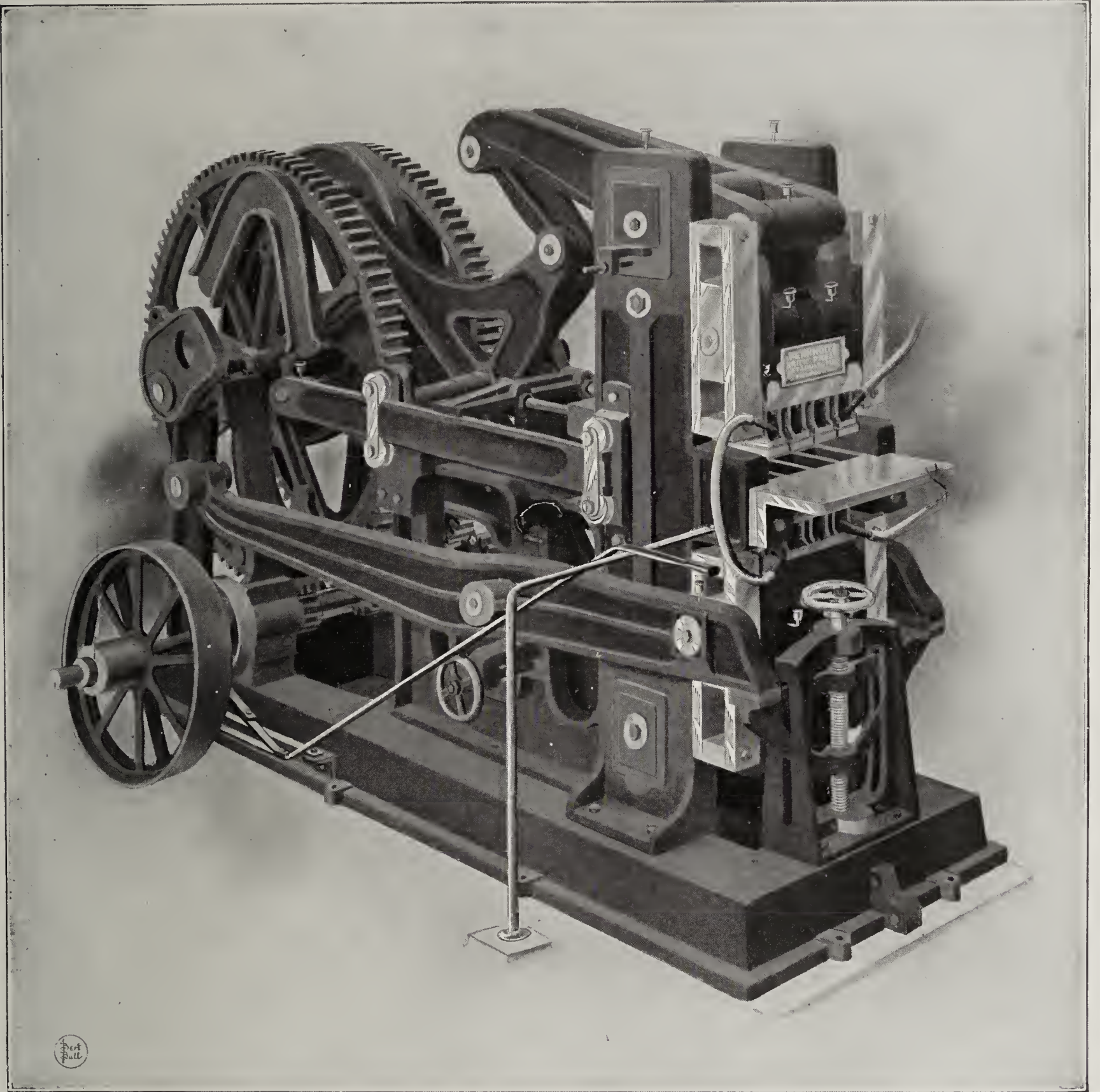
Manufacturers of Soft Mud Brick and Drain Tile Machinery,

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

The Fernholtz Brick Press.

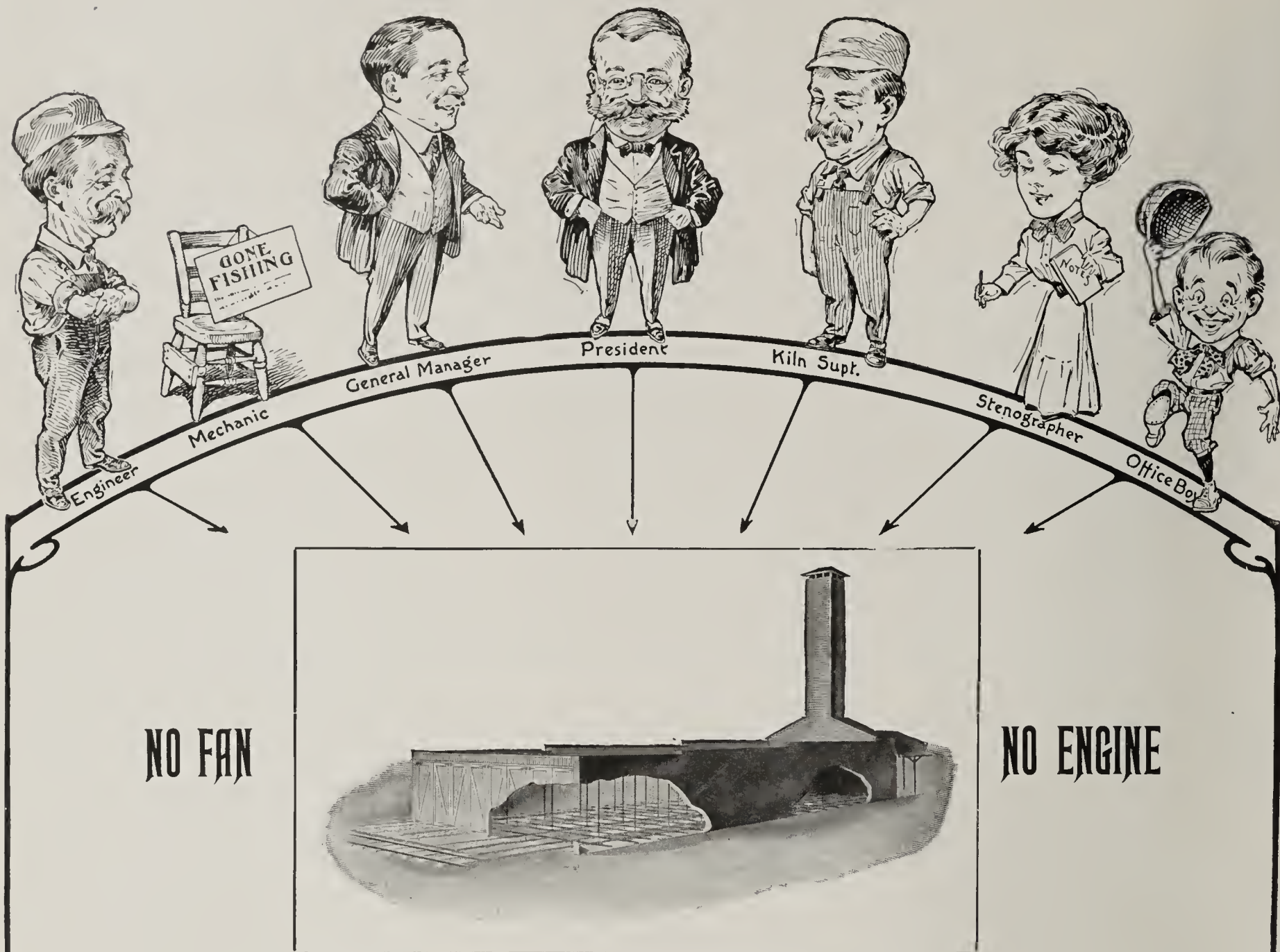
Simple—Durable—Economical—Guaranteed.



If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.



As far as **THE NATIONAL DRIER** is concerned your Mechanic can go fishing, and you need have no fear that your plant will be shut down. After you have examined the details of a National you will readily see how the above can be true.

Not only is it superior in mechanical construction, but its circulation and other necessary properties are under perfect control, and can be adapted to suit any of the various kinds of clay adapted to clay-made products.

The cost of operating The National is low as it uses exhaust steam daytime. The novel arrangement of the heating surface also enters into this low cost of operation.

Ask for our Detail Catalog No. 500.

We Manufacture a Full Line of Cars, Etc.

THE NATIONAL DRY KILN CO.

INDIANAPOLIS, INDIANA





Greetings, 1911

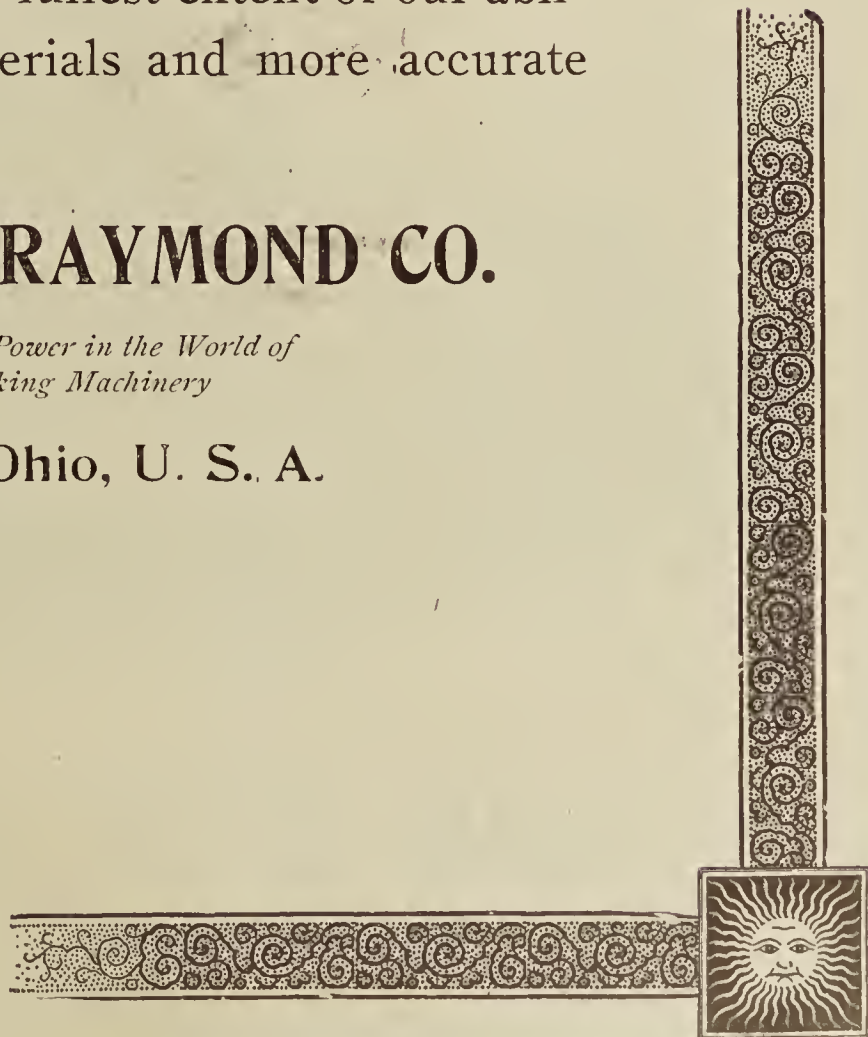
We greet you this glad New Year, from our new factories, wishing you every happiness, health and prosperity.

We are now equipped to further your interests with rapidity and promptness, and assure you that our resolution is to make better machinery than ever before and serve you to the fullest extent of our ability, giving you better materials and more accurate artisanship.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.



Berg Dry Press

Added to the magnificent line of Raymond machinery, is the well-tried Berg Dry Press, which for years has been recognized as the standard by which all dry press machinery has been built.

Its Salient Points Are

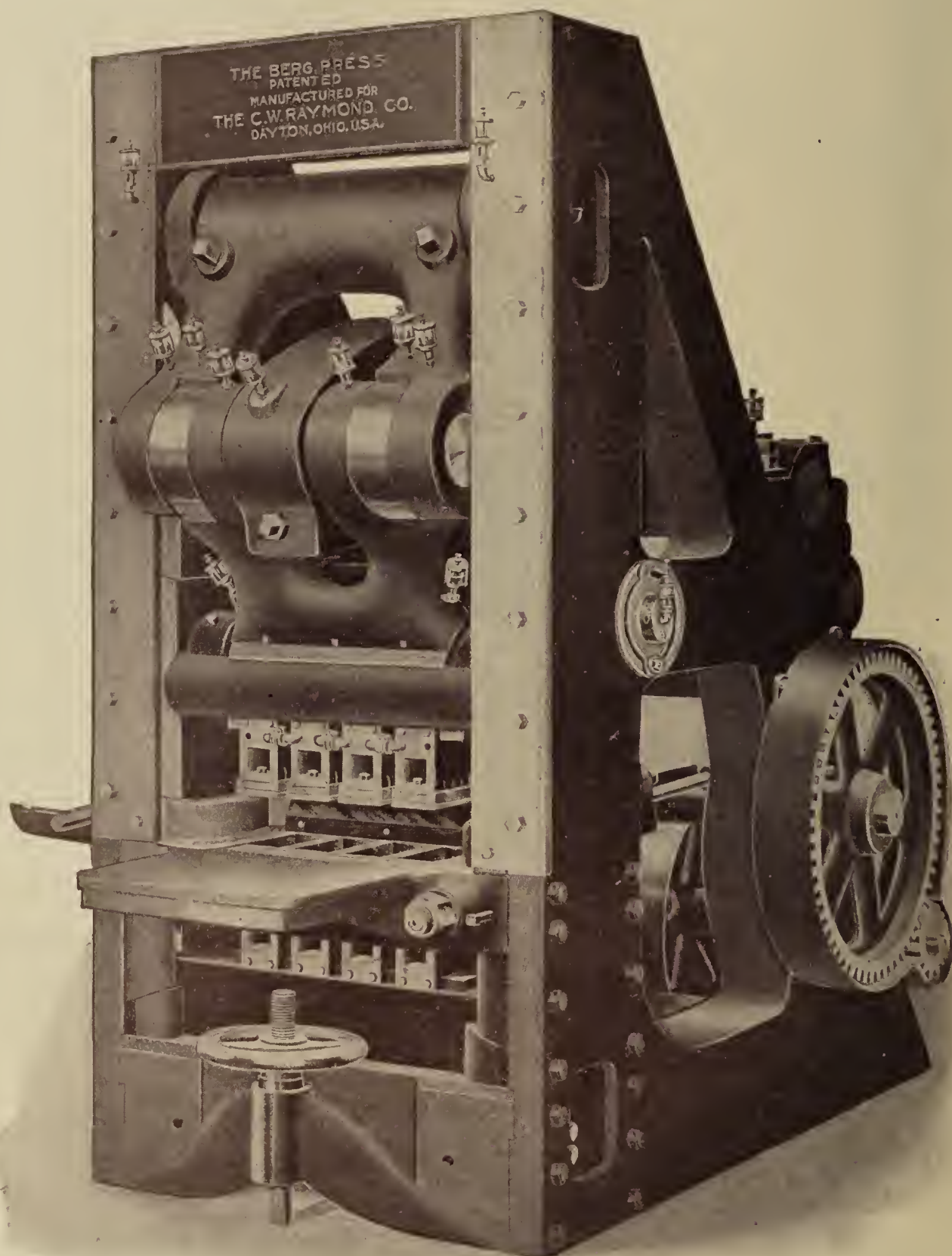
All presses equipped with cut gearing.

Each machine shipped in one piece.

It gives the brick three distinct pressures.

Its compactness insures strength.

All of the Berg working parts are above the clay line. Exhibit No. 2111 enters into detail of its construction.



THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

Dayton, Ohio, U. S. A.

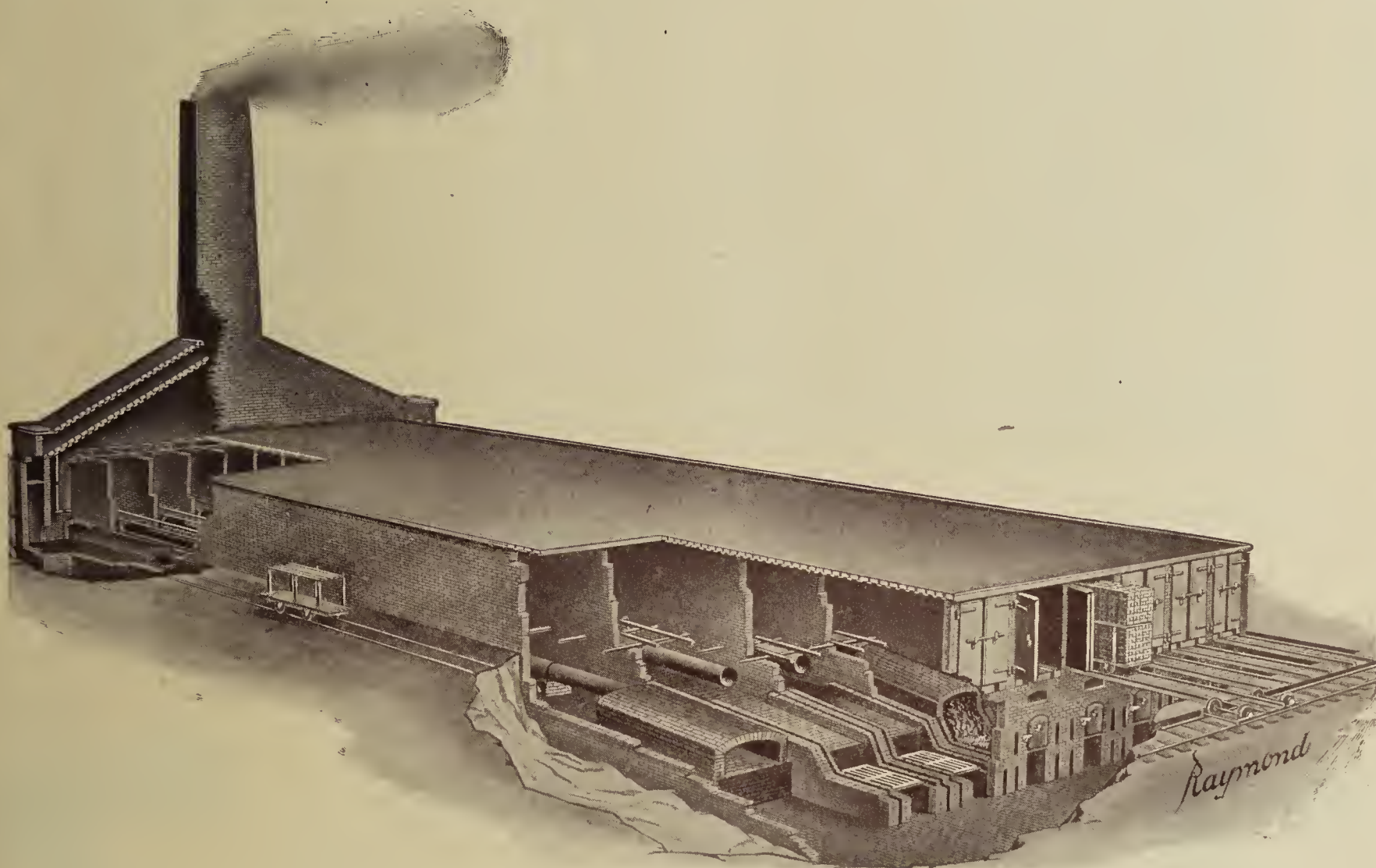
The Raymond Radiated Heat Dryer

The Raymond Systems of drying Clay Products represent the highest ideal and approach perfection as near as human effort can do.

Their practical use has thoroughly demonstrated that the careful handling of the tenderest materials is accomplished by the draft and furnace control, assisted by uniform radiation and evenly tempered air.

The results obtained are the same in the drying of roofing tile, hollow ware, face brick, paving brick, drainage tile or any other products of plastic clay.

Write for exhibit sheets covering our drying systems.



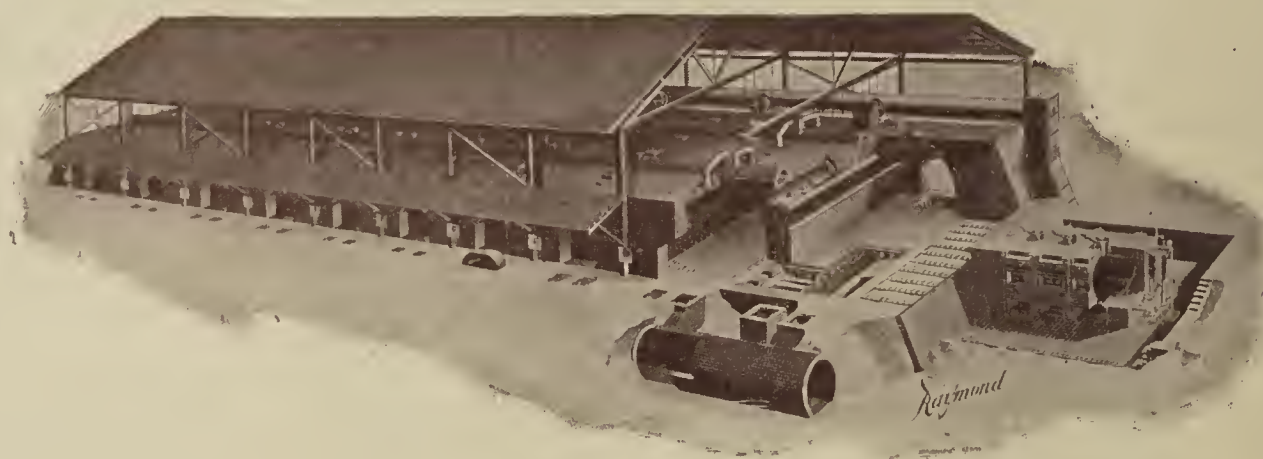
THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

Mention THE CLAY-WORKER.

The Youngren Continuous Kiln Producer Gas Fired



MAGNIFICENT results are being daily obtained from the many installations of the Youngren Kiln. Not only is its economy of fuel the paramount result, but the uniformity of the burn as well as minimum kiln losses tend to greatly increase its efficiency under all conditions.

It is not only burning all of the principal products made from plastic clays, but successfully handling materials heretofore thought unfit for clay products' use.

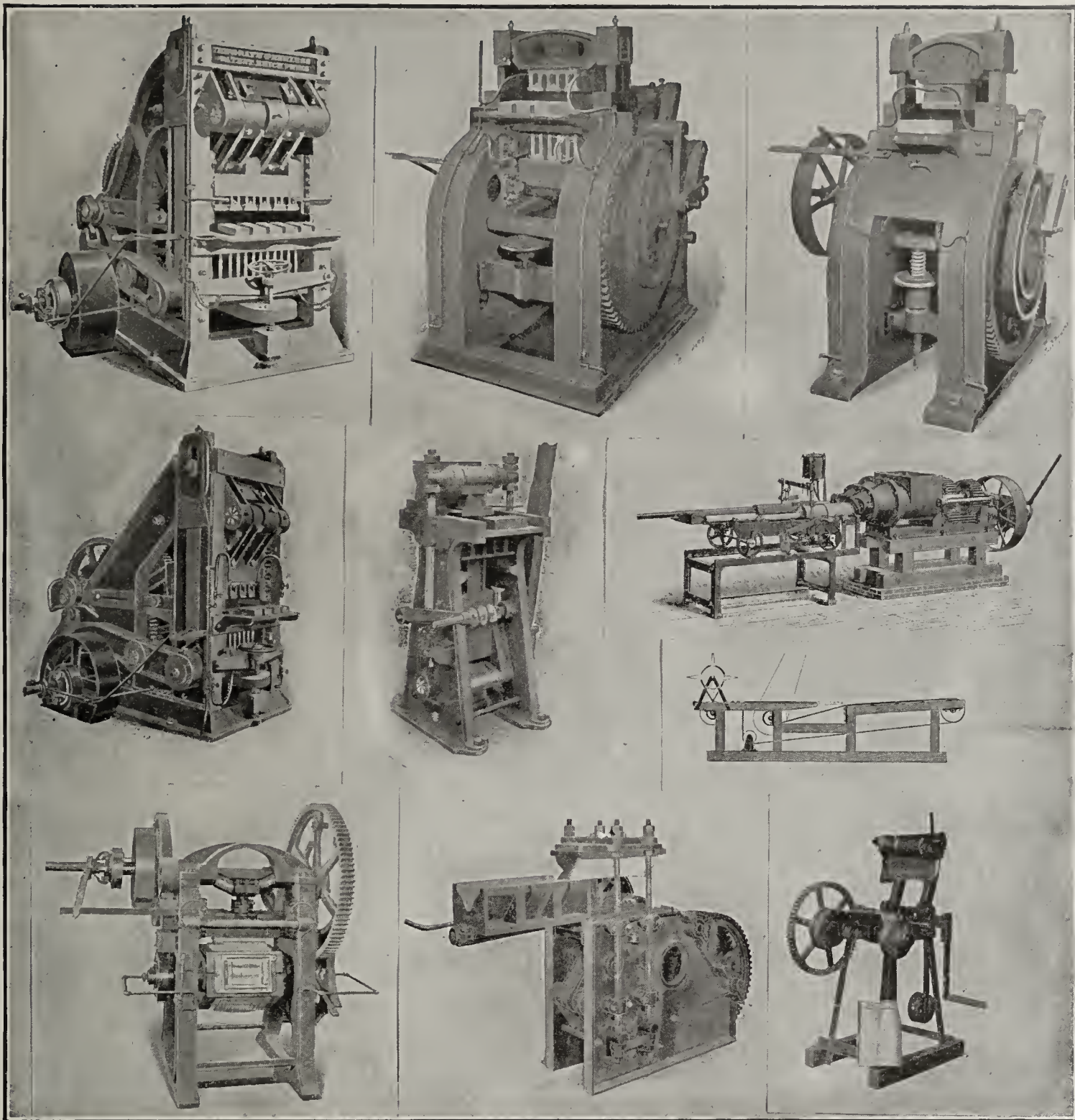
*Catalog covering the Youngren Kiln will be mailed
on receipt of your request.*

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

We Have the Best and Most Practical Brick
Presses and Roofing Tile Machinery.



OUR PRICES WILL SUIT YOU.

Press Brick and Roofing Tile Machinery. All Guaranteed
Against Breakage and to Give Satisfaction.

Get Our Prices Before You Buy.

To get best results with least fuel use

SCHURS OIL BURNERS

for burning Brick and all Clay Ware, also for
Boilers or any place where a clean heat is
wanted.



NO. 1.

FOR DOWN DRAFT.

THE MOST PERFECT OIL BURNER.



NO. 2.

FOR UP DRAFT

Write for prices and full information and catalog.

Illinois Supply & Constuction Co.

CENTURY BLDG., ST. LOUIS, MO.

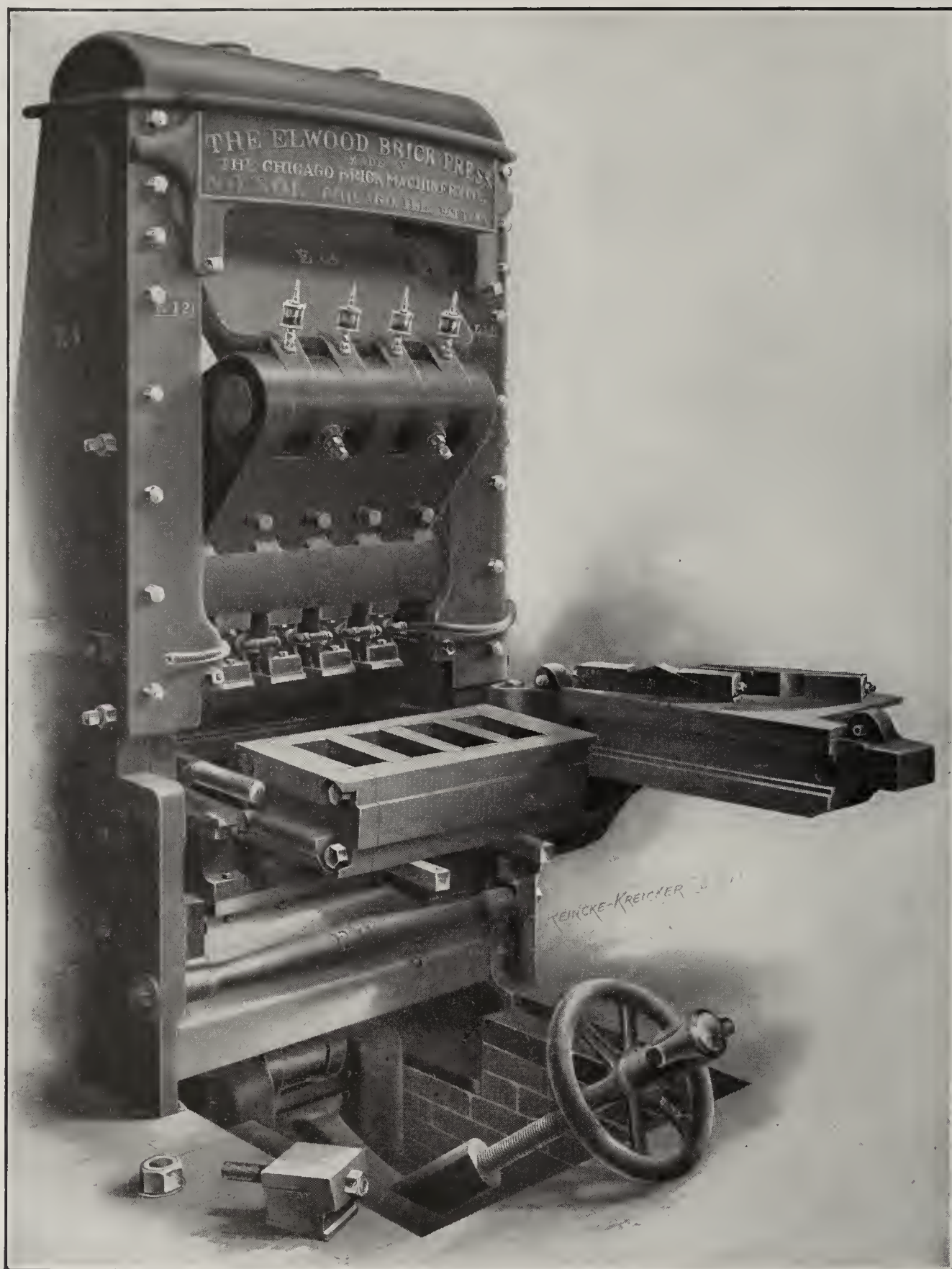
Lieber's Code.
Cable Address,
GRATH, St. Louis.

Long Distance
Phone
Bell, Main 235.

Mention THE CLAY-WORKER.

THE ELWOOD PRESS

"THE OPEN DOOR"



The easiest method of changing molds is by the use of our **OPEN DOOR MOLD TABLE**. Two interchangeable mold boxes furnished. Simplest of all Presses. Send for our **NEW BOOKLET** showing the 1911 improvements.

CHICAGO BRICK MACHINERY CO.

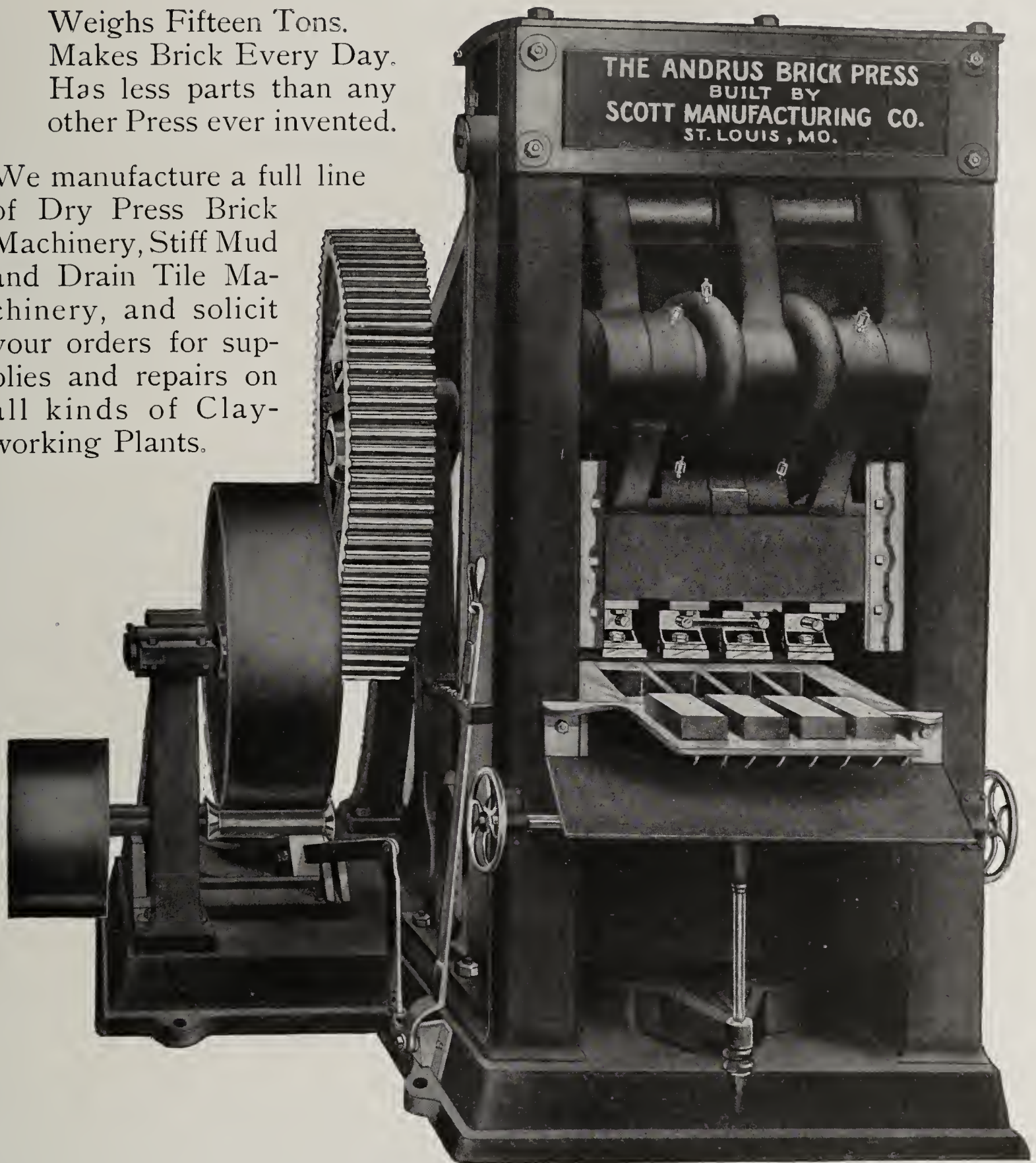
77 Jackson Blvd., Chicago.

Mention THE CLAY-WORKER.

The Andrus Brick Press

Weights Fifteen Tons.
Makes Brick Every Day.
Has less parts than any
other Press ever invented.

We manufacture a full line
of Dry Press Brick
Machinery, Stiff Mud
and Drain Tile Ma-
chinery, and solicit
your orders for sup-
plies and repairs on
all kinds of Clay-
working Plants.



Scott-Madden Iron Works Co.

Works:
Rushville, Ind., and
Keokuk, Iowa.

Third National Bank Bldg.

ST. LOUIS, MO.

ALL THINGS COME TO HIM WHO WAITS

Whoever said that was a back number—a dusty member of antiquity. It is not a text which appears in the business curriculum of the modern man who does things.

What's the use of waiting?

In these piping days of fast progress to wait is to be a tailender—a spectator on the line of march of the live ones.

This brief preface is simply apropos to what we are about to speak of at more length.

For many months past we have used considerable space in this magazine explaining and illustrating our mechanical device for conveying, by natural gravity, brick, paving blocks, tiling, etc., between any two given points—a device which has proved successful beyond expectations because of its extreme practicability, enormous saving in expensive labor and surprising economy of operation.

Publicity has brought results—brought us a great many actual orders and stimulated country-wide interest in our simple but effective method of handling these commodities. We may truthfully add that more orders have been placed on our books the past year than in any previous period of our existence.

At one time we were ninety days behind with our orders, in spite of the fact that we were constantly increasing our factory capacity.

Now, to the point!

We know there are hundreds of brick manufacturers who realize they will have to install our Carrier System sooner or later, and it is to these we are going to point the warning finger.

This is the quiet season of the year. Now you have time to study your business in the light of a past year's output, and make comparisons with your competitors; to study your equipment with critical eyes and locate the leaks.

Therefore, this is the proper time to order a Mathews Gravity Brick Carrier System for your plant. Put the problem up to us and don't worry any more about it. You no doubt have had your mind made up to do this, but you have said to yourself, "There's no need to hurry."

Let us respectfully contradict that thought; it is expensive procrastination.

You are approaching the near time when you are going to want a Carrier System badly—so urgently that you won't want to wait, and when that time comes you will regret not having placed your order well in advance.

PLACE YOUR ORDER NOW FOR DELIVERY ANY NUMBER OF MONTHS AHEAD, SO IT WILL BE READY WHEN YOU REALLY NEED IT.

Orders are all numbered and filled as booked.

Don't wait—now is the time to make up your mind.

Write us at once. Advice, plans and estimates submitted on short notice.

MATHEWS GRAVITY CARRIER COMPANY

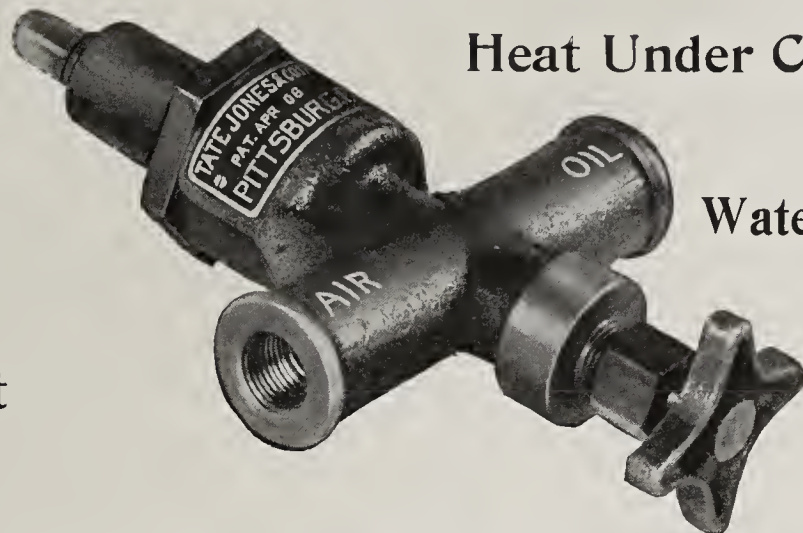
ST. PAUL, MINN., U. S. A.

Fuel Oil Burners *for* Brick Kilns

No Fuel Waste

Easily Cleaned

Nothing to Rust



Heat Under Complete Control

Watersmokes Perfectly

Easily Regulated

No. 6 Oil Burner for Brick Kilns



Federal Betterment Co.'s Plant at Cherryvale, Kan.,
equipped with Kirkwood Oil Burners

Give us number and type of kilns and number fire openings, also price of coal, and we will give you estimates on equipment.

TATE, JONES & CO., INC.

ENGINEERS PITTSBURG, PA. MANUFACTURERS

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:

"Directions for Laying Brick Street Pavements."

"Why Vittrified Brick Street Pavements Are the Best."

"Proper Construction of Brick Street Pavements."

"Why Should You Pave at All?"

Address **WILL P. BLAIR**, Corresponding Secretary, 522 Board of Trade Bldg., Indianapolis, Ind.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa.

Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

KUSHEQUA

Highly Vitrified by Natural Gas.

Tough Paving Blocks, Beautiful in Color and Finish.

KUSHEQUA BRICK CO., Kushequa, Pa.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. - Streator, Ill.

Thurber Vitrified Paving Brick
and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.

Arthur S. Goetz, Agent,

Factory at Thurber, Texas.

Ft. Worth, Texas.

THE DECKMAN-DUTY BRICK CO. Paving Brick and Block.

Annual Capacity 30,000,000.

Plants, Collinwood, Ohio, Carrollton, Ohio, Malvern, Ohio.

Offices, Electric Bldg., Cleveland, Ohio.

The Danville Brick Company, Manufacturers of the Unsurpassed Danville Paving Block.

Danville, Ill.

LET US QUOTE YOU PRICES.

PROMENADE TILE

Chocolate Red

Highest Vitrification—Lowest Absorption.

BEST BY TEST.

KUSHEQUA KERAMIC COMPANY,

Kushequa, Pa.



All persons are warned against INFRINGEMENT.

FISKE & COMPANY, Inc.

BOSTON.

NEW YORK.

VITRIFIED PAVING BRICK.

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of \$2.00.

T. A. RANDALL & CO., Publishers, Indianapolis.

Tile Underdrainage.

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.



Best Paving Block Made

DAILY OUTPUT

500,000

The Metropolitan Paving
Brick Company
CANTON, = OHIO

Terre Haute Vitrified Brick Co.,

Manufacturers of

High Grade Vitrified

PAVERS.

Samples Free.

Address

Terre Haute Vitrified Brick Co.,

Arcade Building, Terre Haute, Ind.

Marion Brick Works

Montezuma, Ind.

MARION PAVERS

A Strictly High Class Paving Block.

Also

FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.

R. D. CULVER,
Pres. and Gen'l Manager.

L. A. CULVER, JR.,
Sec. and Treas.

The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

Office and Works: Clinton, Ind.

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

(C. A. Bloomfield, Treas. and Manager)

P O. Box 413.

METUCHEN, N. J.

J. G. BUTLER, JR.,
President.

CHAS. M. CROOK,
Gen'l Manager.

Bessemer Limestone Co.

Youngstown, Ohio,

Manufacturers of

BESSEMER BLOCK,

An unexcelled repressed shale paver.

Correspondence solicited.

The Purington Paving Brick Co.,

of GALESBURG, ILLINOIS

HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

Correspondence respectfully solicited.



THE average sort of drier is equipped with the average sort of heating system—

The success or failure of your drier hinges largely upon the success or failure of your heating system, therefore—

Look well to the heating system!

The Standard Heating System

is unique in the number of important features of superiority it possesses;—

The above illustration shows one of these features, viz., the novel construction of The Standard Pipe Rack which makes each pipe get-at-able without disturbing the adjoining pipes.

This cut also shows how The Heating System is supported by steel ties which extend the entire width of the building, the ends beings imbeded in the walls on each side, thereby increasing the stability and locking the entire system into one compact unit.

The several other unique features of merit embodied in The Standard Heating System are fully described in catalog which is sent free on request.

The Standard Dry Kiln Co.

Harding and McCarty Sts.

Indianapolis, Ind.



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DESIGN SHOWN BY
HYDRAULIC-PRESS
BRICK COMPANY, OF
CHICAGO, AT THE
EXHIBIT OF THE
CHICAGO ARCHITEC-
TURAL CLUB, 1910.

OUR IMPRINT ON
OUR PRODUCT
GUARANTEES ITS
QUALITY.

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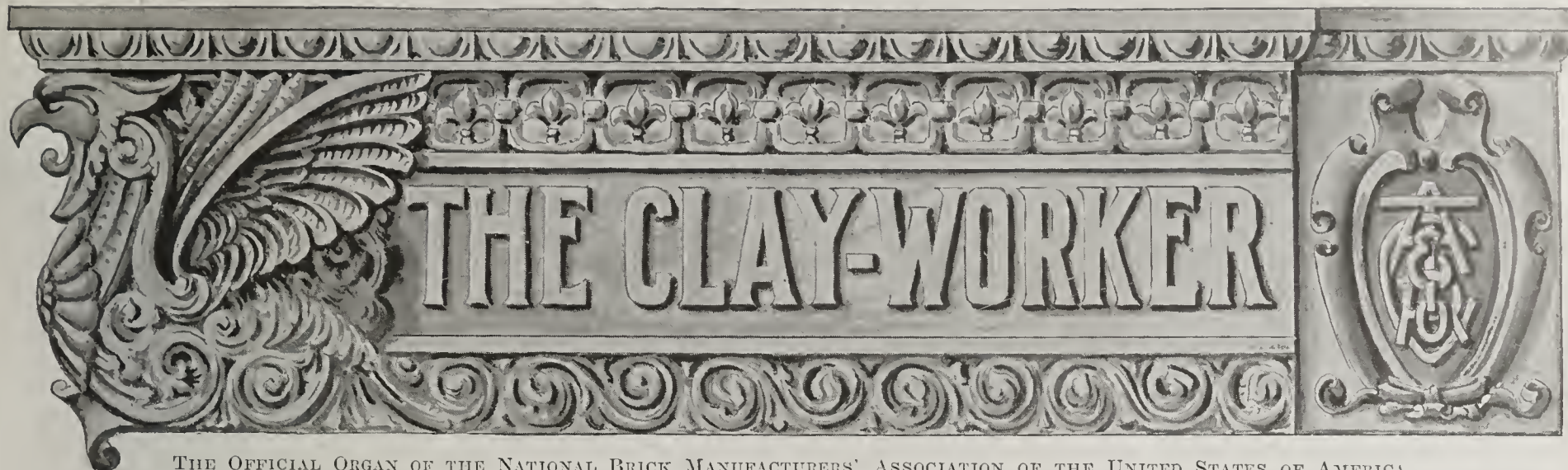
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No. 1.

Written for THE CLAY-WORKER.

THE CONVENTION CITY.

Interesting Features of the Blue Grass Metropolis, Where
Members of the N. B. M. A. Will Be Entertained
February 6 to 11.

LOUISVILLE, which is to be the mecca for all brick manufacturers during the week of February 6 to 11, inclusive, is the metropolis of the famous Bluegrass State of Kentucky, and it is both a border land and a gate-

census report. This does not sound very large. In fact, it did not sound large enough to suit the people of Louisville when they read the report, and a committee went to Washington with a view to having a recount, but finally decided to accept the verdict of the Census Bureau and to get busy adding to the growth and development of the city, so that such disappointments as resulted from the last census report will not happen again

A City with a History.

Historically, Louisville is said by some to date from 1773, when Dr. John Connolly and Thomas Bullitt made a survey



A Glimpse of Louisville's River Front, Life Saving Station in the Center.

way city. It is deeply and typically southern in sentiment, but it is situated right at the edge of the border land between the old South and the old North, and it is the gateway and concentrating point between the north and south sections of the great eastern half of the United States. It is a city rich in historic memories and associations, as well as in business enterprise, and is probably more widely known even than some of the larger cities of the country. Its population is 223,000 and some few hundred souls, according to the late

and located some land around the falls in the Ohio river, which even today characterizes Louisville, Jeffersonville and New Albany as the Falls Cities.

However, the real settling of Louisville is by most authorities accredited to General George Rogers Clarke, who was sailing down the Ohio river in the spring of 1778 with a lot of raw recruits and immigrant families. He found it necessary to make a landing so that he could drill and discipline his soldiers, and selected a location at the falls for that pur-

pose, where he landed, drilled his soldiers and got them in order. Then, after a month, he took his fighting force and moved on down the river, but the immigrant families remained, and these families became the real founders of Louisville, which was christened after Louis XVI of France. It was, however, in April, 1779, that those who had come with General Clark and others arriving later appointed a commission to lay out and formally establish the town of Louisville, which was done by making one street along the river bank and twelve cross streets at right angles.

Between Two Rivers.

The city of Louisville extends up and down the south bank of the Ohio river for quite a number of miles and then southward into the hills and highland resident district and the river at the west end of town makes a bend, so that it really covers two sides. The city proper does not extend to the east bank of the river down the bend, but there is located along the bank at the east end an excellent public park, two summer gardens or amusement parks and the new State Fair grounds. The total area covered by the city of Louisville is given as 15,646.85 acres, or 24.45 square miles. Its property valuation is \$171,000,000. There are about twenty parks in all, counting large and small, with a total acreage of 1,600, with about eighteen miles of boulevard connecting them.

Convention Headquarters.

The Seelbach Hotel, where the convention headquarters will be, is generally admitted to be the finest outside of New York City, and by some it is claimed to even excel in appointment and service the best hostleries of New York City. Its rathskeller is a dream in artistic clay products, which it would be impossible to describe in a few brief words. One must see the place, with its arches and elaborate capitals, to appreciate their beauty, and it is to be hoped that every man and woman attending the convention will take in thoroughly the beauties of artistic blending of clay products which are to be found in the rathskeller and the corridors leading to it.

The hotel is beautifully located for the convenience of visitors, because near it within from one to three blocks are all the principal theaters of the city, the postoffice and the city's finest department stores. There are three theaters within two blocks—Macauley's, which stands highest on the list; the Masonic, which books the Shubert attractions, and the Mary Anderson, with Keith's high-class vaudeville. There are numerous other theaters and moving pictures within walking distance—one right around the corner.

The Shopping District.

Right across the street from the Seelbach is Louisville's greatest department store, which will hold attractions for those bent on shopping, and on the corner to the left is one of the old landmarks of Louisville, a colonial church, presided over by Dr. Powell, that is one of the most noted historic structures in Louisville. Up and down Fourth avenue,

on which the hotel fronts, are practically all of the principal retail stores of the city, and about three blocks out is the new public library, which is the result of the generosity of Andrew Carnegie.

Architectural Features.

In architecture Louisville does not run to skyscrapers like Chicago and New York, but it does boast of some of the high-



A Familiar Scene in The Convention City.



Overflow From the Tobacco Ware Houses on Main Street.

est class of architecture. There are to be found in the business district samples of solid brick construction, steel construction with brick and terra cotta face, concrete construction with brick face, and east on Broadway, within walking distance of the hotel, is the new Presbyterian Seminary, which is readily acknowledged as being the finest piece of architecture in Louisville and one of the finest in the world.

Out west and north of the hotel a few blocks is the great armory, which is one of the most remarkable buildings in the country because of the magnitude of the roof trusses and the great floor space supplied under a single roof.

Then, for the benefit of those who are particularly interested in educational matters, which is quite a hobby with many clayworkers, there is offered an opportunity to view what is considered the most modern and up-to-date school

there anyway, and it is especially urged that those who are interested in schools and school buildings make it a point to visit this newly completed structure.

Peculiar Characteristics.

In the way of unusual sights for the visitor from other parts of the country Louisville furnishes its fair share, including everything from tandem mule carts with a darkey driver to the biggest tobacco market and the biggest wholesale whisky district in the world. On certain days in the fall and winter one of the strangest sights to the visitor unaccustomed to such surroundings is to take a trip down Main street, from Eighth to about Fourteenth street, where are located the principal tobacco handling warehouses, and see the immense quantities of tobacco in hogsheads being handled, sold and stored. And sometimes in the early winter there are not only warehouses full, but even the street is full of hogsheads of tobacco. From about Fifth or Sixth street on up Main street for about ten blocks is located the great whisky warehouses and wholesale establishments that give to the street a character not found in many other cities. But the most striking scene of all is that among the tobacco trade on West Main.

The Commercial Side.

While there are probably twenty-five other cities in the United States that excel Louisville in population, it is doubtful if any of them are more fortunately situated from a commercial standpoint than the gateway city of the South, and aside from the advantages of its location as the gateway of the South, there are some unique and distinctive features about Louisville commercially—some lines in which it excels. For example, it has the largest hickory handle manufacturing plant in the world, the largest plant making farm wagons exclusively, one of the largest box factories in the world, where more tobacco boxes are probably made than anywhere else. It is perhaps the greatest tanning center; it has one of the largest exclusive organ factories, and it is the home of the great Avery Plow Works, where not only plows, but a whole line of agricultural implements are made, and from which they are shipped in trainloads, and it is one of the great bath tub manufacturing centers. It leads all the South in the manufacture of sewer pipe.

The thing that will appeal particularly to the ladies attending is the fact that Louisville is recognized as the greatest shopping place of the South. Not only have the women of Louisville the reputation of being the best dressers, but this reputation is backed up by a shopping

prestige. Quite a number of women of Louisville make their livelihood shopping in the stores for customers throughout the South.

For its size there are probably more of what are known as purchasing agents who shop for people outside of Louisville than in any other city in the world, and while a part of this prestige may be accredited to their individual taste and



The Armory, a Great Brick and Stone Structure.



Fourth Avenue, Louisville, The Seelbach Hotel in the Background.

building the country affords, in the new Broadway school, just completed after plans drawn by Captain Brinton B. Davis. This school was formally dedicated December 23d and contains not only the most up-to-date ideas in the matter of arrangement and sanitation, but also some excellent clay products; among them being a doorway arch supplied by the Rookwood people, of Cincinnati. It is well worth a visit out

knowledge, part of it is undoubtedly due to the high quality of the offerings in the Louisville stores. This is one of the distinct features of Louisville that stands out almost as conspicuously as its tobacco district and other special characteristics that help make the city famous.

Side Trips.

In addition to the sights in Louisville proper there are a number of side trips that may be taken. There is an excellent interurban service connecting the city with New Albany, Jeffersonville, Anchorage, Jeffersonton, Bardstown, Shelbyville and in fact in nearly every direction there are electric as well as steam railway lines. Of course, the greatest of all side trips from Louisville is to see Mammoth Cave. It is only about 80 miles to Mammoth Cave, and the L. & N. Railway Company gives special attention to taking parties and running excursions on this greatest of all side trips to the cave. Every visitor to Louisville who has not seen Mammoth Cave should make it a point to take this side trip, because it is a sight that people come from half around the world to see,

Written for THE CLAY-WORKER.

ART IN BRICKWORK.

In the very great furor that has been aroused by the wide and judicious advertising of matt brick, the great serviceability of dry press brick has at times been obscured. Some would argue that a rough brick should be used under any and all conditions, for the sake of the artistic effect which their intelligent use unquestionably produces, but this stand often is not well taken. For instance, it seems to us that in the downtown district of a large and smoky city, where after two or three years all brick look much alike, it is a mistake to endeavor to obtain a wall tone resembling that of a Persian rug. The grime of the city soon reduces the warm color of the drawing-room to the dull monotone of the factory. This is especially true of rough face brick, which readily catch the dirt. Besides which, matt brick are the result of an attempt to approximate the rough brick which were popular for town and country use in mediæval times. To use



A Glimpse of the New Government Locks Near Louisville.

and as it is only a short trip from Louisville, it is an opportunity that should not be neglected.

POTTERY FROM OBERAMMERGAU.

Of particular interest to those who witnessed the passion play at Oberammergau last year was the pottery that has been imported from that village by an enterprising firm. It is made on simple, graceful lines, designed by the peasants themselves. This stock has the added value of coming from the shop of Anton Lang, who takes the part of Christ in the Passion Play. Each piece is carried out in rich, harmonious coloring (deep blue, russet red, yellow, dull green), and shows on its base the autograph of the maker, Anton Lang, written in bold white letters. The prices vary according to the size and intricacy of design, starting as low as 2s.

A two-piece mold by which poultrymen may make their own nest eggs from clay has been patented by an Arkansan.

them for the modern office building, in which are reflected the thousand and one marvelous achievements of modern engineering science, is to perpetrate the anachronism of applying fifteenth century methods to twentieth century conditions.

The strictly utilitarian office building of today requires clean-cut perfection in all of its appointments, and in none more than in its facing material. The same thing can be truly said of apartment buildings in crowded sections of the city—in fact, of any building of considerable proportions in closely built districts.

However, it is with particular reference to the panels of brick that are displayed in the frontispiece of this magazine, that we wish to speak. The Bokhara Red is made at the Hydraulic plant at South Park, Ohio, where is also manufactured the Blackstone Cherry Red. It has been used extensively around Chicago this year and has given general satisfaction. At first everything from a light red to black was furnished on the same job, but it was ob-

served that a harmonious wall texture could not be obtained by this service, and a closer sorting was made. Now only the red, bronze and brown colors are served. It is our strong belief that a wide variation of harmonious tones is permissible, but that great care should be exercised not to lay brick differing altogether in character. A notable feature of this brick is that there is not enough lip in the mattness to necessitate care in laying brick with proper side up, thus avoiding the blotchy wall surface given by some matt brick when not laid with the roughness all pointing in one direction. The most suitable mortar colors to use with this brick are gray, brown, black or a combination of black and red; red mortar "kills" the brick.

A very dark shade is also secured, which has found favor for use as quoins in connection with the regular stock.

The Brazil Matt shown is that used by Architect Howard Shaw in the Edward Morris residence at 48th street and Drexel boulevard, Chicago. This building is of English Gothic architecture, and by many considered the finest residence in Chicago. The brick are laid Flemish bond, and three-eighths inch white mortar joint used in the house, garage and fence, which runs along 48th street and the alley the entire length of the lot. The fence is broken into sections by Bedford stone posts and panels formed by a border of brick laid on end in each of these sections. A large amount

to pay dividends upon the water. Soaring prices is the result.

In 1908, he says, the railroads collected \$127 per family in transportation charges. The tariff toll was only \$15 per family. Last year the people paid railroad charges at the rate of \$6,885,000 a day. Every line of commercial endeavor pays its pro rata of tribute.

He demands laws more effectively to regulate railroad rates and to limit railroad and industrial capitalization, saying the railroad capitalization has increased 25 per cent. since the passage of the Hepburn bill, which prohibited rebates and passes.

The letter is calculated to make the public sit up and take notice. "The question that bothers the railroads," Barber declares, discussing his letter, "is not how much money they can make, but how much they can conceal." A copy of the letter can be obtained by addressing R. G. Collier, 8612 Wade Park avenue, Cleveland, Ohio.

LOOKING AFTER THE EQUIPMENT.

During the winter months, even though it is used less, the equipment in and about a clayworking plant requires more care and looking after than at any other time of the year, and it often suffers more from depreciation through neglect and rust and exposure to the elements than from all



The Presbyterian Theological Seminary, One of Louisville's Most Beautiful Structures.

of Bedford stone has been used in both the house and the garage.

To be given due justice, a brick of this character should be used only where the building has enough room around it to set it off properly. As is well known, one of the most beautiful matt brick houses in the country, a now famous residence in Washington, loses a very considerable part of its effectiveness because of its cramped surroundings. On a large lot, however, with a broad view, these brick make a residence of rare attractiveness and beauty.

FREIGHT RATES BLAMED FOR HIGH COST OF LIVING.

Ohio C. Barber, millionaire, head of the Diamond Match Company, of Akron, Ohio, takes a healthy swat at the proposed railroad rate increase in a remarkable letter sent December 2 to each member of Congress. Barber declares the present high cost of living is due principally to excessive freight rates and practices instituted by the railroads.

Half the railroad capitalization of \$18,000,000,000, he says, is water. This practice of stock watering, conceived by railroad manipulators has been followed by the industrial interests, and in consequence the American public is being taxed

the work during the busy season. Of course, there are some places where the work is carried on pretty well all the year and the equipment, as long as it is employed, receives a fair share of attention. At other plants where there is a shut-down of several months during the winter there is a natural disposition to let things go to rack and ruin. What plants of this kind need is special attention, given not only to the care of the exposed equipment, but also to overhauling and installing new machinery and putting things in order for the spring. One of the best arguments in favor of getting at this repairing and overhauling early is that it keeps some one on the job, and some one being on the job insures more attention to the care of equipment that may be left out and exposed. Also, of course, it insures having the plant ready on time in the spring. Make it a rule anyway to properly clean and house every bit of the outside equipment that you can. Have plenty of good storage or shed room, and have it good, too. Not merely an inclosure that leaks in the roof and snow can blow through the cracks, but have it a fit place to house the supplies, and when they are put in have them clean and put in good order, and when necessary give them a protecting coat of paint or oil to prevent rust. A few dollars spent at this in the early winter will save many dollars in new equipment next spring.

Written for THE CLAY-WORKER.

BRICKMAKING IN IRELAND.

Interesting Methods in Vogue by Brick Manufacturers of the Emerald Isle.



THE FIRST THOUGHT the readers of THE CLAY-WORKER may expect under the above title an account of primitive brickyards, where hand-work alone prevails, and the sound of the steam engine and whirr of machinery is unknown. But such is not at all the case, for the brick plants with which this narrative will deal are machine plants, quite modern in equipment. They are located near the great city of Belfast, sometimes dubbed the "Chicago of Ireland." It is a city of nearly half a million population and in general appearance, street improvements, public buildings, etc., compares favorably with American

brickyards in Ireland, I started early one morning for their last new one, called Prospect Brick Works. This yard is located along the Lagan river, and is close by several other yards. Besides there are also some yards across this river, all of which are of smaller capacity.

The clay is red in color and of a very plastic nature, and from the way it is dug out it seemed to me about twenty feet deep, though I think there is material below this, only they keep a certain depth, so as to retain the land for building purposes subsequently. This clay is dug in the winter season by hand and thrown upon a pile to weather. This weathering process reduces the clay to a very fine texture, and makes a sounder brick. This digging is done with very long spades, which take out, it seems to me, fully sixteen inches in depth of clay, and is dug piece-work, by the yard, the men making from \$6.00 to \$8.00 per week, or about £1 4s to £1 12s their money. While the digging is going on the top benches are wheeled on top of what is dug in the bottom. There are



New City Hall, Belfast, in the Construction of Which 7,000,000 Brick Were Used.

cities of the same size. To be sure, the skyscraper is as yet conspicuous by its absence, but in other respects the American visitor may well feel at home there.

One cannot help but be favorably impressed with Belfast, with its wide streets, beautiful buildings, which are mostly built of brick, with stone trimmings, and stone finish on the outside for some of them. It is surprising how much ornamental work is cut in stone, instead of using terra cotta, as is used in America, even at much greater cost. This city certainly has its share of ornamental work to beautify its buildings. Its streets are clean, and only for the Irish car and the language and method of expressing themselves, one would feel that he was in one of our hustling cities in America. As you know, my desire is to see how they make brick in the different cities and countries it is my privilege to visit, so I started out to see some of the yards there.

Knowing that H. & J. Martin, Ltd., had two of the largest

boys and women taking out the stones, which are very hard and of a limy substance, and what few are left in the material are reduced in the grinding so that they cannot break the brick, as they would if not treated in the crushing method they use, which is very effective, and which I shall mention later.

After the frost is gone in the spring brickmaking on these yards commences; the brick being dried mostly outside is the cause of their waiting, and the fact that the brick are made by what I would call a medium between our soft and stiff-mud processes, that is, they are a little stiffer than our soft mud, and yet not as stiff as our stiff-mud brick. The clay is taken to the machine by cars very similar to ours, only they are loaded very much higher, and while the clay is being loaded into the car there is some sand thrown in amongst it. I should say about 1 per cent. This sand, it is said, improves the quality of the brick, and also helps in the drying. Three

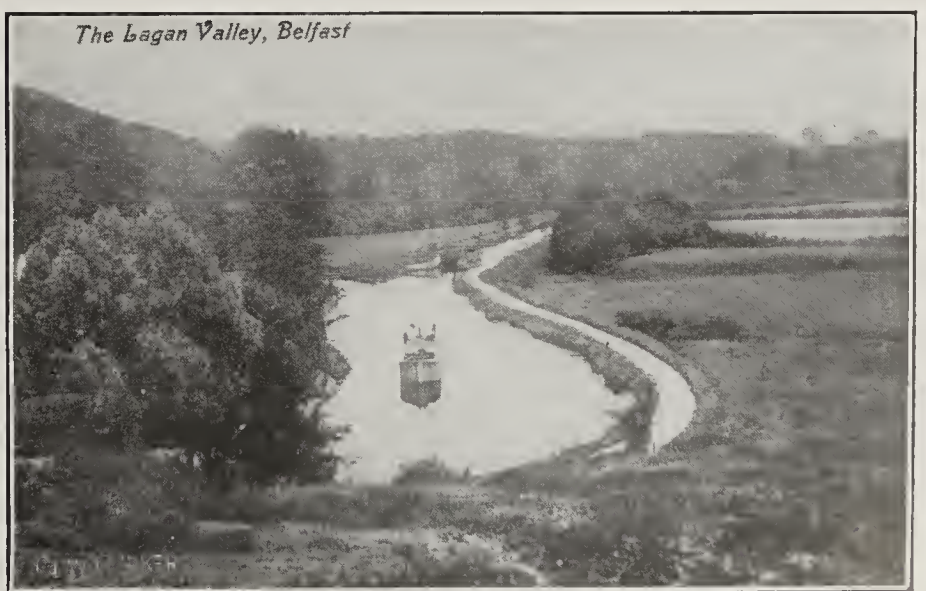


A Typical Irish Village of Today.

men help to load each car, and, depending on the capacity of the plant, they use three gangs of three each generally, two of them going with the car to the bottom of the incline track, which takes the material up to the top of the machinery building, and the other spreads the sand while they come back with the empty car. These three gangs can supply enough clay to keep two vertical machines at work, which will make in a season over 3,000,000 each.

Both these yards belonging to Messrs. Martin are two-machine yards, and when running full turn out of their size brick over 6,000,000 for each yard; the grinding machinery consists of practically three sets of rollers, though there are only five rollers, the two bottom ones are as close together as it is possible to get them and are turned up every season to insure good grinding, and travel at different speeds, very slow compared to our disintegrators. These rollers are about four feet face and two feet in diameter. The next pair above these are the same size and run at the same speed, and on top of one of these there is another roller, set a little back from the center of the other one, which really makes the material pass through three sets of rollers, though only five are used, and which certainly grinds this clay exceedingly well and economically. The clay, after passing through these rollers, falls direct into the vertical brick machines, which are about 30 inches in diameter, the shaft having knives similar to our soft-mud machines, except at the bottom it has what they call a wiper; the machines also have two deliveries, one on each side, and the brick are cut by hand, about eight at a time, and pressed onto a wooden pallet, being cut as the bar of clay is pressed through the wires. Two boys are em-

ployed on each side of the machine to operate the cutter and place the pallets on the barrow, which is a very light one, and made so that when the men that wheel the brick away get hold of it the brick are on a level surface; and here is where, it seems to me, there is a chance for our dryer men. These brick are then taken a very long distance from the machine as may be seen by the photo, to what is called the hack ground, which extends so far from the machine as to require some eight or ten men to get them to the furthest hack for drying purposes. This hack ground must contain some fifty acres of ground for each plant. The hacks are simply the ground raised about ten inches, with one brick laid on it for the green brick to rest on, and wide enough to have two rows on each hack, as shown in the picture. These hacks are covered with straw covers, very substantially made, about nine feet long and wide enough to come over both rows of brick at the sides. The framework of these covers is wood, and there are two lengths of straw used on each side to make the covering. Men are constantly employed making and repairing these covers. The brick are first laid three high, this being as high as they will carry their own weight at first. They are left this way for several days, depending on the weather, then they are top hacked, as it is called, that is, two more rows of brick are put on top of the others, which makes five brick high. Now, after standing this way till they are stiff enough so they can be handled without marking with the fingers, and till they will stand their own weight when turned, they are what is called turn hacked, which, by looking at the photo where the man is taking the brick to the kiln, you will see what they look like then. They are now seven high instead of five, and they have had the ends that were



Two Picturesque Scenes on the Lagan River, Near Which the Brickyards are Located.

inside of the hack turned to the outside and spaced further apart. In this position they dry very quickly, that is, when there is good drying weather, on account of the openings in the brick itself. Every one is perforated with from eighteen to twenty half-inch holes, and there being larger spaces between them, it is, however, necessary after they are turn-hacked, to put up what they call side covers, as if the wind is strong they will soon check at the ends. These side covers are about four feet long and about thirty inches high, made with laths nailed about one inch apart. You will see what is meant by several of the pictures, taken on the ground, as these are shown leaning up against the brick, both on the sides and also at the ends of the hacks. I should have mentioned ere this one of the most interesting parts of the work, which is the pegging off of the brick from the pallets to the hack.

In one of the pictures you will see one of these men with the fork with which he lifts every brick off the pallets and lays

dryers now, but only with moderate success, and to look at the construction of these dryers it is not surprising that they do not come up to what is wanted of them, but in looking over this material, which, no doubt, does require very careful handling in the drying part of its manufacture, it does seem that if some of our dryer men would take this matter up they could solve the problem. Look over these hacking grounds and think of the labor of getting these brick to and from these hacks to the kiln, see what a saving to the manufacturer there would be if a dryer was constructed where the brick could be put in at one end on pallets and taken out at the other, as is mostly done here. I do not want to say how they shall do this, but to me, when drying a tender clay, we generally have the dryers much longer. If these brick could be hardened just a little before they came down to the main heat they would stand as fast drying as any other. The main thing to do is to stop the checking. In the first stages of the drying, as stated before, even when dried outside, if they do



Clay Bank of One of the Martin Brickyards.

them on the hacks. This work is done with the smallest amount of loss, considering the condition of the brick, of anything I ever saw before, every brick being spaced as if done by some machine, and the corners are as perfect almost as if they had come through a repress. This work is done piece-work, the wages being about the same as the digging, that is, the amount a man is able to make per week. I do not remember what this is per thousand, though I was told at the time. Two men take care of one machine, which means that they peg off each about 10,000 of this size brick per day of ten hours' work. Just as soon as the brick are laid on the hacks it is this man's duty to see that they are covered, if the sun is liable to check them. I don't know what some of our brick-makers would say if they had to wait for from three to four weeks before they could even place their brick in the kiln to burn, which is the case with this material as handled now. I was told that several attempts had been made to dry this material in a dryer, and that some of them were even using

not keep them from the sun and wind, they are liable to lose a large number of them, and in a very short time. I have seen many very tender clays dried in different ways, and very successfully, which makes me think that here is a good chance for some of our dryer men, and a chance where it would prove profitable for all concerned, if they could dry these brick in a dryer. Many of these plants have dryers at work now, but the capacity of them is so small that it does not meet their requirements. They do, however, dry them without checking, what few they do dry, and it is a wonder, when you see the construction of their dryers, with the small amount of circulation, that they get anything from them at all. What they have got to look to first is to get good brick, that is, brick dried without checking; then they want capacity equal to their production, which, in my opinion, can be got by acquainting themselves with the nature of the material. The brick when burned are $9\frac{1}{4} \times 3$.

Going further, we come to the taking of the brick to the

kilns. This is done by wheeling them on regular brick wheelbarrows. These men take these brick from the hacks and set them in the kiln for 1 shilling and 6 pence, which is about 37 cents in our money, per thousand, the men taking the brick that are close to the kiln along with those that are farthest away. One of the pictures shows one of the men loading a wheelbarrow, and it also shows these side covers up against the next hack. It should be said that these side covers are put up against dry brick to keep the rain from beating in on them, also as if they get wet again after once being dried they check and the corners drop off of them.

Then we come to the burning, which on most of the yards is done in the continuous kiln. At the Prospect Works of the Messrs. Martin they have two of these kilns, one a continuous and the other a semi-continuous. They are both fired entirely from the top and were designed and built by Hervey Haigh, of Catskill, N. Y., some twenty-five years ago. One of these

the kiln. This picture also shows the condition of the kiln outside and the building at the left of it, which is the dryer.

In looking over another picture you will see the general layout of this plant, which is as modern as any that are being built today. At the incline, where the clay is brought up, at the back of the machinery building, at this side of it, is located the engine and boilers, and directly in front of it is the dryer, which up to the present has not given them the satisfaction which they would like, and I found the manager, Mr. Hamilton, very willing to discuss the matter of drying, as he said it was a problem with them in that part of the country, and so far no one had solved it in a satisfactory way.

After this I went to their other yard, and on my way down we passed two other small yards, worked on the same principle, only they use the up-draft kiln and the same machinery. The methods of drying and handling the brick are all the same. This other yard belonging to the Messrs. Martin is



One of the Martin Brick Plants. The Continuous Kiln in the Background was Built by Hervey Haigh Twenty-five Years Ago.

kilns has been at work during their season all of this time, and today is in fine repair, and I was told that the cost in repairs since it was constructed had been very small, which the looks of the kiln would bear out. These two kilns are located so as to make the shortest wheeling of the bricks from the hacks to the kiln. The continuous kiln is located in the center of the hack ground and the semi-continuous kiln is located at one end of the ground.

In the picture taken of the method of hauling the brick to market, which at this time happened to be a wagon, but which is not the only vehicle used for this purpose, as they have carts with flat tops on them, no sides at all, and the brick are all handled carefully and piled on the wagon as shown. One picture shows a man who is putting water on the brick. This is for the purpose of bringing out the lime particles, if there should be any in them, and which is called for by some of the architects before the brick are placed in the wall. You will note that they have water piped around

called Hay Park Brick Works, and, I am told, has been in operation for over fifty years. They have the same method of drying on the hacks outside, but they also utilize the space they have on the top of their large Hoffman kiln, which, I was told, was the first kiln Hoffman built in the United Kingdom. This kiln has some thirty or more chambers in it, built round, with the chimney in the center, and has flues from the chambers to convey the waste heat under the space between the chimney and the chambers on top. They also use racks of their own design, which are put in between the feed hole rows, and piled about six racks high with brick to dry. These racks are portable and are kept close to the fires, being full of brick all the time, and in this way and with the space they use on top of the kiln proper it was said they could dry some 50,000 of their size brick per week. This kiln is built of stone, with the doorways and the inside of the kiln lined with brick, the walls being some eleven feet thick, with one large iron band clear around it, opposite the spring

of the arch. The chimney is built of brick and is 160 feet high. This kiln has given good satisfaction all of this time, burning about 40,000 brick per day of this size brick, with two sets of fires working in it and fired all from the top. This yard is now being crowded out by the city and will in a few years have used up all the clay within a reasonable distance of it and the ground will be used for building purposes. As much of it has already been used, and the digging of the clay is not allowed below a certain depth, it is ready for building operations at once as soon as the surface clay is taken away.

I was very much interested to know that they have a brick made in Ireland that will float for some considerable time. The picture I send you shows a pile of these brick ready for the market. Their color is not very desirable, but I can readily see where they could be shipped great distances on account of their weight. These are dried on the ground, very similar to our hand yard and many of the Hudson river yards.

In going through the city I found that bricklayers' wages are $8\frac{1}{2}$ d, or 17 cents, per hour, and have been at this price for the last twenty years. No wonder they can use brick and prefer it to lumber and cement construction! Think of the difference that is paid here for this same work, which I must admit, is not done any better here with the high charges of the bricklayer, and which is the greatest drawback we have as brickmakers in getting more people to use brick in constructing their homes. I saw thousands of brick-built cottages, beautiful both on the outside and inside. True, some of the rooms are small, but for less than \$100 per year a person can get one of these modern cottages, which contains, on the ground floor, sitting room, entrance hall, living room and large scullery, with water closet in the yard in the rear of the scullery; on the second floor they have three bedrooms, with hall, and these bedrooms are all of a good size when one compares these with what some people like to call a typical Irish home, built of brick and thatched with straw. It was my privilege to get a picture of one showing the farmer giving orders to his boy as to the day's work, and he with his horse and what they call the old Irish low-back car, with solid wooden wheels. One can't help but think how little one part of the world knows of the other, after all.

I was very much interested to learn that my informant claimed that it was from the solid wooden wheels used in Ireland that the Pullman Car



An Old Time Irish Cottage and an Irish Low Back Car With Wooden Wheels.



A Peculiar Irish Brick so Light That it Will Float.



Loading Brick for Market From Haigh Continuous Kiln.



Method of Hacking the Brick From Pallets.



Taking Bricks From Hacks to Kilns. Note Construction of Side Covers.



A Stock Pile of Burned Brick—Count the Holes in a Brick.

Company got the idea of building the solid wheels used on our Pullman cars.

The city of Belfast is a city beautiful, both in its buildings and its natural scenery. The houses that the working class are living in are as modern as can be found in any modern city in America; the streets are not all paved, but they have a good macadam street, with sidewalks made of cement, and some laid with flags, as they call them, of stone. The City Hall is a most beautiful building, the contractors being the Messrs. H. & J. Martin, Ltd. This building, which I was pleased to get a picture of, contains over 7,000,000 brick, and the inside—at least some parts of it—is of solid Italian marble, which should be seen to be appreciated. This building cost \$1,600,000.

Showing how brick enters into the building operations of this city, other than the buildings built by the Martins and others are the Belfast main drainage system, which took 11,000,000 of their size brick; Glendenning linen warehouse, 2,000,000; new abattoir for the city, 2,000,000; new bank building, 6,500,000; Corporation Technical Institute, 4,500,000; Belfast Rope Works, said to be the largest rope works in the world, and which used 15,000,000; Royal Victoria Hospital, 3,400,000; Harland & Wolf electric station, said to be the largest in the United Kingdom, 1,500,000. At the latter place it was my privilege to see the largest ocean liner on the ways, the Olympic, which is 882 feet long, and which is to cost \$7,500,000.

The streets of the city are paved mostly with granite blocks, some with treated wood from Australia. The curb is of some grade of granite. The foundations for all of these pavements is concrete. The sidewalks in the city are all paved with one material or another, but mostly with Welsh flags.

What interested me the most was the absence of what is termed the typical Irish home, as understood by many Americans as being a little house, all on one floor, built of stone or brick and thatched with straw. I did get a picture of a country village which could be taken as a typical Irish country town of today, and which compares with any one can find on either side of the Atlantic. The houses are mostly whitewashed on the outside, which gives them a clean appearance, as you will notice from the picture I got of it, but as for the other kind of thatched house, Ireland has got but very few of these today, and brick is their future building material; and when one can build a seven-room house for less than \$1,000 complete,

there is no wonder they use brick—the only material that will stand for all time—and which is the only material that has proved to be absolutely fireproof, or, rather, the nearest to this, of anything yet known in the materials used for buildings.

KNICKBOCKER, JR.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

The Enthusiasm of Youth Gives Zest to "The Old Man."

THE OLD MAN and the young man were seated at the table—father and son. At the end of the room the orchestra was stirring up the air. There was a ventilating fan somewhere, but it was disposing of the air, while the orchestra was busy mixing it into waves, troubling it, shaking it into bunches.



W. D. Gates.

Music seems close linked with sentiment and tends toward reminiscence, and as the musicians led into Schubert's Serenade and began to pick out the minor chords—whole handful of them—the mind of the old man reverted to the past. Flashing back years and years to events past and forgotten, but now, by the witchery of music, brought back and held up to mental inspection—some few achievements and many fail-

ures. Retrospection is redolent with failures, anticipation full of achievements.

Time had been when the old man was wont to take the young man in his strong arms and comfort him when he was grieved. To cuddle and fondle him and put the soft baby cheek up to his own rough, muscular one, and coo to him, comfort and caress him. It was as in a moving picture. He saw how he had been wont to shield and protect the young man from possible pain and sorrow, as well as to comfort him when he was sad. Then as the minor chords increased his mind reverted to another change the years had wrought. That the young man had grown in muscular strength and was stronger now than was he, the old man; that the young man had grown to show tender solicitude for him, the old man. Had taken to holding onto his (the old man's) arm to guide and protect him when they went out together. Not that the old man was so old that he needed it. Oh, no! Just because of his love and solicitude, the young man was, without thinking, caring for the old man just as naturally as the old man was wont to care for him in the years long past.

To the vision of the old man these acts of the young man were just as tender and loving, or more so, than any of his own toward the helpless and tender infant in the bygone years. Then suddenly the old man remembered that lately he had been so worried that his mind had so traveled in a circle, that he has thought and thought until he had "come out of the same hole he had went in at," until he had owned up and told the young man his troubles, and thus put the burden on him, added to his load instead of lightening it, as of old, and thus realized the more his own aging and weakening and the strength of the son on whom he was coming to lean mentally as well as physically.

The minor chords brought to the old man other thoughts as his mind traveled back in retrospect; mistakes, errors little and big, but all important in the turning and shaping of his life, but all written now in finality in his life history. Impossible to change, indelibly impressed, the pages of his life had been turned, and what was written was written.

Then the orchestra swung into Mendelssohn's Spring Song,

and youth had its inning. It was typical of the young man's life. No minor chords, but sprightly life and joy and hope. The pages of his life were yet to be written. The future was his, was before him to make what he wished, and not already indelibly written as with the old man. He was strong and vigorous. His was hope, and his was to be the joy of achievement. If there were to be obstacles he would surmount them. If there was to be fighting, he would be in battle.

So catching the spirit of the music, the old man came from the past and followed the young man till the music stopped with a sudden crash, and the old man came back from his dreams suddenly. But as he looked at the strong young man there was pride in his eyes and deep satisfaction that testified that even though he himself had made mistakes, and even if he himself was growing old and getting in the past tense, that he was leaving some one to take his place who could more than fill it, and as the old man rose to leave he stood straighter and had a dignity and pride that he had not worn when he sat down at the table.

GATES.

A CONSERVATIVE VIEW OF 1911.

By John M. Glenn, Secretary Illinois Manufacturers' Association.

CONDITIONS FOR good business in 1911 are favorable. The basis of prosperity of the American people is largely agricultural. It is true that many sections of the country have grown enormously in the last few years in their manufacturing products, yet the fact remains that poor crops will bump prosperity.

There are two things that may arise that will cause us to stub our toe and drop our plate. One is a crop failure, a matter which is in the hands of Divine Providence, and which, if it comes, should not be the subject of complaint. The fertile fields of the United States for years have produced with abundance.

The other thing which may give trouble is the calamity howler. A few years ago, when Sockless Simpson was alive, and before his time when the greenback craze was on, we looked to the populistic element to produce the calamity howler. It is generally true that when a man's toes are stepped on he will yell, and the calamity howler can now be found among the ranks of the millionaires, clothed in raiment of silk, instead of being sockless. The millionaire has glided along and made his money so easily that when the brakes are set a little he commences to shout "hard times."

Prices are good, wages are high and prospects for agriculture are favorable. Why shouldn't we have a good year? As stated, there are only two causes that will prevent, and with good crops and good conditions the American people should not allow a few multi-millionaires to bump them out of what rightfully belongs to them and a prosperous and a happy year.

The average cross-roads storekeeper, the average merchant in the village, the town and the city, is going good business. The monetary situation might be improved, but it is as good as it has been for a number of years. We might have some legislation that would help certain situations, but we have made money for years in spite of these conditions, which are not new, and we can go ahead and be happy and make money notwithstanding the monetary situation, the tariff condition, the freight-rate agitation and the other bugaboos that confront the American people.

We do not need legislation, we do not need tariff revision, we can live without the revision of our monetary system and all other things if we will just live up to the golden rule.—The Mahin Messenger.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE ACTUAL progress made by the cities of the Puget Sound country in 1910 is greater than any other year. The total building permits issued by the cities will reach over \$25,000,000, and taking into account the building done in the county for which no permits are issued, it is safe to estimate that the total building done in 1910 in Puget Sound county will total more than \$30,000,000. The forecast for 1911 is very encouraging, and while at present the building operations are somewhat slack, there are a number of indications which point to the fact that 1911 will far surpass the last year. Seattle has over \$19,000,000 of permits issued. There are now several plans drawn for substantial buildings, which are to be erected from an investment view, rather than from a speculative standpoint. Mr. C. Walker is contemplating the erection of a twelve-story building on his property on Third avenue and Madison. The largest department store in Seattle, The Bon Marche, has just broken ground for the erection of a million-dollar modern building occupying the present site of several older buildings.

The class of improvements last year have supplied ample proof that the building is of a solid nature, providing plenty of room for future needs and growth. Easterners acquainted with building construction who have visited the Puget Sound section are amazed at the great buildings done here, which compare favorably with the representative buildings of the great centers of population.

The proposed changes in the Washington State lien law, as suggested by the Arts and Crafts Association, are summarized in a few points, which they have distributed among interested parties. First, laborers and mechanics, whether working for owner, contractor or sub-contractor, have the first right of lien to the full amount due them; second, persons contracting with the owner direct have a lien for the full amount due them; third, sub-contractors and material men to have liens for full amount of their claims, if owner guarantees the claim, as provided by law, otherwise only for the unpaid balance due the contractor when lien is filed, or pro rata if liens so filed exceed the balance due the contractor. Fourth, the present law deprives the owner of the right to name his own agent, but makes any man the owner's agent. The proposed change will protect the owner, encourage more building and safer and saner contracts. Fifth, the amounts of all bids and contracts for more than \$2,000 must be filed, or otherwise made accessible or known to all interested parties, such as contractors, sub-contractors, material men, etc. Sixth, notice of lien must be filed in the auditor's office and served on the owner and contractor by material men and sub-contractors within thirty days after work is completed. The contractor must file lien and serve notice on the owner within forty-five days after work is completed. The proposed changes are favorably considered, and no doubt the next Legislature will amend the present lien law, or change the law entirely.

Business among the brickyards is very quiet and prices are still low. The total amount of brick on hand reaches several millions, and many of the yards are partly or entirely shut down. The sewer pipe manufacturers are having their troubles with cement pipe competition, which is very acute in several cities. This competition has a tendency to bring prices down, and in fact pipe is sold lower than ever before.

The Diamond Clay Company has been incorporated in Portland with a capitalization of \$250,000 by George Bates, E. D. Times and M. Redmond. The new company will take over the business of the Diamond Brick Company, and all parties interested in the old brick company are associated in this new company.

The National Brick and Clay Company, also of Portland, is a new company in the field, with James H. McNichols as man-

ager. This company has taken over all the business of the Portland Brick and Tile Company and will at once erect some new down-draft kilns and dryers on their West Portland yards. They have also bought the Tualatin Brick Company, which is about fourteen miles south of Portland. After making some improvements at this plant they will put the same in operation at once.

The Washington Clayworkers' Association will probably hold their annual convention in Portland if the arrangements which are being made are perfected. Portland was suggested with a view of the formation of the Pacific Northwest Clayworkers' Association, and which would take in the whole States of Oregon, Washington and western Idaho and Montana.

SIWASH.

THE ONE FAULTY ITEM.

The committee of experts appointed to examine Chicago's new City Hall building following the charges of graft and skimping that had been made, has just turned in its report. It is illuminating and interesting. Those charges were made by an ex-employee, probably to "get even" with some one and perhaps inspired or backed up by politicians who had some one or some measure to defeat. However, there is no doubting the earnestness, honesty and high standing of the experts who investigated the charges and the building.

These gentlemen find that there were superintendents, inspectors, overseers and foremen enough employed by the city, by the architects (men at the very head of their profession) and by the contractors to have everything absolutely well done. The design, the steel, the stone, the fireproofing tile, all those details, could not be improved upon, were perfectly done. Only one fault of any importance was found—the cementing—the concrete that was to be poured in between the steel columns and their terra cotta tile protection had been skimped; the columns were not thoroughly covered with good concrete.

In all that great building that was the one structural detail that had been slighted, and an important one, and that in spite of the splendid superintendence and inspection to which the building had been subjected. Which simply goes to support the contention of some of our best builders, that it is next to impossible to secure perfect concrete work. It is the one item that can easily be skimped, and that is almost invariably skimped. At its very best its behavior is always problematic, and when skimped or scamped it is extremely hazardous. It is the cheapest form of construction only when cheaply, poorly done. And cheap concrete accounts for the collapses and building catastrophes that have become so very common. As a result of these building troubles and this last investigation it would seem a wise policy indeed to leave something that is so hard to get right strictly alone, or, at least, out of important places in important buildings. If they ran poor concrete or didn't put it where it was intended in a building so thoroughly inspected as was the City Hall, imagine how concrete is used in the great majority of buildings where the only moral check is the very occasional and too often merely perfunctory visit of a city building inspector.

WANTS \$10,000 DAMAGES ON ACCOUNT OF SMOKE.

Charging that nine houses and nineteen lots, which she owns, have been damaged because of smoke and soot from a plant of the Metropolitan Paving Brick Company, Canton, Ohio, Mrs. Eva Rottenstein has sued the company for \$10,000 in common pleas court. Mrs. Rottenstein charges that the houses have deteriorated in value and that her rentals have diminished and that the lots have become less valuable for building purposes. An injunction also is asked to restrain the company from using the brick plant and kilns in such a manner as to cause further damage to the properties.

Written for THE CLAY-WORKER.

BRICK MANUFACTURE IN SPAIN.

By I. M. JUSTICE.



FEW YEARS AGO it was our pleasure to spend some months in Spain, at old Madrid, the capital of the Spanish kingdom, whose people know so well how to afford every pleasure to which the human race is heir, and equally well how to inflict almost unbearable punishment on the mental and physical life of man.

While living almost in the shadow of the king's palace and having much leisure time, we took advantage of the opportunity and investigated the methods of brickmaking at the local brick plants found in the suburbs of the city. On all yards the work was carried on in much the same way. Hand-molded soft-mud brick was the usual kind made.

The clay was light grey in color, quite sandy and decidedly lacking in plasticity. It was dug with pick and shovel and hauled by carts to the place of manufacture. They had no buildings, no machinery, no dryers and no permanent kilns in the yard that we shall describe.

The clay was tempered in soak pits and as it was slowly shoveled into these pits, with necessary water added for the development of plasticity, men and boys were required to



A Spanish Well from Which Water Is Taken for Irrigation.

tramp it with their bare feet. When the pits were filled they were allowed to stand several days before being used.

The clay was shoveled from the pits and transported to the molders by barrows. The molders worked in the drying yard, leaving each brick to dry on the ground where molded. The molds were open frames 5 inches wide, 11 inches long and 1½ inches thick. The molds were placed on the ground, filled with clay in the usual way of hand molding, struck off and the mold lifted, leaving the brick on the ground to dry. When the bricks were sufficiently dry they were edged and later set up in octagon hacks so the sun and the wind would complete the drying. The drying required about the same time as in this country.

Fuel being extremely scarce and very high priced, extraordinary methods were employed by which the burning of the brick could be accomplished.

During the winter months the pure manure from the mule and horse stables of the city was hauled to the brickyards and placed in great heaps. Then, during the brickmaking season, this manure was placed in soak pits and a little clay and water added, all of which was mixed by men and boys tramping it with their feet. This mixture of clay and manure was then molded into bricks of the same size and in the same way as all clay bricks were molded. These bricks were made for fuel, and were known as fuel bricks.

The bricks were set in the kiln for up-draft burning in four

brick benches between the arches, and the arches were closed on the fourth course. The bricks were all set close together without any perceptible space between, and for each four clay bricks set one fuel brick was placed with them. No fuel bricks were used in the outside courses of the kiln, the bricks used in these courses being soft brick from a former burn. As the setting progressed fine coal was sprinkled between each two courses from bottom to top, and when the kiln was set it was not plastered over in any manner.

Fires were then started in all the arches and supplied with fuel for a day or two until the coal and fuel bricks in the bottom of the kiln were all properly ignited. After this the arches were all closed and the kiln left to burn itself out, which it would do in ten days or two weeks.

Men and women, boys and girls, were all employed to take the bricks from the kiln. No barrows or trucks were used, but all bricks were carried out and sorted according to quality or degree of hardness. When loading in carts for the



Experimental and Testing Station.



Kiln for Burning Tile and Other Hollow Ware—Factory in the Distance.

markets each brick was counted as we would count dollars, which is to say the counts had to be correct.

There were also some machine plants in the country which represented considerable investment and in which excellent bricks were made. The machinery which we observed to be generally used was imported principally from Germany and England and was of the auger machine type. These machines were usually small in size, giving only a limited capacity. Cutting tables were of the hand-power type, on which two to four bricks were cut at a time. The clay, before coming to the brick machine, was usually very well prepared by either the use of soak pits or small pug mills. It was worked in a very soft condition and water lubricating dies were used almost exclusively, these being of the German pattern. This type of die has been very generally used throughout our country, but in a modified condition, and made much stronger in order to stand the heavy pressure brought

about by using the clay in a very stiff plastic condition. Many of the machines were operated by animal power, while some used the steam engine. Owing to the extremely high price of fuel very little steam power is used when it is possible to avoid it.

The drying of the ware in most cases, as observed by us, was done in the open yard; however, in some cases sheds were used to protect the ware from rain and winds, but natural forces were used as a medium of drying the brick. This method seems to be the common practice and does not differ much from that system as used in this country.

In addition to the type of kiln for burning the bricks as described above in this article, there were some other types of kilns used. We refer to what is known as the Catalan kiln. This is a rectangular kiln and usually constructed in small sizes. The inside of one of these kilns as an average would measure twelve feet square by eight feet high above the floor. They have open tops, but the peculiar part of their con-



Molding and Drying Yard for Common Brick.



A Pile of Fuel Brick in Storage.

struction is found in the furnace arrangement. In the bottom of the kiln, arches were turned which were about eleven inches wide and having eleven inches space between them, and on top of these was the floor and below these arches was an immense fire box. The principle of operation was to build a large fire in the bottom of the kiln and allow the heat to pass upward through the arches just described and into or among the ware and then out at the top, the same as in up-draft kilns in this country. These kilns were not provided with doorways for filling and emptying, but all bricks were passed into the kiln from the top and removed in the same manner, from which it will be seen that the labor expense would be very great. In this country such practice would prohibit the sale of bricks by reason of high cost.

This same type of kiln is also frequently built in the side of a bank or small hill, but made circular in form, and will best be understood when we compare it to the known practice of building lime kilns in this country. Where conditions of

this kind prevail it saves expense of elevating the bricks to the top of the kiln, as they are brought to the top of the kiln, which is on a level with the top of the bank or hill.

While many bricks are made and used throughout all parts of the country, yet to the casual observer this does not appear to be the case because the greater number of the buildings have outside facings of stucco work, which presents the usual grey or stone color, but which is in many cases brightened by the use of paint, the prevailing colors being blue, red and yellow. The decorative work brought out in this way is certainly most pleasing to the eye and the stucco is made of certain mixtures that gives it great durability.

Roofing tiles are used almost exclusively as against any other material for covering all classes of buildings. The usual pattern is the Spanish roll, and when placed properly on a building it presents a beautiful appearance. We were greatly interested in our investigations as to the use and durability of clay tiles for roofing. We spent some time in Toledo, where we inspected an old cathedral which had its foundation laid in the year 1227 and was two hundred years in course of construction. This wonderful old structure was covered with clay roofing tiles and counting from the time when the church was finished to the present would make nearly five hundred years that these tiles had been on this building, and they were apparently in as good condition as when laid. It seemed to us that no one considered the use of any other material for roofing purposes, and



The Factory Office—Note the Tile-Covered Roof.

when the life of a tile roof is considered, we can then appreciate its wonderful cheapness. Furthermore, one can more fully appreciate the beauty of roofing tiles when you can from a distance view a large city that is entirely covered with this class of roofs, as the appearance is pleasing beyond measure.

We in this country who are interested in the extension of the use of clay products as building material and especially the use of clay tiles, should in some manner begin a more thorough and constant campaign for the education of our people to the use of clay tiles for covering all buildings of every class and character, as it can be definitely shown that no other material has ever been used for the purpose which will compare in cheapness and high quality with roofing tiles when their lasting qualities are considered. We should learn to build for generations to come and not continue the practice of letting each generation build its own home.

GOOD BRICKMAKING SEASON.

The brickmaking season in the vicinity of New Britain, Conn., is about at an end. Whatever work remains to be done is in connection with the work started earlier in the year. This season has been one of the best the brickmakers have had in many years. The production this year was approximately 84,000,000, about 9,000,000 in excess of other years.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS IN NEW YORK CITY AND VICINITY.

Work Begun on the Great Municipal Building that Will Cost \$8,000,000.



YEAR closed with the brick business reported unusually dull, even for the season in and about New York. Dealers had scarcely any business and buyers showed comparatively little indication of interest in anything, no matter what might be their desires. A review of the year would disclose the fact, however, that the business has exceeded that of the previous year by a considerable percentage, so far as volume is concerned, but the price has always been satisfactory. It has been a year of inequalities, with trade heavy at one time, with no apparent reason, while it was light at another with the same observation applying. Great contracts were not as numerous as they have been during some previous years, but they were, perhaps, greater than was anticipated at the beginning. The demand was principally for brick for the construction of large buildings, and for small ones, too, for that matter, large public works being rather less than ordinarily during the year. The largest of them all, the new Erie cut through Bergen hill, used cement instead of brick in its construction.

Probably relatively more brick were utilized for small buildings, such as dwelling houses, flats and small business buildings, than for a number of years. The over-building in some sections of the city was utilized and work begun again upon those structures which are wanted for dwellings and small stores. Taking all these demands together, they required an immense quantity of brick, though nothing like what will be needed in the next two or three years after the construction of the new subway begins.

Prices of Brick.

Hudson river brick are selling for about the same prices as have characterized them for some weeks. Front bricks are unchanged, but demand is necessarily limited by the season, while other varieties are unchanged from quotations named some time ago. The prices are: Front buffs, No. 1, \$28 to \$30; grays, shaded and specked, \$32; white No. 1, \$32; Hudson river common, \$5.25 to \$5.50; light, hard, \$4 to \$4.25; pale, \$3 to \$3.25; No. 1 fire, American, \$25; No. 2, \$20; Scotch, \$35.00.

The Hudson river manufacturers have given out no figures of their production this past year, but it is known that the output was heavy, since they agreed to shut down early in the fall and limited the output of the last part of the season. The total production has not been figured, one of them said to the writer not long ago. It is admitted, however, that the carry over to next season is approximately 400,000,000, which is a considerable quantity, though possibly not as bad as some years previous. The situation along the Hudson is difficult to solve and not until the makers themselves are more certain of their position will it be possible to supply any accurate information concerning that region. The proposed new association may help things, but unless something central like that is given control there is grave danger of demoralization, according to the view of some of the more pessimistic manufacturers.

John B. Rose, of the John B. Rose Company, of Roseton, is at Albany, serving his second term as State Senator. His work during the first term was so satisfactory that his constituents sent him back. He has been the friend of a number of important reforms, particularly those which related to the improvement of business. An able business man himself, he sees the needs of some important changes, and never fails to make an effort to secure them when opportunity permits.

The contractors at work on the new \$8,000,000 municipal building in New York have had a good deal of trouble with caving. At one time a cave-in large enough to take a full month to clear up interrupted their work and cost them thousands of dollars. The building is going up on Park Row and Little Chambers street, and quicksands have been encountered all over the entire area. Even though the foundations went to bed rock, the side retainers were not sufficient to prevent the cave-ins, which have proved so expensive and dangerous. It has been the most troublesome piece of construction in years.

Architects in New York have not been as busy through the year just past as they were the previous year, and the coming season has not yet developed sufficiently to show what it will be. Some are of the opinion that it will be better than the one just passed, while others equally well informed have declared their belief that it will be no better. The propositions for heavy construction are quite as great as they have been, but the smaller contracts do not look so good. Whether or not builders will push the work during the coming season that has been held in abeyance during the one just over is a question which can be decided only when the time comes. There is such a transition occurring in and around New York because of the changes in transportation opportunities and facilities that it is difficult to even approximately forecast what may occur in the building world. Certain it is that architects are anxious to know what they may expect, but so far little light has been thrown upon the situation.

BURTON.

AS TO BELT DRESSINGS.

Most belt manufacturers know from bitter experience that more belts are ruined through the use of unsuitable dressings, especially those that stick the belt to the pulleys, than from any other cause. This we say advisedly, being fully aware that for most, if not all, of the dressings on the market the strongest claims are made for economy, added efficiency, benefit to belting, waterproofing, etc.

Although the traction of a belt is undoubtedly temporarily increased somewhat by the use of these dressings, even that benefit (?) is extremely temporary, and is lessened, to a great extent, by the difficulty of pulling the belt from the face of the pulley. This is injurious to canvas belting, because it tends to tear the ply of the belt which comes next to the pulley's face. We have had a number of cases brought to our attention where belts have been absolutely ruined in this way, the face ply torn to shreds from the use of sticky dressing.

Perhaps the best way of demonstrating proper traction is to put your hand against a glass surface, and you will at once see, no matter what the weight of the glass is, if lying on a table, how easily it can be pushed off, and yet how easily your hand can be withdrawn from the surface of the glass. That shows true traction, and you can easily see, by just covering your hand with some sticky substance, how the traction is not increased materially by that substance, but how much harder it is for the hand to leave the glass.

The proper idea of a belt dressing is, therefore, not to cover the surface of the belt with any sticky substance, but to dress the belt with some preparation which will keep it soft and pliable without affecting its tensile strength.

The only safe as well as reasonable way is for the belt user to find out what dressing is recommended by the manufacturer of the belt which he wishes to treat, and to use that dressing on that kind of belting in accordance with the directions for same. In that case the user will undoubtedly get the article which is not only best adapted for the particular belt to increase its traction and length of service, but will run no danger of getting an article which is detrimental to the belt.

WM. T. PLUMMER.



New Paving Brick.—Under the name "Rostolit" a new paving brick has been put on the market which is giving very satisfactory results. The brick is made of a calcareous siliceous clay and burnt at a good high temperature. The brick was invented by Otto Rost, of Budapest, and has stood a crushing test of 78,000 pounds per square inch. The absorption of the brick is 0.1 per cent.—*Il Cemento* No. 21, 1910.

Strict Employers' Regulation in Germany.—A brick manufacturer close to the Austrian boundary employed 32 Austrian men without notifying the police department of this fact. Inasmuch as he acted against the German law, which provides that he must notify the police department at once of employing any foreigner, he was fined 12 marks. He appealed the case and the district court decided against him again, and stated that inasmuch as there were plenty of German workmen to be had, he should have promptly complied with the laws of the land.—*Deut. Topf. & Z. Z.* No. 85, 1910.

Hollow Bricks.—The bricks made under the German patent, No. 221,289, have proven quite a success. In a brick of the regular size there are 83 small holes, and the weight of the brick is therefore considerably less than in solid brick. It has been found also that the brick dry much safer, and that it takes less fuel to burn a kiln of such brick. The bricks are made on a stiff mud machine, and the dies for these bricks work all right and have not given much trouble. The bricks are coming in good demand, as they will take to a certain extent the place of partition tile and hollow block.—*Deut. Topf. & Z. Z.* No. 83, 1910.

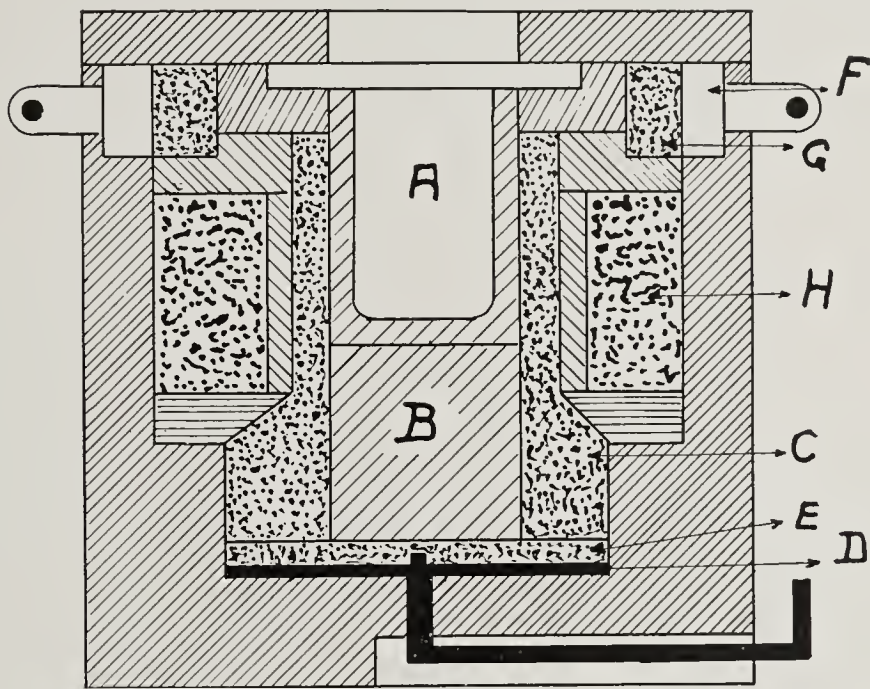
Price Difference Between Machine and Hand-Made Roofing Tiles.—The highest price paid in Germany for machine-made roofing tiles in 1898 was 80 marks per 1,000, and 72 marks was the lowest price obtained in the same year. The price has dropped gradually until in 1910 the highest price was 56 marks and the lowest 48 marks. Hand-made roofing tiles, called "Dutch tiles," have maintained during this period of ten years practically the same price; in fact, the highest price in 1910 was 2 marks higher than in 1898, and was 40 marks per 1,000. The roofing tile manufacturers are trying to get together in order to raise the price of their machine-made product.—*Tonind. Z.* No. 120, 1910.

Making Blue or Black Brick.—It is rather an expensive method to use manganese for an addition to a clay in order to make blue brick, and especially when the clay is very low in iron contents. With a clay high in iron, an addition of from 3 to 5 per cent. of manganese will be sufficient, if the burning is done right. It must be burnt with very little draft and reducing fire in order that the iron contents in the clay will be reduced from the ferric to the ferrous state, which will color the brick black in place of red, as usual. It is difficult to obtain these results in continuous kilns, but in down-draft and chamber kilns, in which paving and blue bricks are burnt, the matter of obtaining black brick is not a difficult problem. In order to burn black brick in continuous kilns it will be necessary to use the same method as tile manufacturers use for making blue and black tiles. The bricks are put in saggars and coal dust is packed all around them. The saggars are made tight by putting clay between them, so that no air can come inside the sagger. With this method a black matt brick can be easily obtained. Another method is also to apply a black slip to the surface of the brick, and the clay of the brick does not need to be of a black color in that case.

The cost of slipping 1,000 bricks will be about 50 cents.—*Tonind. Z.* No. 126, 1910.

Ceramic Bodies.—Dr. Hugo Hermann, of the Ceramic School of Teplitz, has worked out a new system by which he can show in an easy way a graphic method for the analysis of the composition of ceramic bodies. He takes two lines, which are drawn vertical to each other. The four points so obtained are indicated as clay substance, flint, spar and lime, and by dividing the lines in equal parts the results of an analysis can easily be drawn out in a graphic figure with these lines, and will give the range in which the composition of the clay body can move.—*Keramische Rundschau* No. 45, 1910.

Small Electric Kiln.—A small electric kiln, which can be built easily, was described by W. Pip at a convention of the German Bunden Association. The kiln (A) proper is made of magnesite and rests on a piece of magnesite (B). The outside of the kiln is filled in with small pieces of carbon (C), which are used as resistance. The current is attached to the lower part, which has a thin copper plate (D) screwed to a graphite plate (E), to which the one pole is connected. The other pole is brought in at the upper part of the kiln by a metal ring (F), which is set into graphite segments (G). The



ELECTRIC KILN

space (H) is filled, in order to give proper insulation, with small pea magnesite. The kiln can be heated in half an hour to the melting point of corundum.—*Sprechsaal* No. 49, 1910.

The Slipping of Brick.—In some cases it is necessary in order to produce a brick of a desired color to apply a slip to the brick. When the body of the brick is red the slip should be applied quite heavy, as otherwise the body will show through. In most cases the slip is applied direct after the brick leave the machine, as this will give a better bond between the slip and the brick. The slip should have the same shrinkage as the brick, as otherwise it will peel off after being burnt.—*Tonwaarenfabrikant* No. 22, 1910.

Continuous Tunnel Kiln.—The Faugeron tunnel kiln, in which the ware is burnt on cars, which are moving continuously, and of which THE CLAY-WORKER had a description some time ago, are giving excellent results. In a porcelain factory the pottery is burnt by cone 13 and the repairs have been very small. The kiln has been in operation several years and the owners are very well satisfied with the results. Several new kilns are being built, and the tunnel kiln will soon take a place among the best kilns built. The Allgemeine Elektricitäts Gesellschaft in Berlin has just installed two of these tunnel kilns in their new porcelain works. Russia has five kilns, which are used mostly for burning tiles and whiteware.—*Tonind. Z.* No. 118, 1910.

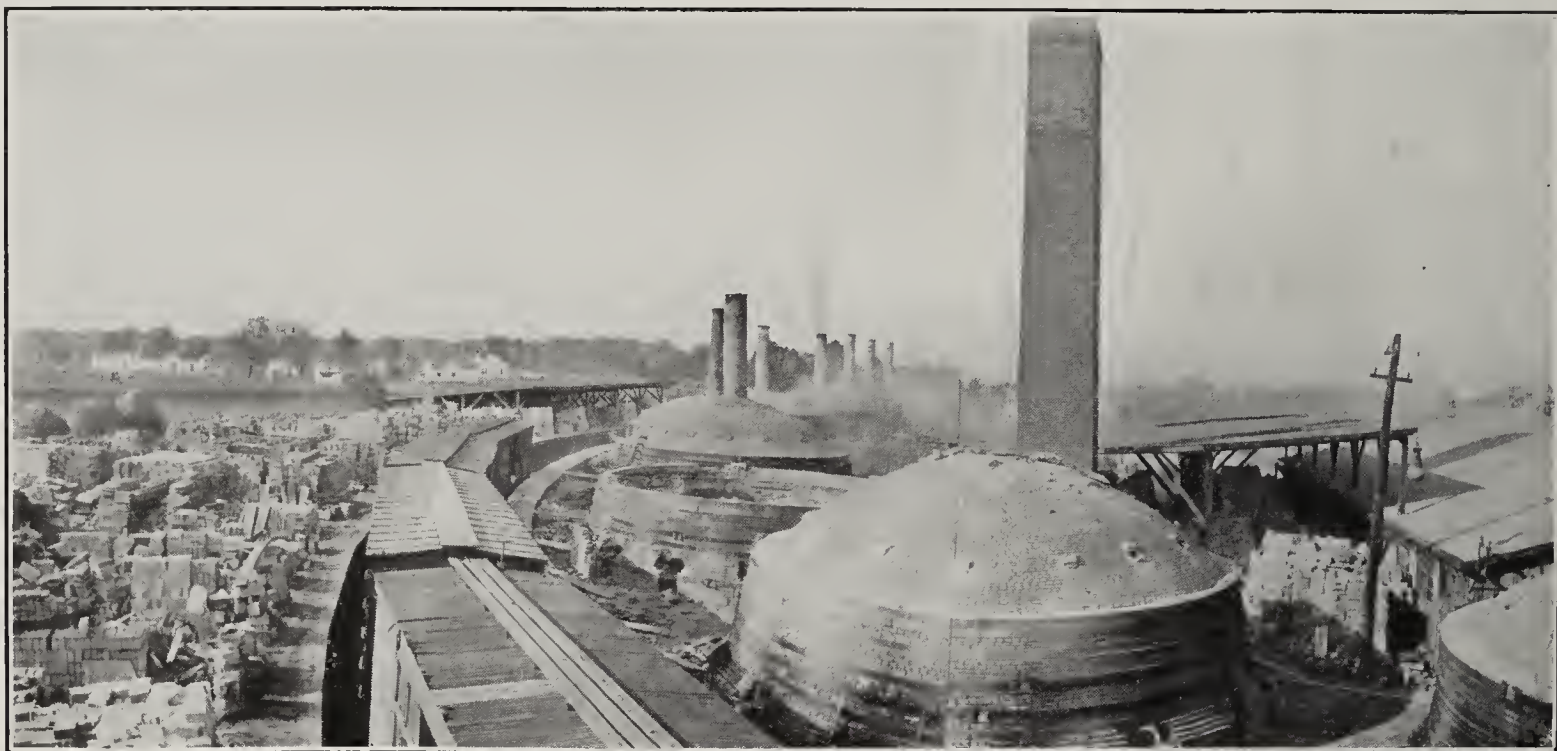
An Inspection Tour Through Louisville's Clay Plants.

The "Falls City's" Many and Varied Ceramic Lines Combine to Make Kentucky's Metropolis an Interesting Clay Center.

LOUISVILLE, KY., this year's convention city for the N. B. M. A., the N. P. B. M. A. and the B. B. A., is a clay center of no mean pretensions. Within the boundary lines of this truly Southern city and directly outside, within close proximity to Louisville, connected by means of excellent railroad facilities, are to be found numerous clay product manufactories of wide and varied character. Within the city limits of the Kentucky metropolis are manufactured soft mud, stiff mud, dry press and hand-made brick, fire brick, vitrified salt-glazed sewer pipe, a small line of terra cotta, wall copings, chimney tops, drain tile, hollow building blocks and fireproofing materials, paving brick, locomotive tiles, fire-clay specialties and pottery.

It is little wonder that so many clay plants have been erected in and about Louisville, for the central location of this gateway to the South and the abundance of raw material

steady and close attention to the manufacture of all the different varieties of fire brick for refractory purposes they claim that by application of scientific methods and utmost care they have succeeded in producing a very high grade of refractory material. Their product was awarded a high premium at the Chicago Exposition, held in 1893, and again at the St. Louis Exposition, in 1904. They supply many of the plants in the iron and steel industries, also foundries, railroads, cement, lime, glass and gas works, boiler and power plants, brick and tile factories, stove manufactories and others. The success of their business is attributed to the excellence and purity of their fire clay, almost all of which is the product of the famous Carter county (Kentucky) clay mines, located at Grahn Station, on the C. & O. railroad, 185 miles east of Louisville. Grahn Station was named for Mr. K. B. Grahn, the president of the company, who was sole owner for 20 years. Five years ago a company was incor-



Panoramic View of the Louisville Fire Brick Company's Plant,

that Kentucky affords the producer has given sufficient impetus for the establishment of these extensive manufactories.

In Louisville proper we find the plants of the Hydraulic Brick Company, the P. Bannon Sewer Pipe Company, Louisville Brick Company, Kentucky Vitrified Brick Company, J. P. McCollum Brick Company, the Louisville Fire Brick Company, the Mayer Brick Company and the Louisville Pottery Company, while only a short distance to the southeast of the city are the Southern Brick and Tile Company's plants. Across the Ohio river, in New Albany, are the two interesting plants of the Hoosier Brick Company and the Goetz Bros., while in Jeffersonville is located the Acme Brick Company's plant. Within a radius of fifty miles of Louisville there are scores of excellent clay plants. In our tour, however, we must confine our journey to trips through the plants considered as belonging to Louisville.

Louisville Fire Brick Works.

One of the finest and most interesting clay plants in Louisville is that of the Louisville Fire Brick Works, located four miles from the center of the city, in Highland Park, a small incorporated town, and easily reached by trolley. This plant is well known for its high grade of fire brick and all the other of their refractory material, made out of the famous Carter county (Kentucky) fire clays. After 20 years of

porated, with the following officers: President, K. B. Grahn; vice-president, C. A. Parker; treasurer, M. P. Dehoney, and C. E. Parker, secretary. The superintendent is Mr. Louis Ernst. If you visit the plant today you will find them making thousands of fire brick and fire clay specialties and refractory materials of all kinds and shapes. Six cars of fire clay are shipped daily and stored at the plant under large sheds. Other raw materials entering into the composition of their various products are flint clays, three plastic clays and broken brick for grog. A year ago the plant suffered a loss through a disastrous fire, but the plant was soon rebuilt and is now confined to a half-dozen or more large buildings, five of which are used for drying, each being 60x150 in size, the floors of which are heated with steam through flues and pipes. The raw materials are ground in two Johnson (Leeds, England) dry pans and screened on three piano-wire screens of the company's own make. Both machine and hand-made brick are made, the presses employed being a Berg four-mold dry press and an English-made two-mold press. Six wet pans, several of which were made by the Portsmouth Machine and Casting Company, are used in preparing material for hand pressing. The prepared clay is taken from the pans by means of spades and taken in trucks to different points in the pressing department or dry floors as needed. Seventy thousand bricks are made

daily, 20,000 of which are nine-inch brick, while the rest are odd shapes. The brick are dried over night, while the other materials require different drying periods, according to size and style.

The ware is burned in 17 round down-draft kilns, nine of which have center stacks. The superintendent declares this type of kiln is cheaper to build, does away with additional expense of erecting outside stacks and while not so easy to fill, answers the purpose better than any other type of kiln. These kilns are fired to from 2,000 to 2,600 degrees centigrade temperature, seven days being consumed in the burning. Coal is used for fuel. The power plant for operating machinery and lighting consists of four boilers 150 h.p. each, two engines, one of which is a 180 h.p. Houston, Stanwood & Gamble, while the second is a 200 h.p. Erie, and a small engine for running the dynamos and fire pump. The water supply is furnished by two cisterns and city pipe connection. The products of this plant are shipped all over the United States. The company has its own chemist, all materials entering into their products being carefully analyzed.

Hydraulic Brick Company's Plants.

The largest brick manufacturing concern in Kentucky is that of the Hydraulic Brick Company, which operates three large plants in and about Louisville. The company,



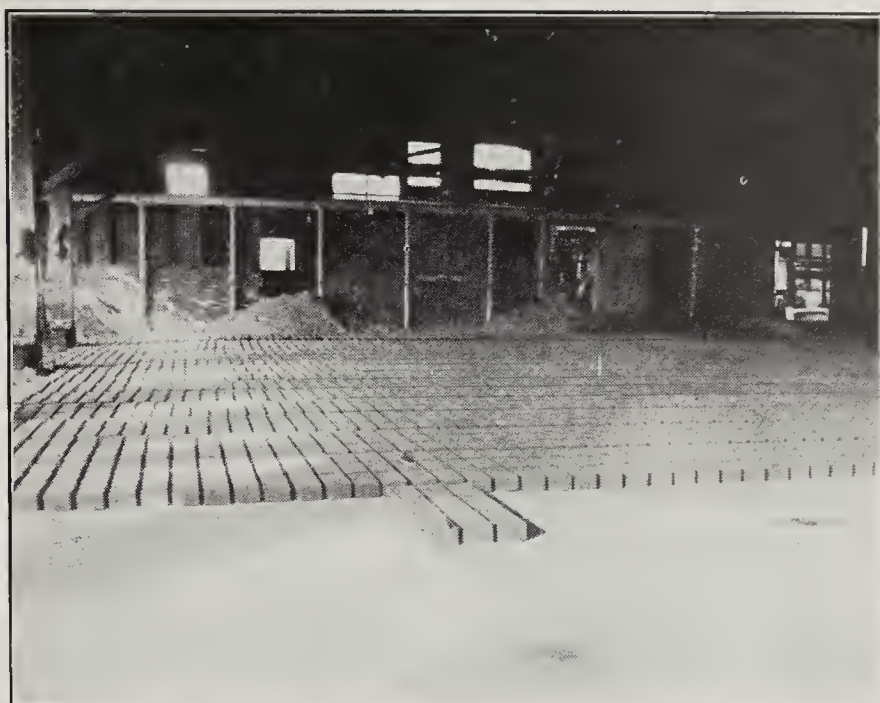
Clay Storage Sheds, Showing Depressed Tracks.

which has for its officers Mr. A. Dumesnil, president; James Clark, Jr., vice-president, and Walter S. Adams, secretary and treasurer, has been actively engaged in the brick business since 1901, at which time they purchased the three plants, which had been owned and operated separately by different companies before that time.

The main plant is known as the Central plant and is located on 12th and St. Louis streets. The raw material used here is supplied from the southern yard, where the company owns a large tract of clay land five miles distant from the Central plant. The gondola cars of clay are switched into the yard from the I. C. railroad's main track. Six to eight full cars of clay are hauled in each evening. When the plant is running to full capacity the clay is taken direct to the machine. When not running to full capacity the surplus is dumped on one side of the track and left until needed. Iron bottom dump cars of two yards capacity are used, and are hauled by "mule power." The cars run on narrow tracks into a small shed or roof arrangement used for protecting the belt conveying system, which is located below the track at this point. Here the clay is dumped onto the belt conveyor, which carries it to a C. W. Raymond Company clay crusher. The crushed clay is elevated to a Chambers Bros. pug mill, from which the pugged clay is dropped into a Chambers brick machine. The column of prepared clay issuing from the

mouth of the machine is automatically cut on a Chambers rotary end cutter. On an average 75,000 bricks are made daily. The brick are dried in a 24-track Sharer dryer, each track holding 12 cars each. The company owns five hundred dryer cars, all made by the Chambers Bros. Company. The brick are dried in 30 hours, the dryer being a hot-air dryer, with furnace at one end and fired with coal. The brick are burned in six up-draft rectangular kilns, each holding 350,000, set 42 high. These kilns have 16 fire boxes on either side and are fired with coal. The burning requires ten days.

The company also operates a hydraulic machine. The raw material for this machine is taken from a four-million-capacity storage shed. The clay stored here has been dried on



Large Dry Floor of Louisville Fire Brick Works.



Interior View of Kiln Showing Center Stack.

their southern yard before being hauled to Central plant. The stored clay is taken as needed to a Williams patented roll crusher, from which it is taken and elevated to inclined screens of the company's own make. The screened clay drops into a storage bin and is fed direct into a ten-mold hydraulic press having a capacity of 40,000 dry press brick daily. These are trucked to six square down-draft kilns and set 30 high. These kilns hold 170,000 each and are burned in twelve days, face brick only being made. The company stores its common brick on the yard, while the face brick are piled in a large stock shed. Local and state trade take their entire output.

At the Hydraulic Brick Company's eastern plant, which is

Scenes in and About Hydraulic Brick Co.'s Central Yard.



Pile of Surplus Surface Clay.



A View of the Stock Piles on Yard.



Interior View of Large Storage Shed.



Delivery End of Dryer.



A Glimpse of Hydraulic's Central Plant.

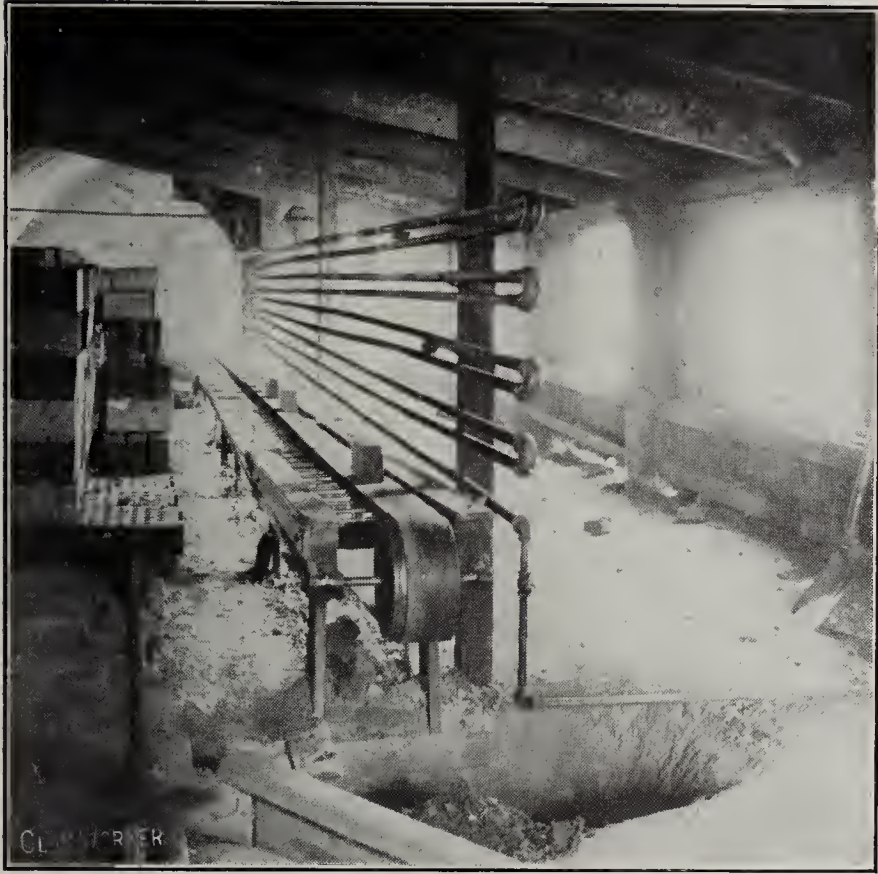


Setting a Large Rectangular Kiln.

located on Goss avenue, several miles east of the Central plant, the company owns thirty acres of red surface clay, which averages ten feet in depth. This plant is operated all year, the clay being plowed, allowed to dry and then carted to the storage shed, which holds sufficient raw material for the making of 4,000,000 of brick. From the storage shed the clay is wheeled to rollers, elevated and screened, then goes direct to a Lyons five-mold press, made by the St. Louis Iron and Machinery Company. The green brick are placed on trucks and wheeled to five up-draft kilns, each holding 300,000 brick. Coal is used in the burning. Twenty thousand brick are made daily.

Hydraulic's Southern Yard.

This plant is located about seven miles southwest of the Seelbach Hotel and five miles to the south of the Hydraulic central yard. This is probably the best of the Hydraulic's



A Corner of Machinery Room in Hydraulic's Central Yard.

Louisville yards and has many interesting features. The clay land comprises 125 acres of rich surface clay, which averages 15 feet in depth and overlies an inexhaustible supply of shale, which at the point now being worked has a one-hundred-and-fifty-foot face. Below this depth there is a fine grade of shale, which they have been unable as yet to use, and has every indication of being as large a body as that above it.

The clay is removed by means of a steam shovel of the company's own make, which has proven very satisfactory for this work. Most of this surface clay is shipped into the Central yard. The shale is blasted and taken to the plant in cars running on a narrow-gauge track. At the plant the shale is ground in a Raymond nine-foot dry pan. The ground material is elevated to a screen and thence to bin and fed directly into a Boyd five-mold press. The green brick are loaded on trucks and taken to the kilns. There are five kilns in all, two down-draft of 200,000 each and three up-draft of 300,000 each. The daily output of dry press brick is 20,000.

The clay for the stiff mud brick is brought to the plant in large cars and shoveled directly to a set of C. W. Raymond Company's rollers. The clay then passes through a Raymond pug mill and a Chambers brick machine to an automatic end cutter. The wire-cut brick are placed on Chambers dryer cars and sent into a fourteen-track hot air dryer. The usual run here is 40,000 daily. The company owns its own stable, which houses sixty horses, used on all three plants.

The Kentucky Vitrified Brick Company's Yard.

This plant, owned and operated by M. J. Bannon, president; P. Bannon, vice-president and treasurer, and Lawrence J. Veeneman, secretary, is located on Magnolia avenue, between 8th and 10th streets, in the southern part of the city. This plant was erected 18 years ago by P. Bannon, father of the present head of the company. It was then known as the Kentucky Vitrified Paving Brick Company's plant. The plant was originally built for the manufacture of paving brick. To this was added a department for the making of fire brick. So successful were the two departments that a No. 2 plant was built across the road, and here installed a complete outfit for the manufacture of drain tile, hollow blocks and fireproofing materials. The old plant covers about three acres of ground and is very conveniently located with regards to transportation facilities. The raw material is shipped in from Lincoln City, Ind., and Bannon's Switch, a short distance west of New Albany. Here two different shales are blasted and sent to the plant, where they are stored in large storage sheds, which hold four days' supply. The sheds are well equipped with protected conveying belts, the clay being dumped onto the protecting benches in bins when it is brought in. In this manner the benches can be removed as the raw material is needed and taken from either end to the incline belt stationed at right angles to the points over two nine-foot Stevenson dry pans. After passing through the pans the ground material is elevated to Bonnot piano-wire screens. The screened clay drops to a large



Kiln Yard of the Kentucky Vitrified Brick Company's Plant.

wooden storage bin, which has a capacity of 75 tons. The clay is fed as needed into a Raymond pug mill and from thence goes into a Chambers Bros. side cut brick machine. Twenty-five thousand 3x4x9 blocks are made daily, repressed on two Eagle represses made by the American Clay Machinery Company. A Raymond hand cutting machine is used. The blocks are taken on dryer cars holding 260 blocks each into a Barron iron-clad dryer, which consists of three tunnels 90 feet long of four tracks each. The dryer holds 150 cars and is heated by means of direct steam. The drying is accomplished in 24 hours. The dried brick are burned in 14 round down-draft twenty-eight-foot kilns.

The fire brick department is equipped with the necessary molds and shapes for the making of hand-made fire brick and odd shaped fire clay specialties. There are large drying floors, where the fire clay goods are dried.

The power of the entire plant is furnished by means of a 200 h.p. Bates Corliss engine, two sixty-inch by eighteen-foot four-inch tubular boilers. A small engine is used in running the machinery in the machine shop. Across the road is plant No. 2, where drain tile and hollow clayware are made. A mix-

ture of clay and shale is used. The clay is shipped in from the company's clay bank in Grayson Co., Ky., while the shale is the same as is used in the No. 1 plant. The clay is ground in the American Clay Machinery Company's dry pan, elevated to piano-wire screens of the company's own design, from which it drops to a Freese combined pug mill and brick and tile machine. In the making of special ware the material is first sent through a large Freese pug mill before going into a Freese machine equipped with special dies for various wares. Two J. D. Fate Company's automatic cutting machines are installed here, while a third is used of the company's own design. The general run is on hollow fireproofing, the capacity of the plant being 40 tons daily. The ware is dried in a steam tunnel dryer, a Sturtevant fan being used for draft and circulation. The dryer is of the company's own design and has four tunnels of three tracks each, is 70 feet

ner, the president of the company, being Mr. Joseph Nevin. The plant is located in the extreme northwestern part of the city, bounded by 38th street, Rudd avenue and the Ohio river. This plant is twelve years old and has been in successful operation since its erection. The present proprietors were the original builders and owners and have not the least idea of selling their property, for they have an almost inexhaustible supply of clay land and are getting a fair price for their product. The yellow surface clay used in making the brick averages 15 feet in thickness and covers a wide area of ground to the rear of the plant.

Nearly every year the Ohio river overflows its banks at this point, covers their clay land and leaves a new deposit of river bottom clay. The plant is operated during ten months of the year.

As seen by one of the illustrations of this article, the clay



Kentucky Vitriified Brick Company's Plant.



Kiln Yard of the K. V. B. Company's No. 2 Plant.



Stock Yard of the K. V. B. Company's No. 2 Plant.



General View of Louisville Brick Company's Yard.

long. The dryer holds 125 cars. The ware is burned in five round down and up-draft kilns, 28 feet each in diameter, and fired with coal. The kilns have four stacks each, built equi-distant from each other and extending several feet above tops of kilns. Orton cones are used for obtaining correct temperatures. Four days are required for the burning. The power of the plant is furnished by a 180 h.p. slide-valve Granger & Co. engine and a large 150 h.p. water tube boiler. The belting on this plant, as well as in the sewer pipe plant, is that of the Main Belting Company.

The American District Clock service is installed on all three plants.

The Louisville Brick Company's Plant.

This is another company among whose officers appears the name of M. J. Bannon. He controls a half-interest, his part-

is first plowed and afterwards allowed to dry for a few days, the loosened clay being only about two inches in depth. Four Quincy clay gatherers, each of which hold three-fourths of a yard of clay, are employed daily in the clay gathering. They do the work well and quickly and are quite a money-saving item. The gatherers when filled are hauled to the plant and the clay automatically dumped in a storage shed, which has a capacity for enough material to make two million brick. The raw material is fed as needed into a squirrel-chaser crusher, then elevated to two screens of local make and dropped by gravity to two Simpson four-mold dry presses. The green brick are placed on trucks and taken to the kilns, of which there are five, four rectangular up-draft and one round down-draft. In the up-draft kiln they set the brick 39 high. The width of the inside of the kiln is 28 feet. Each

of the up-draft kilns has 52 fire boxes, 26 on either side. These five kilns hold 450,000 each. The complete burning is accomplished in 16 days, coke and coal being used for fuel. The company houses their 26 mules in a large stable near the plant. The local trade takes their entire output.

J. P. McCollum's Yard.

This is a small but interesting soft-mud brick plant, which is distinguished by having as its owner the oldest brick manufacturer in Louisville. J. P. McCollum has been in the brick business for over 40 years and is still actively engaged in his enjoyable work. He started a small hand yard in Louisville in 1870 and has been closely identified with the

night and the dryer emptied the next morning. The brick are burned in three up-draft kilns, which have a combined capacity of 100,000. Coke, wood and coal are used for fuel. The coke and wood are used in water smoking, while coal is employed for the real burning of the ware. Each kiln is finished in 14 days' firing.

Southern Brick and Tile Company's Plant.

Four miles to the southeast of Louisville, on the Southern railroad, is located the Southern Brick and Tile Company's plant, which turns out a good grade of brick and drain tile. The brick are made by the usual soft-mud method. The clay, which is an easily worked surface clay, free from any trouble-



Plowing Clay in Louisville Brick Company's Clay Field.



Gathering the Dried Clay with Quincy Gatherers.



Clay Bank of Southern Brick and Tile Company.



Southern Brick and Tile Company's Kilns and Dryer.

brick business ever since that time. The present plant, which has been in operation two years, is located in the eastern part of Louisville on Barnard and Spring streets. A seven-foot bed of surface clay at the rear of the plant is the source of the supply of raw material. The clay is dug by hand with pick and shovel and thrown into one-yard steel cars and pushed to the plant, where the clay is thrown into a Martin granulator. The brick are made on a C. & A. Potts Company combination pug mill and brick machine. Six bricks are molded at a time. A Potts sander is used in this operation. The pallets of bricks are taken to a dryer on a Martin conveying system. The Martin dryer used here holds 31,000 brick. The dryer is filled every day, the brick drying over

some ingredients, is taken from a fifty-acre field a quarter of a mile to the rear of the plant, where the clay appears in a seven-foot bank. The clay is dug by hand and shoveled into American Clay Machinery Company's iron side-dump cars, which hold one and a half yards of clay each. The loaded cars are pulled over narrow-gauge tracks by means of horse power to the foot of the incline at the rear of the plant. A winding drum and cable are used in pulling the cars (two cars are pulled up at a time) up the incline to a point above the clay room, where the clay is dumped and shoveled into a C. & A. Potts granulator. A complete Potts equipment is installed, including pug mill, brick machine and sand molder.

The green brick are dried in a steam dryer of 100,000 capacity of the company's own design. Exhaust steam is used during the day, while live steam is used at night. The brick are dried in three days and then taken to the four up-draft kilns, which have a total capacity for 1,600,000 brick. The brick are set 40 high and are burned and cooled in 12 days. The average daily output is 40,000. The brick are shipped all over Kentucky. The officers of the company are: Henry Kleymeyer, pres.; H. C. Kleymeyer, vice-pres.; T. Bishop, secy.; W. K. Seirp, treas., and H. Herpel, mgr.

Louisville Pottery Company's Plant.

One of the pioneer plants in the South for the manufacture of all kinds of pottery goods is located in the city of Louisville, Ky. The foundation of this operation dates back as far as 1875, when John Bauer erected a small plant on Preston street road and began in a limited way the manufacture of jugs, earthenware and similar pottery specialties. In those days there was little machinery for a plant of this kind

tent to let the business run along in the old way. The changed conditions naturally demanded new methods, and as these did not materialize here, the growth of the business did not keep pace with the demands of the potter. In 1898 John Bauer died, leaving his wife to continue the operation of the plant, but this did not prove entirely satisfactory, and after several years the old plant was closed down, to be sold to the other and younger men, who had in view the true merits of the industry.

It was in the year 1906 that several young men purchased the old Bauer plant and after a careful reconstruction of the same began a business under the name of the Louisville Pottery Company. The company was incorporated with a capital stock of \$50,000, and operations were begun in a manner to insure success in the undertaking. After a short time it was decided to seek new and more modern quarters, and a desirable location was secured on a railroad, where switching facilities could be had, and a new and modern plant erected thereon. The ground comprises two and one-half acres, and there is located on the same a building 70x325 feet, one room



Setting Jugs in a Center Draft Kiln, Louisville Pottery.

except patterns that were crude, and which were operated by hand or foot power. The magnitude of the industry had not assumed the proportions that it has reached today, and the output was consumed to a great extent in the immediate locality in which the plant was located.

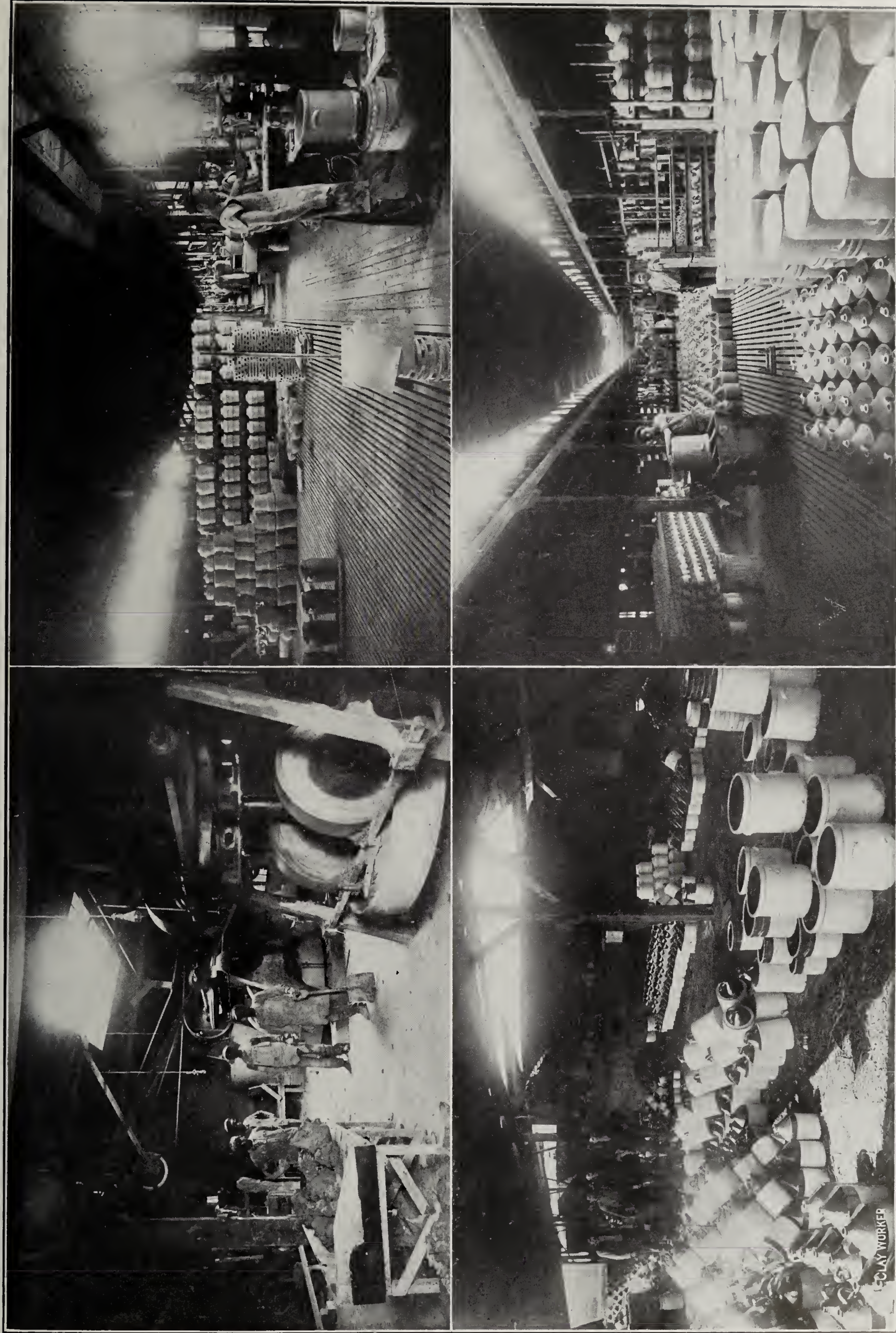
But that day has passed forever, and now the potters' art has assumed such magnitude that there is real cause for the most modern equipment in the plant and the most careful workmanship in the manner of turning out the commodities. There is an enormous demand from various sources for all the special lines manufactured from potter's clay, and the modern manufacturer is one that has a very wide and useful field of operations. He must be in touch with the needs of his customers, and he must also be able to place on the market a much higher quality of ware than was essential thirty years ago.

The Bauer pottery was operated in a limited way with an increase now and then, and the business gradually assumed a more far-reaching territory. Few improvements were made in the old plant, however, and the Bauer people were con-

of which covers 80x200 feet, where are employed a force of nearly fifty hands.

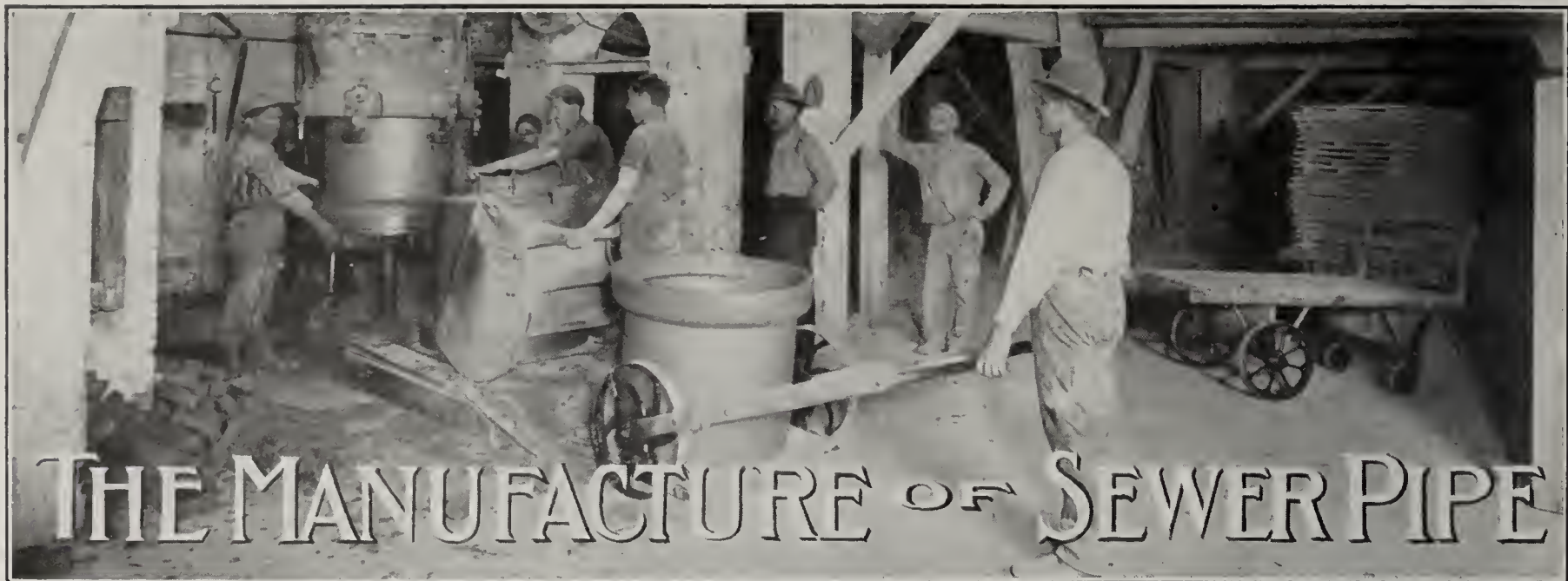
The equipment of the plant consists of the latest improved machinery and methods, and in addition they have a 150 h.p. automatic Detroit stoker, a 150 h.p. Allis-Chalmers Corliss engine. Everything is operated on the most approved methods, and their output is one and one-half million gallons per year. This includes jugs, fruit jars, earthenware, churns, flower-pots and stoneware specials. The plant is equipped with four center-stack, down-draft kilns, 28 feet inside.

The potter's clay is mined about seventy-five miles distant in the State, and is shipped in on cars right to the plant. It is of the highest quality and has given the most satisfactory results. After being received the clay is carefully washed and the manufacture of the commodities done by the best workmen obtainable. The business of this concern extends to many sections of the country, and they enjoy a reputation that is not surpassed by any other plant. Aside from this it is one of the largest plants of its kind in the South. Mr. S. O. Snyder is president of the company.



VIEWS TAKEN IN THE GRINDING, MOULDING AND TURNING, STOCK, AND GLAZING DEPARTMENTS OF THE LOUISVILLE POTTERY.

THE CLAY WORKER



P. BANNON SEWER PIPE COMPANY'S PLANT.

We find in Louisville, besides the several brick plants, other interesting and unusual clay product manufactories. One of these is the P. Bannon sewer pipe plant, located in the southwestern part of the city, on 13th and Lexington, about one mile and a half from the Seelbach Hotel, and easily reached by trolley. The plant has quite an interesting history, being the oldest clayworking plant in Louisville today and probably one of the most successful. Thirty-five years ago Patrick Bannon, the father of Mr. Jeff. Bannon, the present head of the company, entered the clay field and erected the plant. At that time the original idea was to manufacture architectural terra cotta. Before entering this business he had been a builder of machinery and was well versed in mechanical lines. He imported three Scotchmen and three Italians, who aided him greatly in the first few years in this line. He realized the advantages of vitrified clay sewer pipe, and it was not long before he began manufacturing it as a side line. The demand for the Bannon pipe became so heavy that the architectural terra cotta manufacturing became a minor proposition. Today they make little or no architectural terra cotta. Mr. Jeff. Bannon, who has had complete charge of the affairs of the company since his father's death, several years ago, has been in the sewer pipe business for thirty years and is well versed in every branch, having in his earlier days worked in all the departments and thoroughly mastering every detail of the work.

In the early years a few tons of ware was considered a satisfactory day's work. The plant developed rapidly, until today nearly seventy-five tons of ware are produced daily.

The company was incorporated in March, 1902, with the following officers: P. Bannon, pres.; M. J. Bannon, vice-pres. and gen'l mgr.; P. Bannon, Jr., treas., and Henry M. Woltring, secy. These officers continued until after the death of P. Bannon, Sr., which occurred February, 1906, when M. J. Bannon succeeded as president and P. Bannon, Jr., as vice-president and treasurer, and H. M. Woltring as secretary. In the manufacture of their products they employ clays from two different mines, both owned and operated by them. One of the mines is located in Grayson, Daviess county, Kentucky, while the other is located at Duff, Dubois county, Indiana. All the raw material is shipped in by rail, none of the clay found about Louisville being suitable for making sewer pipe. The Daviess county mine is an open bank of fire clay and shale. The shale averages 20 feet in thickness, overlying an eight-foot vein of fire clay. A three-foot bed of subsoil is first stripped off, the shale is then blasted and a mixture of the shale and fire clay shipped in to Louisville on gondola cars. Two cars are shipped in daily. At Duff, Ind., 80 miles from Louisville, they have a drift mine, from which they get a fire clay running 8 feet in thickness. Three cars of this fire clay are shipped in weekly. Fifteen men are employed at both places.

At the plant the raw material is stored in separate bins and used as needed. The materials are mixed as desired and thrown into two Stevenson nine-foot dry pans. The ground material is elevated to Dunlap screens and after screening dropped by gravity into a large steel circular storage bin, which has a capacity of 100 tons. The clay is then dropped into three seven-foot wet pans of the Stevenson make. After the clay is properly tempered the clay is taken from pans by



Main Entry Bannon's Clay Mine Near Duff, Indiana.



Clay Mine, Wilson's Switch, Near Duff, Indiana.

wooden shovels and thrown onto belt conveyors, which take the material to two sewer pipe presses. The presses are made by the Taplin-Rice-Clerkin Company, of Akron, Ohio. One of the presses is located on the first floor, while the other is installed on the second floor. On the former are made the larger sizes, ranging from 15 to 36 inches in diameter. All sizes from 3 to 12 are made on the smaller press. One of the presses is being worked all the time, while the other only half the time. The ware is dried on four floors heated with steam, exhaust being used during the day and live steam at night. The drying floors cover in all 62,125 square feet of space. There is a large cellar to the plant in which the grinding and tempering is done and the clay stored as desired. The power plant is on the first floor and consists of a 300 h.p. Reynolds Corliss engine, two eighty-four-inch by

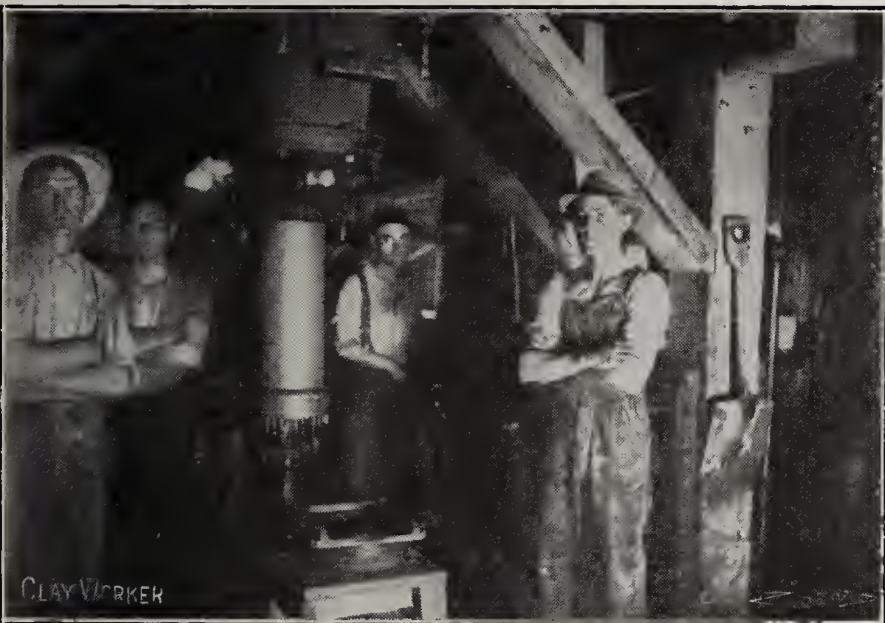
It is a lidded pipe, made of fire clay and shale and is vitrified, salt-glazed and of such durability and strength and proof against the attack of any fluid or chemical it might be subjected to in its usage that it is safe to say it is literally everlasting. This lidded pipe is made in whole pieces, but can be broken in half by use of a cold chisel and hammer, as each joint is scored or partly cut the full length of the pipe in the manufacturing of same and is therefore readily separated. It is so constructed that the bottom half can be laid in the ditch, placing at intervals of every ten feet a support or rest piece which has extensions or projection pieces on both sides on the inside of the pipe. The projection pieces have a small pocket, in which is placed the iron pipe or roller to carry the steam pipe, allowing all drip or leakage to run off under the



The Bannon Fire Clay Mine, Grayson County, Kentucky.



Bannon's Shale Bank, Lincoln City, Indiana.



Making Eight-Inch Sewer Pipe.



Setting Large Size Pipe at P. Bannon's Sewer Pipe Plant.

sixteen-foot four-inch tubular boilers and a separate engine for lighting and running the machine shop.

The ware is burned in twelve twenty-eight-foot, round down-draft kilns, fired with coal. The burning requires four days of firing. The largest runs are 24-inch pipe, the demand for this special size being far greater than the company can supply. The odd sized and smaller pipe, together with some of the larger sizes, are piled on the stock yard, which is 600 by 425 feet in area. Besides the usual run on sewer pipe the company makes special lines of flue linings, wall coping, chimney tops, traps and elbows.

The Bannon patent lidded pipe for covering steam and water pipes is a product well known throughout the Central States, this particular pipe filling half the company's orders.

steam pipe. These pipes are used by many of the steam heating firms in the country.

A side line commanding a great deal of the company's attention is the manufacture of chimney tops. In traveling about over Louisville one will find hundreds of residences and buildings on which the Bannon chimney top is used.

One of the unusual features of the plant is the employment of gravity elevators. There are three used in conveying the pipe from the second and third floors to the kiln yard. A large, strong, wooden box filled with heavy weights attached to a stout chain pulls the elevator when lightened of its load up to the second and third-story floors, where it is locked by a peg arrangement and the trucks of the pipe wheeled on. The elevator is then unlocked and slowly lowers to the yard

level. This is a convenient method and a very economical one. The plant has many other unusual features which the average clayworker would enjoy inspecting. The pleasure will be enhanced by the hearty welcome and cordial greeting extended every visiting clayworker by Mr. M. J. Bannon and his brother, P. Bannon, Jr., who personify the pleasing characteristics of typical Kentucky gentlemen.

Louisville's Face Brick Business.

For a decade or two Owen Tyler has played the leading role in the face brick business of Kentucky. His office in the Tyler building is recognized as headquarters for fine pressed and ornamental brick by the architects and builders of that State. We are pleased to present a view of the display room in Mr. Tyler's office, where, as the reader may see, panels of every style of up-to-date brick are shown to the best advantage. Mr. Tyler is ably seconded in the work of promoting brick architecture by his brother, Isaac H. Tyler, who, as a good salesman should, always wears the smile that won't come off. He will be an active member of the "glad-hand" brigade convention week. Owen Tyler has figured conspicuously in local political affairs of late years and has gained an enviable reputation as an orator, consequently he is the choice of the local committee for toastmaster at the annual banquet, a function where wit and wisdom will race against



Hand-Molding Room, Third Floor, P. B. S. P. Co.'s Factory.

time, with no speed limit to check the swiftest toasters, or roasters, as the case may be.

Neighboring Plants.

There are a number of yards in near-by towns, but as they figure but little in the Louisville market, they are not regarded as competing plants. For instance, there is the West Point Brick Company, at West Point, twenty miles southwest from Louisville, which operates an up-to-date soft-mud plant. It is owned and operated by Louisville business men, who will be represented on the Entertainment Committee, but who do not as yet consider themselves as "city-broke" brickmakers, but are content to supply the market in the immediate vicinity of the plant.

In scanning the list of entertainers old-time members of the N. B. M. A. will observe with pleasure that Mr. H. W. Katterjohn, of Paducah, is a member of the local committee. Mr. Katterjohn is state vice-president of the N. B. M. A., and while his home town is on the western border of the State, he claims the right to join with the Louisville contingent in welcoming visiting brickmakers of the nation to the metropolis of his State. This spirit of State pride will find expression in a warm Kentucky welcome to every visitor. Those who may wish to visit any of the plants mentioned will be afforded every facility for doing so.

THE FORWARD LOOK.

By Wilbur D. Nesbit, in The Mahin Messenger.

FOR YEARS AND YEARS it has been preached and written into people that on the first day of January they should sit down and look over the past year.

As a matter of fact they should sit up and take notice.

Looking ahead is one of the best habits to acquire.

You can draw as many moral lessons from the future as from the past.

The optimist looks ahead. The pessimist claims to, but he only sees the immediate bump. The optimist not only sees it, but avoids it.

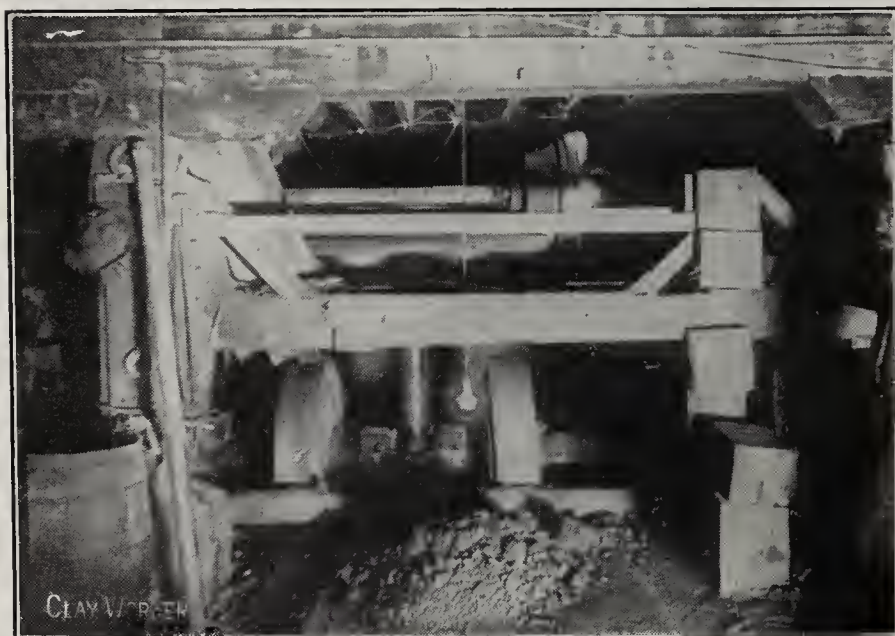
Looking backward may be all right when you are far enough ahead of the times and people to retire.

Looking sidewise is a bewilderment; half of the time you look on the wrong side.

Looking forward keeps your perspective perfect.

If I were a preacher or a moralist or a dealer in good advice, I should tell people to throw the 1910 calendar into the waste basket and peruse the twelve pages of 1911.

The late Omar Khayyam observed at one time that when the moving finger has written, neither piety nor wit nor an



One of the Pans Used at P. Bannon's Sewer Pipe Plant.

act of Congress can call it back nor revise the records—or words to that effect.

Job sat among the ashes and longed for the past, until he became aggravated at Bildad, Eliphaz and the other fellow and began looking forward.

The greatest religion man will ever know is built on the forward look.

Prophecy took hold upon the hearts of men and they keep the prophecies in their lives and the histories in their libraries.

The man who looks ahead keeps going ahead.

The business man with a back-up memory is always taking the siding for the ones who are keeping to the schedule.

The army that keeps its eyes front isn't thinking of retreat.

"Eyes front" is the pose of Chicago.

It seems that every national advertiser is looking ahead and seeing a fat year for 1911. The advertising thermometer is first to feel heat or cold—and it is rising.

Only the advertiser with the forward look wins.

Looking backward doesn't discover your successes. You have them with you all the while. Nineteen eleven is going to be the year of success—for you, if you believe it; for the others, in spite of your belief.

Things, times and people advance so rapidly that you not only have to look forward, but to keep going with them if you would be of them.

"Eyes front," then—and a Happy New Year to you.

FORT DODGE CLAY COMPANY HAS CONVENTION OF ITS OWN.

The salesmen of the Plymouth Gypsum Company and the Plymouth Clay Products Company, of Fort Dodge, Iowa, attended the annual school of instruction from the sales managers, Mr. D. E. Roberts, of the Gypsum Company, and Mr. G. M. Ellenberger, of the Clay Products Company, at the home plant at Fort Dodge. These gatherings are of much interest to the men selling the goods, and to the heads of the departments of manufacture in learning the demands of the trade. These meetings occur annually to exchange ideas and for a social time.

This year there were more things of interest for the salesmen than usual because the companies expended large sums of money in improvements and new developments to increase the output for 1911. They have opened up additional mines, built an aerial railway of one and one-half miles to transport

and Minnesota; H. J. Osterlund, charge of sales in South Dakota and southern Minnesota; F. M. Cougill, charge of sales in Iowa; J. T. Garland, charge of sales in Wisconsin and northern Michigan; W. T. Anderson, charge of sales in Nebraska; J. L. Johnson, assistant manager; J. M. Norton, cashier; T. B. Kershaw, assistant manager; T. H. Murphy, Miss Esther Maenson, Miss Beda Nelson, Miss Jennie Nelson, David Brown, superintendent of construction; C. L. Peterson, superintendent of gypsum mill; Otto Simonson, superintendent of clay mines; Wm. Heller, superintendent of mines; John Heller, superintendent of mines; H. B. Brockenbrough, superintendent of transportation.

OUR LARGE GROWTH IN IMPORTATIONS.

We are growing in prominence as an export nation, yet during the past year our imports increased in a greater ratio than the exports. The preliminary report by the Bureau of



The Display Room of Owen Tyler, Louisville, Ky.

the raw material from the mines to the plants, and have built terminals at each end of the line—at the gypsum mill for crushed rock, storing capacity, 15,000 tons, and at the clay plant for 10,000 tons. This supply of raw material at the works assures a steady and continuous operation and acts as a governor of supply.

A number of new brands have been added this year, the foremost being a guaranteed plaster, called acolite, also the Plymouth gypsum partition blocks and the Plymouth plaster board.

The officers of both companies entertained the salesmen, office force and superintendents at a banquet on January 4 at the new Wahnonsa Hotel, those present being: L. E. Armstrong, president; E. L. Marsh, vice president; J. T. Cheney, secretary; D. E. Roberts, sales manager; G. M. Ellenberger, sales manager; A. J. Armstrong, charge of sales in Illinois and Indiana; O. F. Armstrong, charge of sales in North Dakota

Statistics says that the foreign commerce of the United States for 1910 will probably exceed that of any previous year, but the exports will not likely be up to those of 1907, and the increase is made up largely of heavy imports, which will easily surpass those of any other year. In explanation it is said that the large growth in importations has occurred chiefly in the manufactured materials, while the comparatively slow growth in the exports is due to the falling off in the outward movement of foodstuffs. In other words, we are not as important as feeders of the world now as we were, but we are growing in importance as manufacturers.

From the figures now available the indications are that the imports of earthen, stone and chinaware for the calendar year 1910 will amount to about \$11,000,000. The total for ten months for which records are complete is \$9,481,094, nearly a million dollars in excess of last year.

QUESTIONS OF INTEREST TO CLAYWORKERS.

ANSWERED BY J. J. KOCH.

Can you give us any data on gas producers of the "Siemens" type using bituminous coal? We have read various books on the subject and are a little in doubt.

Gas producers are not such a simple device to operate as is generally supposed. A gas producer should be specifically designed to make the type of gas that is needed for a specific use and must also be adapted to the kind of fuel that is to be used. The sizes of gas producers have also to be in line with the quantity of gas that must be furnished in a given time. There is no such thing as a universal gas producer that can be used under any and all conditions for all purposes and requirements. The claim has been made by European experts that the "Siemens" type of gas producer is just as effective for some lines of clayware burning as the more expensive "steam" gas producers. But be that as it may, there is no question but that the producer gas coming from various types of producers is different in its volumetric proportions, its density, its intensity of combustion of flame temperature and the quantity of air required for complete combustion. But in no case can more heat be produced by using producer gas than what is in the fuel itself, as producing gas is doing nothing but converting solid fuel into a gaseous one. So taking all things into consideration, care and judgment must be exercised in kiln construction to properly proportion the ducts or passages for water smoke, air, gas and products of combustion, in relation to the type of gas used, the temperature demanded for the proper burning and the duration or length of the burning time. It is not rare that a gas kiln may be very effective with one kind of gas and type of clayware and prove to be a failure with another kind of gas and a different type of clayware. Before going any further we will use the following bituminous coal in the illustrations, analyzing equals 48 carbon, 36 volatile matter and 16 ash, or 100 per cent., and assume its heating value at 13,700 B. T. U. We will also grant the usual defective working of the ordinary "Siemens" producer, in that 5 pounds of carbon are burnt to carbon dioxide and thereby its value as a fuel factor is lost. We will also assume that there are not any means (as is customary in the ordinary Siemens producer) for splitting up the volatile matter into hydrogen and carbon, but that the volatile matter distills as such, hence we would have from 100 pounds of coal gasified with theoretical amount of air from an ordinary Siemens gas producer:

	Pounds.	Cu. ft.	Vol. %	
43 carbon	100.32	1,285.09	24.50	Carbon monoxide
5 carbon	18.33	149.42	2.85	Carbon dioxide
36 volatile matter..	36.00	807.44	15.40	Volatile matter
Nitrogen	235.10	3,002.27	57.25	Nitrogen
Totals	389.75	5,244.22	100.00	

Or one pound of coal will produce 52.44 cubic feet of gas, weighing 3.89 pounds.

In calculating its energy we will proceed along the usual value estimates, viz.:

Carbon monoxide at 4325 B. T. U.

Volatile matter as marsh, or as at 23513 B. T. U.

With the coal valuation at 13700 B. T. U., we therefore have:
Carbon monoxide (lbs.)....100.32x 4.325= 433.884 B. T. U.
Volatile matter (lbs.)..... 36.00x23.513= 846.468 B. T. U.

Total1,280.352 B. T. U.

From gas as it passes from gas producer and with the hundred pounds of coal, valued at 13,700.000 B. T. U., we have an energy of 93.43 per cent., or practically only the energy loss of the 5 pounds of carbon burned to carbon dioxide, which as such has no caloric value in that it is completely burnt carbon.

But if we figure that 10 per cent. of the volatile matter

has condensed into tar so that it has no value as a gas, we then have 36-3.6=32.4, or,

Carbon monoxide100.32x 4.325= 433.884 B. T. U.
Volatile matter 32.4 x23.513= 677.174 B. T. U.

Total1,195.705 B. T. U.

Or an energy of 87.28 per cent. of the coal, and with a condensation of 20 per cent. volatile matter, or 36.00-7.2=28.8, we have:

Carbon monoxide100.32x 4.325= 433.884 B. T. U.
Volatile matter 28.8 x23.513= 677.174 B. T. U.

Total1,111.058 B. T. U.

Or the energy of 81.1 per cent. of the fuel, and with a condensation of

30% volatile matter=energy at 74.98%
40% volatile matter=energy at 68.83%
50% volatile matter=energy at 61.68%

This condensation of gas as regards to volatile matter takes place the more rapidly the quicker the gas cools off and the further away from the gas producer it is used, hence it is advisable to give the producer gas as short a travel as possible to its burning destination. It should also be borne in mind that the relative volumetric proportion of its constituent gases change to the detriment of the temperature of combustion and the volume of products of combustion are also changed. If we now make a calculation with 36 volatile matter reduced to 28.8, or 20 per cent. condensation, we would have about

	Pounds.	Cu. ft.	Vol. %	
43 carbon	100.32	1,285.09	25.28	Carbon monoxide
5 carbon	18.33	149.42	2.94	Carbon dioxide
28.8 vol. matter...	28.80	645.96	12.70	Volatile matter
Nitrogen	235.10	3,002.27	59.08	Nitrogen
Totals	382.55	5,082.74	100.00	

In the original gasification 1 pound coal gives 52.44 cubic feet of gas, in the condensed gas it drops down to 50.82 cubic feet. In the original gas we have 2.85 per cent. carbonic dioxide and 57.25 per cent. nitrogen as detrimental, and in the condensed gas the detrimental are increased to 2.94 per cent. carbon dioxide and 59.08 per cent. nitrogen. According to calculation if one volume original gas takes 2.15 volumes air, then one volume condensed gas takes 1.8780 volumes air. These figures show that judgment must be used to handle producer gas properly to get the best results, and unless either the kiln designer or kiln burner has the requisite knowledge and ability, there will be trouble ahead. If, however, the ordinary "Siemens" gas generator be supplied with a device to break up the volatile distillate into gaseous hydrogen and carbon products, then the condensation of tarry products will be eliminated and such condensation cut out, in turns bringing the final combustion results closer to the theoretically calculated results.

It may not be amiss to append a theoretical calculation of the same coal gasified with steam to the extent of one-fourth the oxygen being supplied therefrom, we would have a gas produced about as follows:

	Pounds.	Cu. ft.	Vol. %	
43 carbon	100.32	1,285.09	26.35	Carbon monoxide
5 carbon	18.33	149.42	3.07	Carbon dioxide
36 vol. matter.....	36.00	807.44	16.56	Volatile matter
Hydrogen from				
steam	2.20	393.65	8.07	Hydrogen
Nitrogen	176.37	2,252.90	45.96	Nitrogen
Totals.....	333.22	4,888.50	100.01	

In this case the increase of the hydrogen and decrease of nitrogen will alter the intensity of flame temperature, and it

can readily be understood that the relative proportion of air and gas must be subservient to the composition of this "steam" gas, and therefore be in different volumes than with the ordinary "Siemens" gas.

A CIRCULATION TONIC NEEDED.

One of our esteemed commentaries takes a whack at slow-paying customers and, incidentally, at one of the evil after effects of the late lamented panic, by describing the business world as being in a state of slow or sluggish circulation and needing a stimulating tonic. It is pointed out that when the panic came people who had money held to it, delayed the paying of their bills as long as they could, and it all went. Everybody was afraid to sue or push collections, because it was an unusual condition which might be pleaded as an excuse for delaying payments, and this condition was so generally recognized that every man considered that he would be a sort of hard-shell if he took drastic means to force collection of accounts. It was probably a good thing at the time, but it is a good thing that has probably since been overdone, and it is a habit which, after being formed, has clung

Written for THE CLAY-WORKER.

BRICK PAVING APPLIED TO THE ROADS OF ALLEGHENY COUNTY, PENNSYLVANIA.

Progress Made During the Past Year by the County Engineer's Department Under the Direction of S. D. Foster.



ALLEGHENY COUNTY, Pennsylvania, of which the city of Pittsburg is the county-seat, can probably boast of more good road work of a permanent character than any other county in the United States. In making this statement consideration must be taken of the fact that much of this road building is through country of a rugged character, entailing considerable cut and fill work in connection with the construction. The good road work done to date in the county is described very completely by the statement that one can go 200 miles out of the city of Pittsburg without doubling back on any road and without leaving a pavement. The result of this has been that the values of



A Brick Paved Country Road Near Pittsburg, Pa

to the people until we are today still suffering from this more than any other one thing. What is needed, says this commentary, is for everybody to wake up and take a tonic to improve this circulation. Come to a realization that the thing for each of us to do is to pay the other fellow as soon as he can, which will enable the other fellow to pay somebody else, and which in the end will result in those owing him to pay him all the quicker. In other words, it will quicken the circulation and put more life and vim into the business. It is held that when the business world suffers from sluggish circulation it is just like a man with a physical ailment where the blood is sluggish. He suffers from lassitude, from lack of ambition and energy and is no account generally. What he needs is a tonic and a stimulant. Something to quicken the circulation, and then he begins to act spry and to think brightly and do many things that were left undone. That, it is pointed out, is the way it is in the business world. If we can be stimulated to pay and be paid it will quicken the circulation and do more to relieve the drag of business in the commercial world today than any other one thing. There is some pretty good logic in this reasoning, too; logic that we may all take to heart and not nurse and think over it too long either, but put it into action. Money is of little use unless it is kept in circulation.

real estate have been enhanced about 40 per cent. in the suburban district, creating new residential sections and making the many truck farms in the vicinity take on increased values, due to better marketing facilities.

During the year 1909, after a thorough investigation by the county commissioners and the road department, it was deemed advisable to experiment in the matter of brick road construction. It is believed that even though this experiment is still in a primary state, it will prove a wise and economic solution in the construction of certain roads.

Sections of the Natrona and Etna roads have been paved with brick. Much of the brick paving has been done on macadam roads, where the surface has been worn off. The cost of resurfacing with brick varies much, due to the length of haul of material.

On account of the rugged topography of the country and a desire to keep grades down to a minimum, the construction of new roads ordinarily entails an average excavation of about 12,000 cubic yards per mile. Most of the new work let during the past year has been for brick road construction.

The various types of brick road construction used in Allegheny county are shown in the accompanying sectional views. It will be noted from these that there are three different methods of constructing the brick roads. Two of these are for

new roads, one showing a fourteen-foot section and the other a fourteen-foot-six-inch section, with an earth road section of 11 feet 6 inches to be used as a summer road. These two types are practically the same, consisting of 4 inches of concrete base, a sand cushion of $1\frac{1}{2}$ inches and a four-inch brick course with cement filler and one-inch expansion joint. The difference, as seen in the illustration, is in the curb form and the additional trench drain and three-inch vitrified tile. The curb is of concrete, having a base of 12 inches, battering to

and one combination curb and gutter. All the material used on this work must conform to the standard specifications of 4 per cent. absorption, 20 per cent. abrasion and a crushing strength of 8,000 pounds.

As an item of possible general interest the following reference is made to the costs of maintenance (resurfacing and general repair) work carried on without outside assistance by the county engineer's office during the past year:

Noblestown road, consisting of 3,150 feet, at a cost of \$1.00 per square yard, for brick put in place. The curbing, 6x12x15, was put in at a cost of 25c per foot. Total cost of work was \$9,153.22.

Versailles road, consisting of 1,850 feet, was resurfaced at a total cost of \$5,937.97. The cost of the brick per square yard laid was 95c. A similar curb as used in connection with the Noblestown road was laid at a cost of $24\frac{1}{2}$ c per square foot. In this case the specifications of the National Paving Brick Manufacturers' Association as regards the use of properly mixed cement grout filler were adhered to. The application of this cement not only binds the brick together and protects the edges and corners from chipping and becoming rounded, but being impervious to moisture, prevents disintegration of the foundation, which would permit the surface to wear and produce ruts and holes such as are found in improperly constructed brick-paved roadways.

Natrona road, consisting of 5,288 square yards of brick, was laid at a



Laying Brick on a Country Roadway

6 inches on the outside and a height of 15 inches, and is placed in six-foot sections.

The third type shows a section of a brick road placed on one of the old roads with telford base. In this case the old roadbed is surfaced with a two-inch layer of slag; sand is placed as a cushion, upon which the brick is laid in a four-inch course. The section is 16 feet in width, with flush concrete curbing of the same dimensions as used in the other brick roads. Allowance is also made for expansion joints of 1 inch on either side next to the curb.

The general road work done in the county is classified under two heads—original construction and maintenance work. A State law provides that all original county road construction shall be performed by contract; the county engineer's office performing the resurfacing and maintenance work.

It is of interest to mention at this point that in comparing the contract work with that of the work of the county engineer's department the construction work performed by the county engineer's office is done at a cost of 25 per cent. less than the contract work.

On original construction work there is about twenty-five miles of roadway undergoing paving with brick, all of which is done by contract. This work is being done at an average cost of from \$19,000 to \$23,000. The type of road under construction in the various parts of the county has a four-inch concrete base. The curbing will consist of one flush curb



Brick Paved Roadway Stretching "Over the Hills and Far Away."

cost of 92c per square yard and with a curbing cost of 19c per foot.

On the Evergreen road 6,275 feet of brick paving were laid at a total cost of \$7,018.98. The rate per square yard of brick laid was \$1.01 and the curbing cost was 25c per foot.

A few of the roads to which brick paving is being applied are Greensburg pike, Lock No. 3 and Elk Horn, Dravosburg Extension No. 2, Bridgeville and Clifton, Glassport and Elizabeth, Perrysville No. 1, Butler, Yardmore, etc.

The Allegheny County Road Engineering Organization consists of County Road Engineer Mr. S. D. Foster, an engineering department and several superintendents. The officers are appointive and have no political connections. The whole organization is under three county commissioners, and the annual appropriation for the road work amounts to \$1,500,000.

SOME HISTORY ON ORIGIN OF THE WORD DOLLAR.

PERHAPS there are few people of the present day who perhaps there are few people of the present day who take time from the pursuit of it to figure out the origin of the word "dollar."

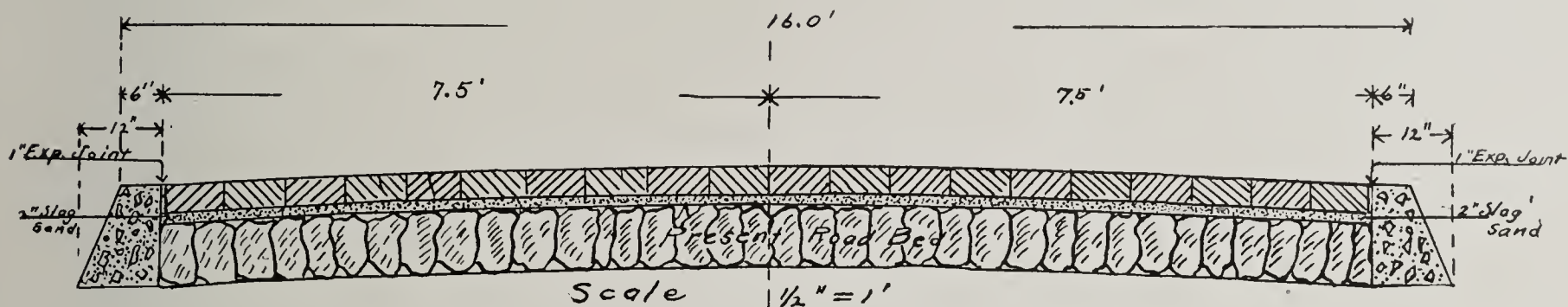
There is living in New Albany, Ind., a little family of German-Americans, Mrs. Bernard von Beust and her son and daughter, Dr. Max and Helen van Beust, whose ancestors had much to do with its creation.

They are of the famous house of Von Beust, of Prussia,

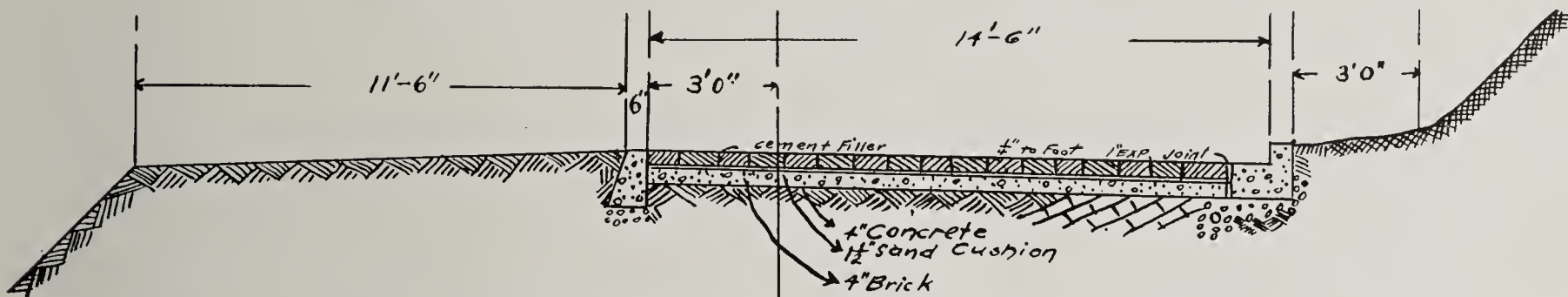
Beusts, Prof. Joachim von Beust, a patron of the University of Wittenberg, Prussia, and the owner of extensive silver mines in a valley known as the Joachim Thal, was authorized by the government of Prussia to manufacture and deliver to said government the coin of the country for a long period of years. These coins were to be standard for weight and purity, and to insure against their being counterfeited the maker marked them with the name of the valley wherein was located his mine.

These were issued by the government and circulated as the standard coin of the realm, being carried almost all over Europe by the Germans and by the Dutch traders to many parts of Asia, the northern part of Africa and other countries.

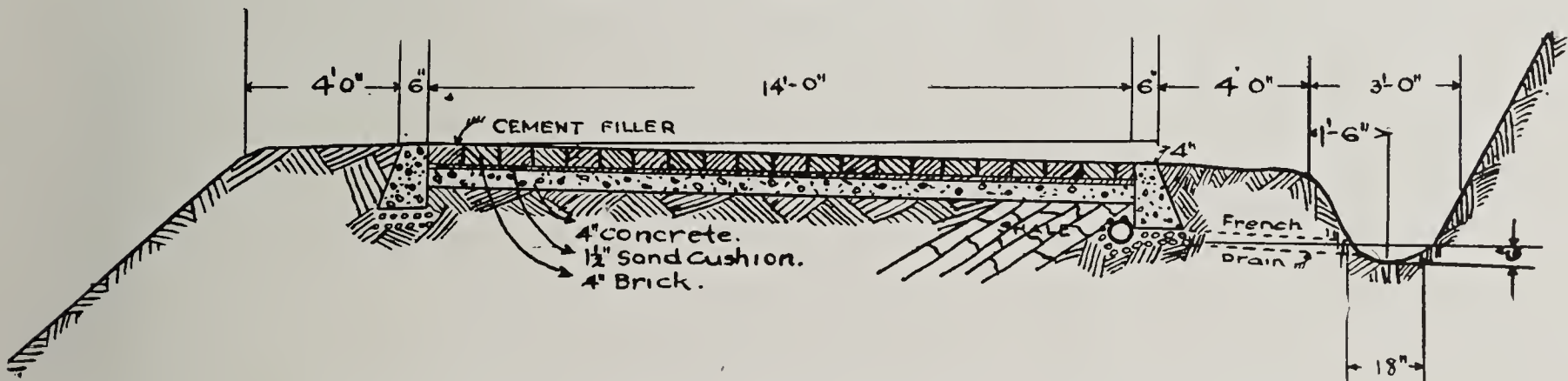
Bearing no other inscription than the name of the mine, they soon became "thalers" in the speech of the people, which name has been used for the standard coin in that country since. When the German coins became more common in Hol-



Sectional View of Brick Road Laid on an Old Road With Telford Base.



Fourteen-foot Brick Country Roadway With Earth Road on Left.



A Type of Fourteen-foot Brick Road Used in Allegheny County, Pennsylvania.

who furnished Russia with a Czar, Austria with a prime minister and other courts of Europe with notables in great numbers. The annual reunion of Barons and Baronesses von Beust was held last year in Vienna and occurred at St. Petersburg in November of this year. The American branch of the family has also a right to the use of the title, but as they have become loyal American citizens and are unassuming, they have long since abandoned it.

But to return to the dollar. The New Albany Von Beusts are lineal descendants of Joachim von Beust of Joachim Thal (or Joachim valley), from whom the name of this most popular coin is derived.

The now accepted symbol by which wealth in the United States is measured at the present time derives its name from a slang, or, rather, colloquial, term of the middle ages, but which had a high significance at that time nevertheless.

In the year 1562, one of the ancestors of the present Von

land a coin was also issued there of the same value by the Dutch government, and this was named from the "thaler," being called in Dutch "daaler."

These coins circulated for a long time in Europe and were well known. The Scandinavians called them "dalers," as did the Swedes, and farther East they were called "tallers."

When finally the Dutch reached America and settled at New Amsterdam (New York) almost the first thing they did was to set up a mint and coin "daalers" (pronounced almost the same as the American word dollar).

From this coin was taken the name which was later selected by the United States for its standard coin. It is now renowned over the world, but few who handle it daily know from whence it derived its name.

The indications are that the prices of upper berths are coming down a little.



INTRODUCTORY.

IT IS WITH feelings of mingled respect and distrust lest I fail that I accept the position as editor of the Drainage Department, held so long, filled so well and so recently left vacant by Mr. Billingsley, the father of drainage in the Mississippi valley.

I realize the great amount of work necessary to make it what it may and should be in the field of technical literature. No one unaided can do this.

As the benefits are for all, each one should aid in bringing into the department such items of interest and profit as may come under his notice.

Tourists who visit the grave of Helen Hunt are wont to carry away a small stone as a souvenir. That there may be stones enough for all, each one who comes is expected to bring one and lay it upon the grave.

The department of drainage can be made pleasant and profitable to all if each one will bring to the editor his offerings in hints, suggestions, news, descriptions of new and important methods and appliances, together with photographs showing whatever may be entertaining and instructive to others.

It is not the intention in this department to advocate any special policy, to urge the advantages of any particular appliance nor to dictate what any reader should do. We will persistently refuse to believe or say that one machine or one kiln or one clay or one dryer or one method or one product is better than another, for we do not believe it is. We do believe and will advocate that each man should learn which is best for his particular conditions, and having learned, he should adopt that and apply it determinedly, persistently and industriously.

While it may be impossible to tell the reader what is best for him, if we knew, which we may not, we hope to offer suggestions that will lead some to think about and study their own methods and appliances and by their own experience and by comparison with others arrive at conclusions that will prove beneficial.

We will ever bear in mind the following thought, expressed by Colonel William C. Hunter: "No man can dictate to another his belief, nor assume that he is the sole observer of the truth."

If differences of opinion and controversies should arise in which opponents insistently stand their ground, there should still be good nature. There can, and should be, a remembrance of the fact that men who have honest opinions are entitled to those opinions even though those opinions are diametrically opposite to the opinions held by others. The man who refuses to concede honesty of purpose in an opponent has lost one of his own strategic points.

We do not expect to give our attention solely to the subject of tile drainage. Under this department may be treated all kindred subjects, such as the manufacture of drain tile, the reclamation of marsh and swamp lands and the conservation of beautiful lakes and game preserves; drainage laws, drainage districts and contracts, ditching and dredging machinery, methods of financing large undertakings, government meandered lakes, waterways and the improvement of roads by drainage.

If it should develop that there is a kindred relation between automobiles and airships and drainage, those things will be welcomed for a fair share of consideration.

We understand that this is a technical journal and is de-

voted to the elevation of the art of manufacturing claywares, but no man can do the best unless he elevates himself. The manufacturer of clay need not be a clod. "A man should take care above all things to have a due respect for himself" if he would bring respect to his profession.

The life is more than meat, and the body is more than raiment. The manufacturer who buries himself in his business will become narrow-minded and will miss those broader views of life known and enjoyed by those who look up from their daily toil to enjoy the world around them.

He who lives to himself will become selfish and can never know the cheering and sustaining encouragement to be derived from sympathetic association with others whose interests are similar to his own.

INCREASE IN DRAINAGE.

During the few years just past there has been a marked growth in land drainage in all its branches. An interest in the improvement by drainage of lands already classed as agricultural has been shown that had had no parallel in the past. Many farms that have been under cultivation since the early settlement of the country are just beginning to feel the effects of a thorough system of underdrainage.

Not only have farm lands received the attentions of drainage workers, but lands always considered as comparatively worthless and classed as swamp lands have received a good share of the thought and skill of drainage experts.

As these swamp lands are often in large tracts, often extending into or through several townships or counties, it was necessary that special laws be made that would serve the interests of all owners of lands to be benefited by the contemplated improvements. In order that the lawmakers might be shown the need of these laws and might know what such laws should be it was necessary that persons interested in the passage of the laws should make their wants known to the proper authorities. This was done by the concerted action of clayworkers' associations and agricultural interests. In several States state drainage commissions have been organized. Old laws have been amended and new ones placed on the statutes from time to time, and much good work is being done.

As in everything else, experience was necessary to develop the best methods. Not all drainage work done has been well done. In some cases the results have been disappointing and the expense has been considered too high by the land-owners, who were to receive the benefits.

There are several influences that have tended to increase the amount of land drained within recent years. Probably the one that should be mentioned first is that the experimental stage has passed. The beneficial effects of properly constructed drains are appreciated by all.

That hard and expensive school of experience has taught that almost any wet soil, whatever its texture, will be benefited by underdrainage. The changing seasons have shown that the large amount of drainage already done does not produce droughts. Those who have studied the subject know that the best crops in seasons of drought are grown upon lands that have been well tiled.

Another reason that may be given for the increased amount of drainage being done is that the land-owners are in easier circumstances financially than they were a few years ago. The farmers are more generally out of debt and many have surplus funds with which to make desired improvements. They have attained this condition partly by the gradual accumulation from year to year and by the increased prices received for farm products.

The high prices of commodities produced from land has been a great inducement to the farmer to raise all he could. One way to increase the amount was to cultivate an increased acreage. The additional areas could be gained on almost every farm by draining the waste wet land.

The rapid advance in the value of farm lands has had much to do in increasing farm drainage.

In these years of national prosperity our people have grown rich, and those with money are ever on the alert looking for investments, or for safe places to loan their surplus.

The steady rise in value of agricultural lands, together with their intrinsic value, due to their productiveness and freedom from the speculative uncertainty of many investments, have made farm lands more and more valuable. Prices have risen to such an extent that wet lands no longer bring remunerative returns upon the investment. The only way to make the investment pay is to drain.

COMBINATION GASOLINE TRACTION ENGINE, WITH DITCHER WHEEL ATTACHMENT.

BY FRANK C. PERKINS, IN SCIENTIFIC AMERICAN, OCT. 29.

A COMBINATION GASOLINE traction engine and ditcher of American construction has recently been devised which will do all sorts of farm and other work required of such an apparatus, at the same time being provided with a ditch-digging wheel attachment of great capacity. The accompanying illustration shows this ditcher and traction engine digging a trench six feet deep and twenty-four inches

using an especially adapted gasoline engine for a traction ditching machine. Steam power weighs from 600 to 800 pounds per horsepower, while a gasoline engine weighs 115 pounds per horsepower. Gasoline is compact and cheaper than coal, while no fuel is consumed during stops, and there are no expenses for men, team, water or coal wagon. The gasoline ditcher saves the expense of an assistant or fireman, and it does not have to be fired at night in freezing weather.

The gasoline engine on this ditcher is of the horizontal two-cylinder type, developing full 40 h.p.

It is stated that the cost of a gasoline-driven machine is low, as only one man is required to run the machine, and two men can handle and lay the tile. The expense of one ten-hour day is said to be:

Operator	\$4.00
Two ditch men at \$2.50.....	5.00
25 gallons gasoline	3.35
Oil and lubricant	.50

Cost per day\$12.85

This continuous apparatus will dig a ditch six feet deep



—Courtesy Scientific American.

Combination Gasoline Traction Engine With Ditcher Wheel Attachment in Operation.

wide in Wisconsin clay at the rate of four feet per minute.

The height of the digging wheel is 112 inches and the width of the machine 10 feet, with a total length of 24½ feet. As a traction engine the gasoline motor drives the machine at a road speed of three miles per hour, the engine developing forty horsepower when required. The traction engine has a gasoline capacity of 70 gallons, and it also carries 10 gallons of lubricating oil, which is sufficient for operating at full load for three days.

In this combination type of traction engine and ditcher, if the digging wheel is taken from the machine, a perfect traction engine is left and differs only from the best practice of traction engine builders in that it has wider traction, with increased strength to withstand the additional strain of the ditcher, and the operator can handle the machine as he would handle an ordinary traction engine.

For keeping the grade a water glass is suspended on a swinging bracket at the side of the operator. This glass is connected by a flexible tube to a copper tank located on top of the digging wheel.

It is maintained that there are many advantages gained by

and twenty-four inches wide at a minimum rate of 180 linear feet (80 cubic yards) an hour. At this speed it digs three feet deep per minute and over 100 rods per day.

It is held that a man will average barely two rods per day digging two feet wide and six feet deep, while a gasoline motor-driven ditcher is more reliable than the man and will dig two rods every seven or twelve minutes. In ten hours, at the rate given above, it evidently will do the work of nearly sixty laborers, and will keep so perfect a grade that tile may be laid behind it without further work on the bottom of the ditch.

It may be of interest to note the construction of this digging wheel attachment, which is fitted in the rear and digs the ditch. It is 9 feet 4 inches in diameter and is suspended from the rear axle by a cast steel yoke or clevis. On the spokes is fastened an oval rim 22 inches wide, and on the center of this rim and around its complete circumference is riveted a six-inch I beam, while on the outer flange of this I beam is bolted another oval rim 22 inches wide. It may be stated that across the 22-inch outer rim 16 openings 6 inches

wide are cut, and on one edge of these openings cutting knives of hard center crucible steel are bolted.

Between these rims there are two continuous spaces or buckets, one on each side of the I beam, and as the digging wheel revolves the machine moves forward, while the digging wheel revolving upwards, causes each knife to shave from one-half to one inch off the ground.

It will be seen that as each of the 16 knives takes its shave the earth is forced through the six-inch openings, filling the continuous spaces or buckets between the rims, and in this manner from 8 to 16 inches of ditch are dug at each revolution of the digging wheel.

In disposing of the dirt the wheel revolving upwards carries the dirt to the top, and here there are stationary polished plows reaching from each side into the continuous spaces or buckets between the rims. These plows are made to fit the continuous spaces or buckets perfectly and extend to and scrape the web of the I beam. They are shaped much the same as the mold-board of the common plow, and the dirt coming in contact with them is deflected out and dropped onto the two circular conveyor tables. These conveyors are circular steel plates and revolve like a turn-table. At the outer edge stationary scrapers force the dirt from the conveyors, dropping it at a convenient distance from the excavation. The conveyors are kept level automatically and the earth is evenly divided on each side of the excavation.

The digging wheel is driven by a manganese steel sprocket, bolted in sections around the outside. It loosens the stones and hard earth and protects the knives and rims from jams and wear, the sprocket also driving the conveyors.

For use in sandy and caving ground a set of steel shields are utilized, so arranged as to be hooked to the rear of the wheel and to protect the man laying the tile in the ditch in the same manner that curbing does.

Where a sloping ditch is desired for open work or where the ground is inclined to cave, steel cutting blades are bolted at the sides of the digging wheel. The slope can be made from the width of the bottom of the ditch to 42 inches on top. A wire cable or tape is stretched at stations 11 feet above the bottom level of the ditch and passes the water glass close enough to touch. The digging wheel is lowered to the depth required and the colored liquid contained in the tank shows in the water glass on a level with the tape. As the unevenness in the surface of the ground is encountered the slightest variation is noticable in the liquid, which will at all times seek its level. The accuracy of the grade is very important, and it is held that there can be no surer or simpler method, as any bystander can determine at once the accuracy of the grade.

It will be seen that the operator handles the engine and controls levers without shifting his position and the wheel can be raised or lowered by engine power or by hand as desired.

It will be noted that the dirt cut from the sides falls into the wheel and is carried to the conveyors with that cut by the wheel, leaving as clean a sloping ditch as well as a straight one.

IOWA STATE DRAINAGE ASSOCIATION.

Editor Land Drainage Department,
Cedar Rapids, Iowa.

I have your favor of the seventh instant. I take pleasure in sending you the following data regarding the Iowa State Drainage Association meeting for 1911:

This meeting will be held at Mason City, February 14th and 15th. The program has not yet been made up, but I hope to have it in shape for publication within a week or ten days, and shall take pleasure in sending you a copy at the earliest possible date. The meeting this year promises to be of unusual interest. We shall have two addresses on the "Assessments of Benefits of Railroads" an address by a Chicago man on the "Need of Specifications for Tile"; another address on "Pumping Stations and Drainage Work, and perhaps most important and valuable of all will be the reports of our standing committees. There are four of these committees: first, committee on rules and regulations for the construction and maintenance of ditches and drains; second, committee on

standard specifications for tile drain; third, committee on financing drainage propositions; and fourth, the legislative committee.

Trusting that these few notes will make it possible for you to prepare a suitable announcement, and assuring you that we shall highly appreciate any announcement which you may make of our meeting, I am,
Yours very truly,

W. H. Stevenson,
Sec'y I. S. D. A.

Ames, Iowa.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



CHICAGO'S BUILDING record was broken again during the year just closed. It was not exactly smashed to smithereens. In fact, it scarcely had more than an edge clipped off, the value of construction represented in permits taken out during 1909 being \$90,509,580, and during 1910, \$90,802,600, an increase of 0.3 per cent. In actual building expenditures, according to the statisticians, there was a decrease from \$857,550,669 to \$809,000,000, or a falling off of 5.7 per cent., which we are compelled in candor to confess.

However, we are thankful for any kind of a break—even for an even break—for there were certainly times in the year when it looked mighty blue, and now there are many indications that the record for 1911 will be a mighty creditable one, even if it does not exceed those made during 1909 and 1910.

Plans for a building which will occupy an entire downtown block, and which will probably be the largest and most magnificent skyscraper in the West, are said to be virtually complete. This new building is to house that great financial institution which is the result of two gigantic mergers—the Continental and Commercial National and the Continental and Commercial Trust and Savings banks. To put up this immense building, which will front in LaSalle street and be bounded by the financial thoroughfare, by Jackson boulevard, Fifth avenue and Quincy street, three large old-time office blocks, which still retain their reputation and popularity—the Continental National building, which was the home of the Continental National before it began its successful career of absorption; the Rand-McNally block, and the McCormick. The probable cost of this great new structure is not estimated as yet, but it is sufficient to say that the purchase of the old buildings and sites for the privilege of wrecking them will involve an expenditure in the neighborhood of \$3,500,000.

The Northwestern Terra Cotta Company has just suffered a hard blow through a fire, which destroyed their twenty-acre plant on Clybourn avenue and the Chicago & Northwestern railroad tracks. The loss is estimated at \$450,000, \$100,000 of this being on the building and the remainder on the contents. The building was a four-story structure and all but a small "L" was destroyed. The same lack of pressure in the city mains which played the mischief in the recent Stock Yards holocaust in Chicago, was responsible for the total loss in this case. The loss of expensive machinery and fine stock of terra cotta tiling and ornamental materials is most unfortunate, but it is certain that Fred Wagner, the indomitable head of the big works, will not be disheartened or stop for a minute until he has the business back in its proper condition again.

Announcement is made that W. S. Purington, of Galesburg, has retired as head of the Purington Paving Brick Company and withdrawn his interest in that company altogether. Poor health forced this withdrawal upon Mr. Purington, who has been at the head of this active paving block industry since the retirement of D. V. Purington, his brother, a few years ago.

Local newspaper accounts got things twisted and announced that it was D. V. Purington who had retired on account of ill health. This alarmed some of the friends of the veteran brick man, but tidings from Ocean Springs are to the effect that "D. V." is enjoying the best of health and arising early to go a-fishing of a gray morning or to further beautify his charming winter home at Ocean Springs.

Who is to take W. S. Purington's place at the head of the business at date of writing has not been announced, but will be known within a few days.

SCRIP.

Written for THE CLAY-WORKER.

VOLKMAR KILNS.

Original Faience and Pottery That Is Adding to the Fame of
New Jersey as the Home of Ceramics.

PASSENGERS ON the main line of the Pennsylvania railroad between New York and Philadelphia may, as they pass through the town of Metuchen, N. J., observe an humble manufactory, on which appears an unostentatious sign, "The Volkmar Kilns."

The plant is not at all pretentious—a kiln or two and a brick building or two—but the work done therein and the ware bearing the name "Volkmar" is of a high order of excellence from an artistic viewpoint. Simplicity and beauty both of form and color characterize Volkmar products, which consist chiefly of decorative tile and hand-made pottery.

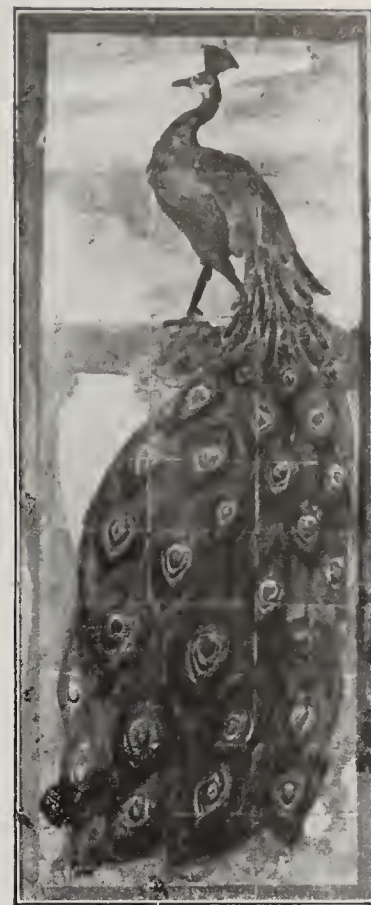
A local scribe, speaking of the Volkmars and their wares, says tritely that the clay industry of New Jersey has no apologies to make to any other State in the Union, or the countries abroad, for that matter, but there are many lovers of art who will be benefited by a more intimate acquaintance with the products of the Volkmar kilns.

The Volkmars, father and son, occupy a peculiar place in the world of ceramics. They have confined their efforts largely to the production of art tiles and pottery for the purpose of special decorations from original designs furnished by architects or artists desiring to portray some particular theme or carry out a color scheme fancied by some art-loving patron, and in this work they have achieved renown.

In making their tiles and pottery the Volkmars do not aim to reproduce the mere rudeness of the hand-fashioned articles of the past. Those old potters made theirs up to the standards of their time. The pieces were often crude and rough. To copy these accidental effects is an affectation, and affectations have no place in the Metuchen shop. The father and son aim to make the best hand-made pieces they can, and if these are not as crooked as the products of the older potters they are not less original or artistic. Crudeness has no patent on originality.

It is pleasant in this age of sameness to find the work that bears the impress of individuality; for, unfortunately, much of the arts and crafts work set out for the discriminating to make their selections from lacks the element of simplicity which ought to be its greatest charm. Taste is formed under such artificial conditions nowadays that simplicity is not always appreciated. Under these conditions a fondness for the ornate, for the over-decorative, prevails, and the most of us have to learn to love simplicity. Under better formative conditions such an appreciation would be intuitive. There would be no ages of rococo, no periods of baroque, no art nouveau, and no Rogers statuary. Life is so artificial that we cannot easily be natural, and to be natural is to be simple.

Volkmar pottery is notable for its simplicity of outline and exquisite coloring. They make little in the way of stock pottery, but what they do make is very pleasing, as the reader may judge from the accompanying illustration of water



A Beautiful Green Water Set From the Volkmar Kilns.

pitcher and half a dozen mugs, all of the same general color, a set of which adorns THE CLAY-WORKER sanctum.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND OF THE NORTHWEST.



TURN OF THE year and the opening of another season brings up the consideration of prospects for the new season. What is the chance for business? Will it be even fair as compared with 1910? These and other questions are being raised with the trade. And the answers are rather guarded, for it is not wholly certain what the season will prove to be, but there is ample faith and expectation that the year as a whole will not be a slow or a bad one. A period of depression has prevailed for several months past, since the disappointment in the crop, but the worst seems to be wearing off, and while there has not been any indications of marked recovery, the sentiment being expressed is much better, and this is always a necessary preliminary to recovery.

Comparatively little new building is now being projected,



Charles Volkmar.

but this is not unusual. The severe cold weather alone which has prevailed for the past month would be sufficient to discourage this, unless there were an extraordinary pressure for the proposed buildings. There is a fair amount of work under way, but it is largely the work which was projected some time ago and has not been completed.

Public structures, such as court houses, school houses, hospitals and the like, are being planned or started at a number of points through the Northwest.

A most important decision and one which will serve to uphold the rights of material men and sub-contractors generally, was recently made by the Supreme Court of Minnesota. The case was the Illinois Surety Company, bonding one Honstain, who had the contract to erect an immense brick elevator for the Northwestern Consolidated Milling Company, in Minneapolis. The owner and the contractor did participate in the case, however. The case involved the admissibility of receipts on the job by the foreman and of loose-leaf ledger entries as court evidence, and on the latter particularly it was found that the laws of Minnesota provide for their admission. This is something that did not seem to be generally known. The surety company sought to effect a settle-

ment of 75 per cent. cash and 25 per cent. in stock in a certain company in which the contractor was interested, an offer which the contractor himself had made, and failing in securing the acceptance of this offer, fought the case on an appeal from the trial court, where the material men had won their contentions. The material men joining in the case were the Landers-Morrison-Christenson Company and the Williams Bros.' Boiler and Manufacturing Company, of Minneapolis, and the Prinz & Rau Manufacturing Company, of Milwaukee. As material men feel that they have had the worst end of cases often, this decision from the Supreme Court of Minnesota will prove of great satisfaction to them. The claims of the material men were upheld, and the receipts for the material received were accepted as evidence. The Supreme Court says that no inflexible rule can be laid down for the determination of the question whether entries in account books were made substantially contemporaneous with the transactions which they record. Each must be determined by



Turning a Piece of Volkmar Pottery.

the trial judge in the exercise of that practical discretion in view of modern business methods, and his decision will not be reversed if there is any evidence fairly tending to sustain it.

The Northern Brick and Supply Company, of St. Paul, has recently moved its office and sales room and sample rooms from the Gilfillan block to 208-209-210 Newton block, corner Fifth and Minnesota streets, where larger and better quarters are available.

The city of Minneapolis laid but 4,567 square yards of brick paving last season out of a total of 253,370 yards, costing \$525,000. Creosoted blocks were the favorite, with 155,000 yards; macadam next, with 62,000 yards, and then sandstone blocks, with 22,000 yards.

Trade schools are to be taken up by the Builders' Exchanges of St. Paul and Minneapolis and pushed. St. Paul has started trade schools in a small way, but looks to devel-

oping them more and more and to getting a course in brick-laying among others. The trouble is to get competent instructors, men who are practical and who are able to present to the boys the reasons why they do certain things in the manner that they do. Too many practical workers know their trade, but do not have the faculty of telling their reasons. But the system as started in St. Paul is to institute the course for the boys of the sixth grade schools. When it reaches the high school it is too late, for many of the boys have left school and drifted into anything they could lay their hands to, assuming that they took up work of any kind. So it is to get at them before they leave school and to train the artisans of the future that the plan is taken up. The work done so far is largely in carpentry and joinery, but the accomplishments after four months stamp it as a decided success, so that the Builders' Exchange stands ready to provide a job for the boys who may leave school if they are



Putting the Finishing Touches on a Water Pitcher.

given a certificate from the manual training teacher, stating what they are equipped to do.

Minneapolis building totals for 1910 show a good gain over 1909, reaching \$14,336,460, against \$13,092,390 for the year before.

St. Paul building totals for 1910 reached a very satisfactory total, the highest of recent years, except 1909, which was exceptionally heavy. Nineteen ten amounted to \$10,053,011, against \$12,089,449 the year before.

Harold Jackson, the brick and material dealer, of Minneapolis, was elected vice-president of the Minneapolis Builders' Exchange.

The Minneapolis Architectural Club is about to open a school of architecture, the course starting January 30. The course in history and architectural design will include bricks and brickmaking, brickwork, in connection with the lectures. Brick construction will be covered in all sections of the work taken up.

T. WIN.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



MOST OF THE brick plants of this section have closed down for the winter, and there is but little doing in the manufacturing line at present. The shut-down will be for only a short period, however, while necessary repairs and inventories are being made. Two of the Toledo plants are still operating and announce that they will not stop at all, or if they do it will be for only a few days. The general impression among brick men is that there will be an unusually heavy demand for all kinds of building brick very early in the spring, and they are making every effort to be ready for the business when it comes.

The year just closed has been a splendid one for all kinds of building material concerns. Building operations in Toledo amounted to approximately \$1,000,000 more than they did during the preceding year, or a total of about \$4,000,000. There was, however, a marked scarcity of commercial and industrial structures, which reduced the percentage of building brick used in construction materially. On the other hand, a strong demand from outside territory, notably Michigan points, helped



A Beautiful Volkmar Vase.

out what might have otherwise proved rather a slow season.

Present indications are that the coming season will break the building record established in Toledo in 1905, amounting in the aggregate to \$6,004,533. Several million dollars' worth of large building work has already been contracted for to be done early next spring. Among the better jobs is a \$1,000,000 addition to the Ford Plate Glass plant, two new high schools at more than half a million dollars, an immense plant for the Woolson Spice Company, a five-story store building for John Mockett, large additions at the plant of the National Supply Company, a \$250,000 building for the Toledo Club, a \$250,000 memorial building, a \$100,000 building for the Gasser Coffee Company, Second National Bank building, \$200,000; theater, \$100,000, and the Ohio Dairy Company, \$200,000. All of this work has been contracted for and brick manufacturers and dealers are naturally looking forward to a season of unusual activity in building circles.

In the face of this condition there is no large supply of building brick on hand. Most of the yards are well sold up and are relying upon the future output to a large extent to supply the demand. No change has been made in prices yet, but it is freely predicted that the market will develop strength and that higher prices may be looked for. Common building brick are now selling from \$7.00 to \$7.50, with about \$1.00 more for face brick. Some outside trade is reported, but it has dropped off materially since winter weather set in. The

prospects for business all over this section are very flattering, however, and taken all together, the situation is one of the most promising that has been experienced here for many years.

In some degree the same thing may be said of all clay-working industries. Municipal work promises to be general, a large volume of legislation being now under way looking to that end. A large volume of street and sewer improvement is already planned for the city of Toledo, and the smaller towns and cities will provide a market for at least their normal quota of paving block and sewer drain tile.

Service Director Cowell, of Toledo, feels justly proud of the record made during the past year in the matter of street improvements. During the last eleven months thirty streets and alleys have been improved, mostly by paving, at a total cost of \$248,035.43. The particular feature which has attracted attention has been the clipping off of extras, which aggregated on all this work but a trifle more than \$2,100. These extras were allowed on sixteen sewers constructed during the year at a cost of \$51,758.14. Ordinarily there has been a long line of extras, running up into many thousands of dollars, but special effort has been made to hold contracts down to the price named.

Edward H. Cady, cashier of the Ohio Savings Bank and Trust Company, was chosen president of the Toledo Chamber of Commerce for the ensuing year, succeeding Howard I. Shepherd. This organization has been of vast benefit to brick manufacturers and dealers of this section in the past, and promises still more activity during the coming summer. As a result of its efforts many large manufacturing concerns have been induced to make Toledo their home, thus furnishing a market for immense quantities of building brick.

The Hydraulic Pressed Brick Company, of Toledo, reports a nice business for the winter season, and a prospect of heavy trade within a few weeks. The concern has not closed down, but is increasing its stock in an effort to take care of the trade when it arrives. "Indications point to a strong demand for building brick, not only in Toledo, but throughout the surrounding territory. Prices are holding firm and there is no prospect of a decline," said a representative of this flourishing concern.

Most of the brick manufacturing concerns of this section are now preparing their reports for the year 1910, under the income tax law. William V. McMaken, internal revenue collector at Toledo, has charge of twenty-six counties in north-western Ohio. Ohio corporations to the number of 3,200 are under this jurisdiction. The department last year collected \$256,000 from this source, and a greater sum is expected this year.

The city of Toledo has endorsed the movement of the organization of city officials for the standardization of paving specifications. The \$100 membership fee was authorized paid, and Engineer Tonson was instructed to attend the next convention. One of the objects sought to be obtained by the organization is the elimination of an enormous graft in the form of advertising of paving specifications.

Alexander Dawson, one of the oldest and best known building contractors in Toledo, died at his home in that city recently of angina pectoris, from which he had been a sufferer at intervals for some months. Many of the large brick structures of the city were the result of his life work. He was born in Scotland seventy-four years ago and had lived in Toledo for about thirty-two years. He is survived by a wife two sons and three daughters.

Between 600 and 700 men were affected by the agreement which went into effect at the large potteries at Crooksville, Ohio, on January 1. Negotiations were pending for about three months and were finally successfully concluded through the efforts of Joseph Bishop, of the State Arbitration Board. Employes were granted an increase in wages and concessions were made on both sides. Common laborers were raised

from \$1.60 to \$1.75; clay pluggers from \$2.00 to \$3.50; first kiln setter from \$2.25 to \$2.75; second clay setters from \$2.00 to \$2.50; slippers from \$1.75 to \$2.25, and jolly men from \$3.00 to \$6.00 per day.

The National Supply Company, of Toledo, will furnish a market for a large number of building brick this summer. The concern has just purchased an additional tract of land, upon which it will erect brick buildings, doubling the capacity of the plant and increasing its number of employes to 800.

If the Ohio State Legislature looks with favor on the request of the State University there will be an opening for the sale of a large volume of building brick in that market this summer. The institution asks for \$1,056,000 in appropriations from the State for new buildings this year.

Among the brick manufacturing concerns of Toledo which have not closed down their plants, but are losing no time in preparing for a large demand, is the Collingwood Brick Company. The concern reports no large surplus of brick on hand. The past season has been a highly gratifying one in every respect.

T. O. D.

Written for THE CLAY-WORKER.

THE SEELBACH RATHSKELLER.

BEAUTIFUL, UNIQUE, fascinating. The words are in nowise extravagant to those who have visited the Seelbach Rathskeller. Its importance as a feature of the city's life was attested on the occasion of its dedication, December 30, 1907, when three hundred citizens, representing Louisville's social, business and intellectual elite, sat down at a banquet given as a public testimonial to the enterprise of the Seelbach Brothers, which had made the Rathskeller possible. From the beginning the rathskeller has enjoyed an astonishing popularity based on its charm as a place of resort and aided by good music, unexcelled cuisine and fine service. The spell of the place takes hold of one immediately upon entering the portals. The Fourth-avenue entrance opens directly at the head of a stairway which aids the imagination in conjuring up the impression of some Old World castle. Surrounded by walls and ceilings of terra cotta, the stairway passes under quaint arches and by graceful turns into the vestibule, where the full beauty of the place begins to be manifest.

The dominant feature of this vestibule is the great clock, reaching from floor to ceiling, and built into the wall. The clock was designed and executed by the famous Rookwood Pottery, which unreservedly pronounces it the masterpiece of the many beautiful and artistic things which have come from the pottery. In every detail it accords with the general scheme of mediævalism and the sonorous mellow chimes irresistibly suggest the romance of ancient tower and castle hall.

A turn to the left discloses the rathskeller itself. If every detail were not worked out with that entire harmony which is the triumph of art, the beauty of the place would be bewildering. As it is, the great chamber delights the visitor in its whole aspect and further exerts its charm as it is examined in detail. The room is eighty feet square with a dome supported by noble columns and graceful arches, which give a cathedral-like effect, but there is no austerity. The perfect lighting and the exquisite coloring of the Rookwood tile and terra cotta which compose floor, walls and ceilings, proclaim that the place is not a cathedral, but the abode of good cheer.

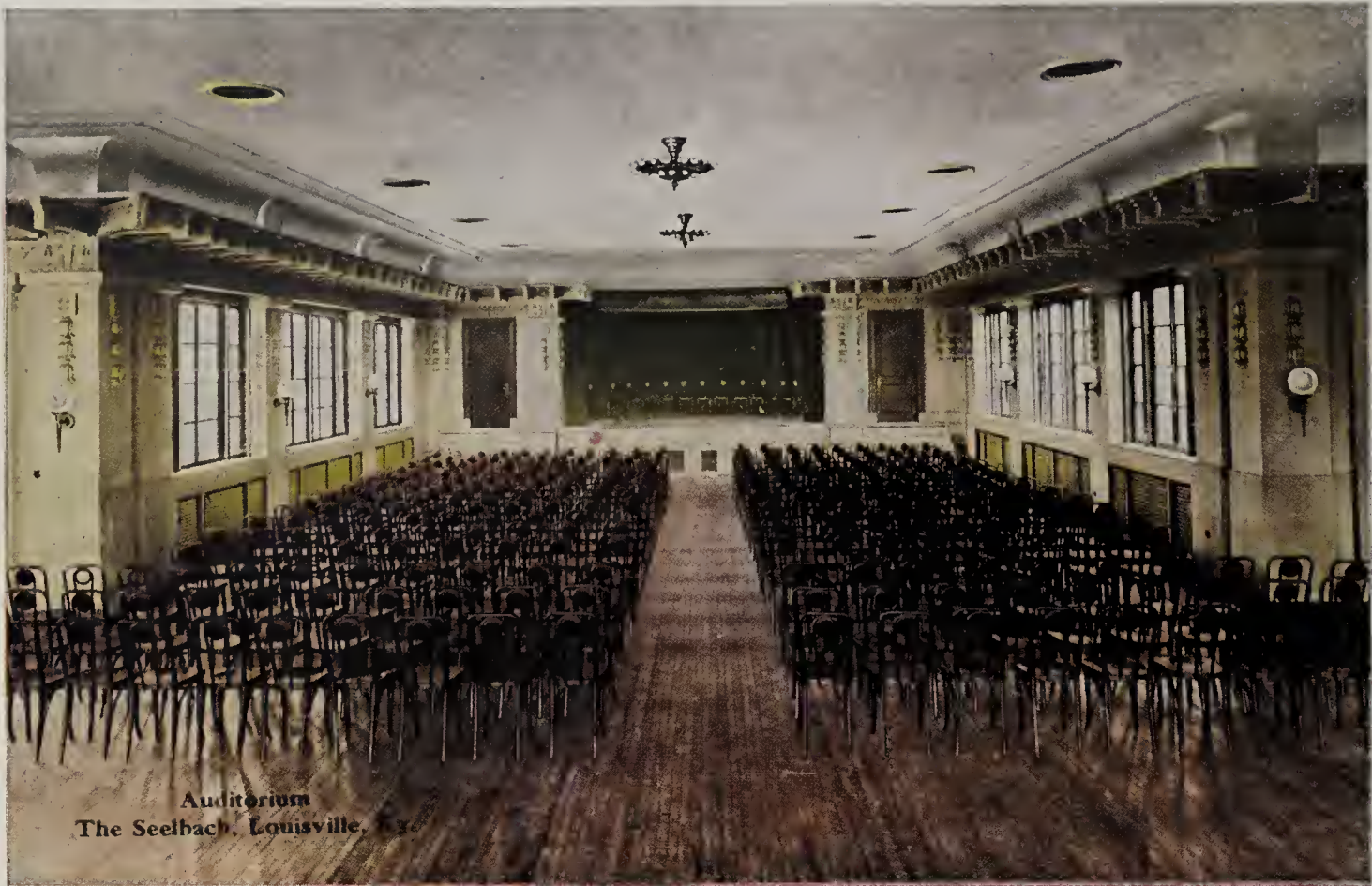
Around the two sides of the rathskeller are carved booths and in the center and about the columns, tables and chairs, all designed to reproduce the quaintness of Old World furnishings. As a matter of fact the rathskeller in every essential, artistic detail, is a reproduction of the underground drinking and council hall of one of the famous castles on the Rhine. Around the walls in close array are shields with armorial bearings in appropriate colors, each surmounted by a copper crown, which shelters a cluster of incandescent



BEAUTIFUL HOTEL SEELBACH WHERE THE CLAYWORKING
CLANS WILL GATHER FEBRUARY 6 TO 11, 1911



WHERE THE ANNUAL N. B. M. A. BANQUET WILL BE HELD
THURSDAY EVENING



WHERE THE N. B. M. A. CONVENTION SESSIONS AND SMOKER
WILL BE HELD



THE RATHSKELLER FINISHED IN FAIENCE FROM THE KILNS OF
THE ROOKWOOD POTTERY COMPANY

lights, which irradiate the great room. In addition splendid chandeliers of hammered copper hang from each arch and hold lights which increase the illumination.

Half-way down the stairway leading from the street entrance is the ladies' reception room, which in itself is a masterpiece of taste and beauty, and in this is a balcony overlooking the rathskeller. This is so suggestive of romance that it has been aptly named the Juliet balcony.

Another unique and interesting feature is the device for cooling and purifying the atmosphere of the room. This is done by forcing the air into the rathskeller through sprays of cold water, which not only purifies the atmosphere by subjecting it to a veritable shower bath, but in summer reduces the temperature from eight to ten degrees below the prevailing temperature outside.

Altogether the rathskeller is a retreat which is the admiration of visitors and the pride of the people of Louisville. In the evenings, when its every available chair is occupied by beautifully gowned women and men, when the lights are shining, the orchestra playing and skillful waiters hurrying noiselessly in the service of patrons, the scene is one of high spirits and brilliance not easily forgotten.

WHITHER ARE WE DRIFTING?

By W. D. RICHARDSON.

THE GROWTH and development of the National Brick Manufacturers' Association, its support and encouragement to ceramic education, its influence in creating and maintaining a more liberal and fraternal spirit among those engaged in the fictile arts, must be gratifying to its charter members and to all who have become attached to it during the past twenty years or more. We all have reason to be proud of our association and grateful to it for the help it has given us and for the dear friends it has made us.

A few thoughts at this time just preceding our twenty-fifth annual convention by one who has been a member since the second convention and has only missed three meetings since, may be appropriate.

It has been interesting to watch the development, with increasing numbers, of the separation into various groups of those having allied interests—a sort of classification based upon the kind of brick or other clay product manufactured, as well as upon technical knowledge and aspirations. I noted this a good many years ago and gave public expression to my opinion that the N. B. M. A. should formally recognize the varied interests of its members and of those who should become members by dividing itself into sections at its annual meetings, the program for each section being specially prepared to interest a certain class of members, and each section holding sessions simultaneously. By this means I thought we could bring into our association a good many whom we otherwise could not reach and could hold under one general organization manufacturers of all classes of clay products, the name of the organization being perhaps broadened.

I have not at hand my files of THE CLAY-WORKER and hence cannot refer to the time or character of my statements, but I distinctly recall my impressions that if we refused to recognize these varied interests and provide for each in the program of our annual meetings, they would themselves take the matter in hand and form separate organizations.

This soon manifested itself in the dissatisfaction of those who came to the conventions to hear subjects treated in a

more elaborate and thorough and technical manner and discussions of papers not limited to five-minute speeches. They got together and formed the American Ceramic Society, a large and healthy organization, that is having a marked influence upon the progress of the ceramic arts in America, this year holding its annual meeting by itself in another part of our country.

A few years later the paving brick manufacturers formed a separate organization, still holding its annual gathering with us.

Last year at Pittsburg the newly organized Building Brick Association of America precipitated a discussion that threatened disruption by not wanting to commit themselves in their by-laws to hold their annual meetings with the N. B. M. A.

Undoubtedly there will be other offshoots from the parent organization. Drain tile and sewer pipe manufacturers have never been fairly represented in the N. B. M. A.; neither have manufacturers of fire brick and fireproofing, roofing tile, architectural terra cotta, wall and floor tile, etc. Eventually these branches must also have separate organizations or each be given a section in our organization.

If all of these branches of clayworkers organize into several social organization of manufacturers of brick and allied rate associations what will become of the N. B. M. A.? What class will it represent? Will it continue to exist as a general social organization of manufacturers of brick and allied clay products, making the arrangements for the annual gatherings of all? Or will it finally be left with no well-defined purpose and no bond of union strong enough to be held together after the retirement (may the day be remote) of our forceful and magnetic secretary?

The answer to these questions should be considered now by all who want to see our beloved association thrive and flourish long after we have passed away.

It may be best that each branch of clay manufacture should have its own separate organization and that the N. B. M. A. will have fulfilled the purpose of its being when it has brought forth these children, but I cannot but believe that the policy outlined by me many years ago of having one large association with various sections, meeting at one time and place, would conduce to greater interest and enthusiasm in all of the aims and objects of our organized efforts.

SUNDERLAND BROS. TAKE OVER LARGE CONCERN.

A deal was concluded recently whereby Sunderland Bros., Omaha, Neb., purchased the entire building material, brick and specialty business of C. B. Havens & Company, of that city, including their entire stock, their principal agencies, contracts and the good will of the business.

The Havens Company has been operating three retail yards and several warehouses in various parts of the city, and it is understood the extensive stock of building materials and brick will be transferred to the different Sunderland yards and warehouses.

C. B. Havens & Company have been an important factor in the building material business in Omaha and the acquisition of the Havens interests by the Sunderland Company makes the latter the largest and best equipped concern in the building material line in the West.

The officers of Sunderland Bros. Company are James A., Lester T. and Ralph E. Sunderland and James A. Rockwell, and the company was organized twenty-eight years ago, now representing assets of not less than half a million dollars.

THE Wise Man Profits by the Experiences of Others. Be a Wise Man and Attend the N. B. M. A. Convention at Louisville, February 6th to 11th.

Written for THE CLAY-WORKER.

MAKING HIGH POTENTIAL PORCELAIN INSULATORS.

BY F. A. ATKINSON.



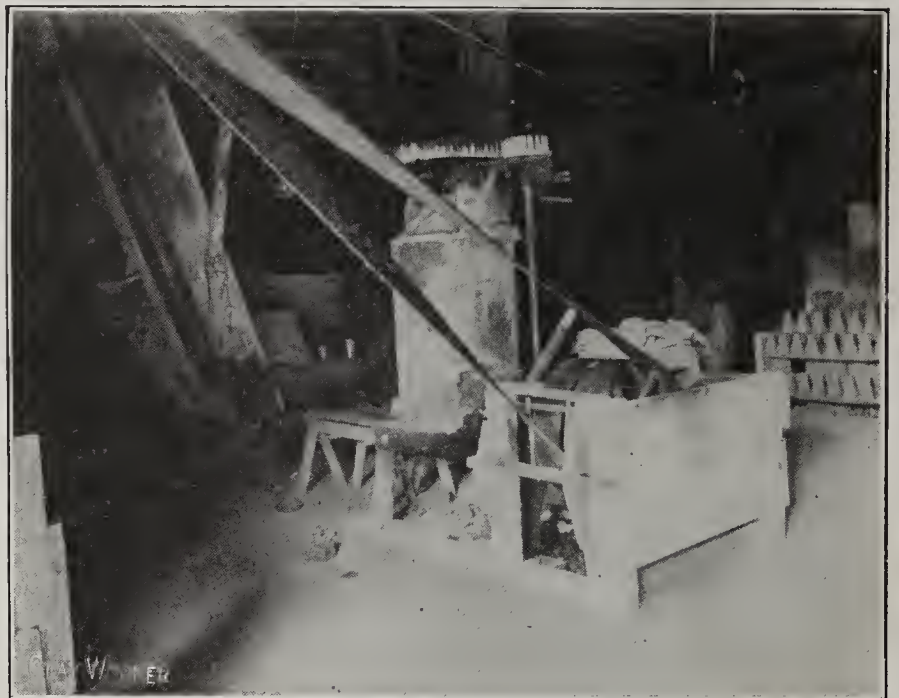
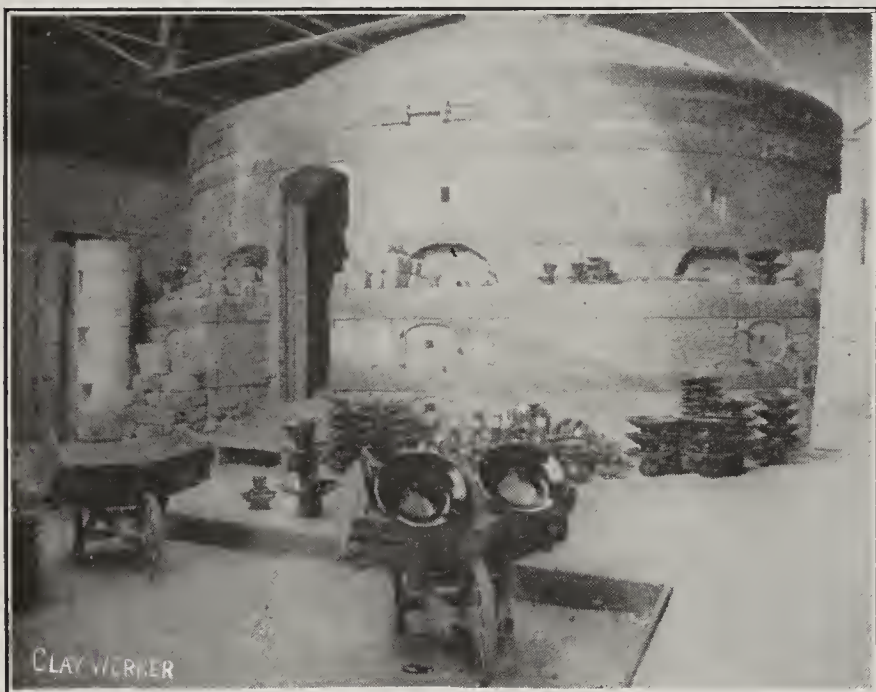
UNTIL THE porcelain insulators came into general use for high voltage work, glass insulators were used almost exclusively for outside purposes. The great development of the electrical industry in recent years has practically created a surprisingly large and new industry in the manufacture of these high potential porcelain insulators, and the method of their making is of special interest both to the electrical fraternity and the clay and pottery business.

A single factory will turn out several million of these porcelain insulators in a year, and the increasing demand for them makes the business a comparatively safe and profitable investment. The improvements in the manufacture through better machinery and methods and the more careful selection of the raw materials have not only cheapened the cost of the insulators, but increased their efficiency nearly a hundred per

cent. goes direct to the plunger mill, in which a grinding mill is also located. This huge cylinder five feet long and six feet in diameter is lined inside with porcelain blocks. This lining of two or three-inch porcelain blocks must be carefully made and watched to see that it is not broken or disrupted. Inside of the cylinder are placed about a ton of flint pebbles. When the clay is put in with the pebbles the machine is set in motion, and this motion, with the action of the pebbles, mixes the clay thoroughly and evenly.

So much depends upon the thorough mixing of the clay that this method is adopted after many other ways were tried, and although somewhat expensive, it results in a more uniform and satisfactory material. The ordinary ball clay which is used is very tough and plastic, and unless it can be manipulated skilfully it does not mix with the other ingredients. In fact, it is sometimes impossible to dissolve and mix it by the old methods, and when the contents are dumped from the machine the ball clay is left behind. The pebbles cut and grind the ball clay, and in time it forces it to mix thoroughly with the other materials.

When the blunger mill has done its duty the finely mixed clay must pass through a fine sieve prepared for it, and all particles that will not pass through the screen are rejected. The screened clay passes into a cistern below the blunger



Kiln Room and Pugging Department in the New Lexington High Voltage Porcelain Company's Plant, New Lexington, Ohio.

cent. for high voltage work. One of the largest factories devoted to the manufacture of the insulators uses clay of different kinds with several other raw materials, and their proper mixing and baking determines the success of the work. China clay or kaolin, ball clay, flint and spar are the chief ingredients employed for the porcelain insulators. No part of the country furnishes all of these materials in one place, and consequently many of them have to be shipped from widely separated regions. For instance, the best Georgia kaolin is generally used, while the ball clay comes from Tennessee, the flint from Pennsylvania and the spar from Canada.

In order to secure the highest result every shipment of clay must be tested and examined for impurities, and if these are present in any great quantity the clay is rejected. Likewise the flint and spar must show a high percentage of purity or it is condemned. The clay is shoveled from the bins to specially made trucks, which will hold a charge of from 1,500 to 2,500 pounds, and they are arranged with a secret scale which enables the workmen to proportion the materials correctly. The secret of this proportioning is one of the trade secrets of each factory, and upon it depends a good deal of the value of the insulators.

The clay when tested and measured carefully in the trucks

mill, where it is kept agitated for some time. While in this agitator the clay is not allowed at any time to settle, and then it is pumped into a filter press. From this press the clay finally emerges with about all the surplus water squeezed out of it, and it then should be of the consistency of putty.

The clay is now mixed, purified and ready for the pug mill, which is vertical in shape, but otherwise very similar to the pug mill of the ordinary brick works. The clay must be run through this mill twice to remove all the air from it and get it into fine workable condition. With some good clay, once through the pug mill answers, and in others three times through may be required to secure the desired result. Much depends upon the judgment of the operator, and in fact at every stage of the process skilled workmen must attend to the work. This is a special line of industry, which cannot depend upon ignorant or unskilled workmen. A fine lot of clay may easily be ruined by poor judgment of an operator at any one of the important processes.

The clay that passes successfully through the pug mill is conveyed by an endless belt or clay elevator to the jiggers, where it is made into plaster molds. The ware molds thus obtained are run into the drying rooms, where they are dried by hot air, dry steam or some other method. The molds are dried only just enough to permit the material to be removed

easily from the frames without breaking. The plaster molds are being used over and over again for new material, and the process continues endlessly.

The porcelain wares, as they are called when removed from the molds, next go to the finishing room, where they are smoothed off both by hand and machinery. When thus finished they are dipped in the glaze. This glaze consists of various ingredients in different factories, the kind of glaze governing the mixture.

The making of this glaze is a distinct process and just as important as the manufacture of the clayware. The different ingredients are carefully weighed and then placed in a pebble cylinder to be ground. This cylinder is smaller than the one used for the clay, but it is lined with porcelain blocks and is revolved with flint pebbles placed inside to cut and grind the glaze ingredients. This glaze material is saturated with water during the process and then reduced by extraction and drying to the proper consistency. The making of the glaze is in every respect just as important as the making of the clayware, and any mistake or oversight must result in inferior insulators.

The ware is glazed and then burned in the kilns. The burning to a proper temperature is another important point in the development. Specially arranged kilns are provided for this and experienced operators watch the process at every step. The kilns are called saggers, which are really clay



High Voltage Insulators Ready for the Testing.

receptacles in an oval form without a lid. The walls of the saggers are about one inch thick, and they resemble in color and texture the ordinary fire brick. The sagger clay of which the walls are made is somewhat similar to ball clay in appearance, but it is a cheaper clay and can generally be obtained in any locality.

The saggers are frequently broken in the work, and these "sagger shorts" are then taken to a five-foot grog pan, where they are ground to a dust and then mixed with fresh sagger clay. The mixture is allowed to soak in boxes and then sent through a pug mill, when they are ready for use again.

The saggers are made both by hand over wooden drums or in molds and by huge jiggers, which mold them in about the same way as the ware is molded. The saggers are dried on sagger flues. These flues are simply horizontal boxes, which are fed with flue heat from the main furnace. The saggers are burnt until they are hard and may then be used over and over again for baking the ware.

When the insulators are finally baked to a sufficient temperature they are taken to the testing room. This testing varies according to the voltage they are made to carry. Where high potentials are needed the electricity passed to them is very high. In order to make sure of their ability to with-

stand a high voltage many of the electrical companies send their own men to the testing department of the factories and personally oversee the testing. Those which pass all right are marked by them and then shipped to their factory. In this way an electrical company knows just what it is buying, and any weakness is put up to the experts. In the testing room there is a dynamo which is operated by the main engine, and this is capable of developing any voltage required.

The porcelain insulators are packed in straw in crates or in cars for shipment, and in this condition they reach the electrical companies with few injuries. The use of the porcelain instead of the glass insulators has increased for a great variety of outdoor work, and as a result the manufacturers have made a special study of various sizes and shapes. Molds are made for making all conceivable styles and sizes, and their greater wearing qualities over glass are appreciated in the trade. As a distinct branch of the clay and pottery work the manufacture of the porcelain insulators for high voltage duty has progressed so rapidly that a considerable amount of capital is invested in the industry. The factories are located in the Middle Western States for the most part on account of the good clay material at hand, but a number are in the East and a few in the Southern States. With the increasing spread of electrical work the need of porcelain insulators has had a tendency to stimulate improvements on the old types, and many new machines are made to simplify and improve the manufacture. A large number of the insulators are



A Large High Voltage Porcelain Insulator.

also exported every year, and for Mexican and South American use the insulators have found special demand. They do better service in hot countries for outside work as well as in cold climates. The development of electrical power from rivers and waterfalls, where very high voltage is used, has naturally called for insulators of remarkable resistance capacity, and practically no other substance answers the purpose for this work so well as the porcelain ones. But the higher the voltage the more particular must the manufacturers of the insulators be in the selection of their clay materials and in the mixing and baking of them. Some factories have made a specialty of making only insulators which are suitable for the transmission of current over long distances. The work of long-distance transmission is indeed partly dependent upon the ability of the insulator manufacturers to produce suitable products.

OPPORTUNITY.

The great secret of success in life is to be ready when your opportunity comes.—Disraeli.

And to recognize opportunity when you meet it, to work for it; to bring it about for yourself.

Advertising is opportunity's knock, your customers open the door and you stand face to face with success.—Ex.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Appreciates Clay-Worker Clubbing Rates.

Editor THE CLAY-WORKER:

Please enter my order for THE CLAY-WORKER and the other magazines named below, to be sent to the address given, for which I enclose check for \$15.60 as per your quotations of recent date. I am glad to be able to take advantage of your liberal clubbing rates.

Yours truly,
Columbus, Ohio. M. B. MAHURIN.

Atlanta Brickmaker Appreciates a Good Thing.

DEAR RANDALL:

Please find enclosed check for \$2.00, covering our subscription for 1911. We just can't get along without THE CLAY-WORKER.

Business is good, plenty of orders and fair prices. Wish you a Happy New Year. Yours truly,

SOUTH RIVER BRICK COMPANY,
W. A. HANCOCK, General Manager.

Attains Majority as Clay-Worker Subscriber.

Editor THE CLAY-WORKER:

You will find enclosed my check for \$2.75 to pay for THE CLAY-WORKER for the year 1911 and for a copy of the New Universal Self-Pronouncing Dictionary. I want the flexible morocco binding. I think this is my twenty-first year as a subscriber to THE CLAY-WORKER, and I always look forward to its coming each month with great interest. Last year was one of my best years in the brick business.

Yours very truly,
Clarksville, Tenn. W. A. SETTLE.

Washington Clayworkers' Association.

Editor THE CLAY-WORKER:

The date for the annual convention of the Washington Clayworkers' Association has been fixed for January 26, 27 and 28, 1911, at Seattle. The arrangements are in the hands of the following committee: Messrs. Houlahan, Megrath, Harper, Ridge and Gibson. The committee on program consists of Messrs. Power, Farnham and Moore. All the clayworkers in British Columbia, Oregon and Washington will be invited. The program is already well in hand and will be a most interesting and profitable one. Yours truly,

Seattle, December 21, 1910. JAMES GIBSON, Secretary.

Clay-Worker Most Interesting.

Editor THE CLAY-WORKER:

Enclosed herewith find check covering my subscription to THE CLAY-WORKER, the Delineator and Woman's Home Companion. I view this as getting the last two magazines mentioned for nothing, THE CLAY-WORKER alone being worth the money.

The articles recently given us by Mr. J. J. Koch are most interesting, and I open each copy of THE CLAY-WORKER in hopes of seeing something from W. D. Richardson.

With best wishes for 1911, I am, Yours very truly,
Waterford, N. Y. HAROLD COPPING.

All's Well at the New York State School of Clayworking and Ceramics.

Editor THE CLAY-WORKER:

In reply to your inquiry, I am glad to say that the school is making satisfactory and steady progress. I have been able this year to secure an assistant with the special view of strengthening the departments of chemistry and physics, and we have on our register as many students as we can conveniently handle. I receive good reports from those who have gone out into "the wide, wide world," and they seem to be making good, so far as I can learn.

Assuring you of my best wishes for the new year, I am,
Yours sincerely,

Alfred, N. Y. CHAS. F. BINNS, Director.

The Ceramics Department of the University of Illinois.

Editor THE CLAY-WORKER:

Although somewhat handicapped at the start by the incomplete furnishings of the new building, the department soon developed a working system under the new conditions. Owing to the extraordinary burden imposed upon the funds of the department by the building operations it has been impossible to push the research work as has been customary, although several investigations upon glazes, cast-iron enamels, the fusion of silica-boric acid mixtures, etc., are now being carried on. Some new apparatus has been purchased or built, such as a small auger machine from Mueller Bros., St. Louis; a very convenient platinum resistance furnace (built by Prof. Stull), containing heavy wire and being hence more serviceable than the ordinary apparatus sold; other platinum apparatus and a potentiometer outfit for the exact measurement of high temperatures. For the latter the department is indebted to the graduate school. An electrical carbon resistance furnace is now being built.

It has been the pleasure of the instructional force to be of some assistance to a number of manufacturing concerns as regards manufacturing difficulties and the trying out of new clays. Several manufacturers are at present working in the laboratories in connection with new problems they are called upon to solve.

There exists a well-defined demand on the part of practical men for a short course dealing with the principles of clayworking, especially of burning.

At the meeting of the advisory board, held at the university, November 28, at which Messrs. F. W. Butterworth, chairman; J. W. Stipes, W. D. Gates and A. W. Gates were present, it was decided to establish a short course of this kind during the winter, lasting about one month, open to all who care to take advantage of it, as soon as the facilities of the department will permit it. For this purpose it is the intention of the board to ask the Legislature for a sufficient appropriation which will make possible the erection of a good sized kiln house containing several large kilns, a gas producer, a melting furnace, a recuperator high temperature furnace, etc., together with a complete set of recording pyrometers, gas analysis apparatus and recording draft gauges.

Governor Deneen in his message to the Legislature spoke generously of the work of the ceramic department, and it is to be hoped that the State will give this work the support demanded by the importance of the clay industries.

Champaign, Ill. A. V. BLEININGER, Director.

Letter from the Department of Ceramic Engineering of the Ohio State University.

Editor THE CLAY-WORKER:

The Department of Ceramic Engineering of the Ohio State University has been proceeding with a most profitable year's work. The senior class, under the competent direction of Professor Purdy, has been making a very careful and systematic study of the physical properties of whiteware bodies. Their work has been distributed over practically the entire

field of whiteware body construction, so that numerous bodies representing all of the different types have been made, burned and compared from every possible point of view.

The enormous mass of data thus accumulated has been subjected to a novel mode of illustration. Taking one property at a time, for instance, the coefficient of expansion, a series of pegs have been cut, the length of each corresponding to the numerical value of the coefficient for a single body. These pegs have then been mounted on a board on which the position of each kind of body is represented by a point. When all of the pegs have been assembled the space between them has been filled up level with plaster, reducing the whole area to a solid surface. The contours of this surface naturally are in hills and valleys, according to the height of the pegs, which determine the height at different points. When the work is thus completed one gets a very different impression of the variations of the coefficient of expansion with different types of bodies, for one is looking at a solid object, the level of whose surface indicates the variations described. The method has vast advantages over the older methods employed, viz., curves and drawings.

The Ceramic Society of the university, a strictly student organization, has been having a profitable year's work. They have been calling in the services of outsiders to lecture to them on subjects which young men certainly should know about, but in which they get no definite instruction in a college course, viz., the elementary principles of banking, insurance, capital, labor, etc. At the next meeting of the society Professor Orton is to speak on his observations of the clay plants of the Pacific coast, the lecture being illustrated by lantern slides.

Mr. A. S. Watts, who returned from a year and a half's residence in Germany, has been making the department his headquarters for a couple of months past. He has lectured before the Ceramic Society and been among the students, so that they have had rare opportunities to gain from him an insight into the conditions existing among the clay industries of Europe. Mr. Watts' opportunities to see these industries were very exceptional, and he comes back a perfect mine of information with regard to this subject.

The registration in the department continues about the same, viz., between eighty and ninety. Of this number fourteen or fifteen will probably take degrees this year. There is a good deal of activity among the seniors at present in preparation for and prosecution of their thesis investigations, which comprise a wide variety of topics. The boys are beginning to see how close they are to the brink of stepping into the world and facing actual conditions, and, as usual, a marked increase in application begins as this point is neared. The class in ceramic design have had a very interesting and somewhat strenuous course under Mr. Carl B. Harrop, the new instructor in this subject. The midnight oil, judging from the lights in the Mines building windows, has been burned a good many times by the students in this class in their efforts to complete their designs at the proper time.

Altogether the school is in a condition of fine, healthful activity, and the prospects are for a year of unexampled usefulness.

EDWARD ORTON.

COMPLIMENTING A UTICA TRADE PAPER.

In its edition of Saturday, December 31, 1910, The Trenton Evening Times, of Trenton, N. J., devotes nearly a column to a description of high art tiling, recently executed by the Trent Tile Company, of Trenton, N. J., in the new Mystic Shrine Temple at Jacksonville, Fla., and also compliments very highly The Mantel, Tile and Grate Monthly, a trade publication, published at Utica, N. Y., which illustrated and described in a recent issue the work done at Jacksonville, Florida.

The work is entitled, "The Feast of the Foresters," and

is executed in magnificent high-colored tile, the panel being twenty-six feet long by four feet wide.

The Trent Tile Company, which executed this fine piece of work, have paid a high compliment to the publishers of The Mantel, Tile and Grate Monthly for the excellent work done in reproducing in half-tone illustration this fine piece of work, also for the excellent description given in the columns of The Mantel, Tile and Grate Monthly.

WITH PHILADELPHIA BRICKMAKERS.



WITH SOME of our brickmakers in this city the past year's business has been a disappointment. Other sections of the city have done fairly well and no complaints are made. I think the situation is about what it has been with business generally over the country throughout the year; that is, "spotty."

J. H. Chambers, of Chambers Bros. Company, manufacturers of brick machinery, told me a few days since that during some months they were very much crowded, and at other times had very little actual work in the shop, but taking the whole year through, they have done fairly well and feel satisfied with the results. They have no large contracts on hand now, but have quite a number of moderate orders and are constantly getting new orders for small amounts that in the aggregate keep their plant fairly well occupied. These orders come from different parts of the country and are not confined to any one locality. While they don't expect a great rush of business during the present year, Mr. Chambers is not inclined to take the gloomy view of the situation that is often expressed, and expects to attend the Louisville convention, February 6, accompanied by Mrs. Chambers.

The brick plant of Mr. Wm. Conway started operations on January 2, after a week's shut-down for some repairs, and I am informed that Father Conway told the people at the yard that he didn't want to hear of them shutting down again until the Fourth of July.

I recently met John H. Earley on the street, and he seemed to be quite satisfied with the situation.

The Philadelphia Brick Company are reported to have brick enough sold to take care of their output for the first six months of the year, but January 11 suffered a loss by fire of some of the buildings and a portion of their dryer on one of the two yards operated by this company at 23d and Passyunk avenue.

This yard was purchased some years ago from Mr. Murrell Dobbins and is quite an old one. The fire started in a frame addition to the brick dryer, which was originally constructed of brick, but a few years ago the Philadelphia Company added some tunnels, which they made of wood. The fire started in some way in one of these tunnels and before it could be checked had destroyed that portion of the dryer, the roof over the remaining portion and nearly the entire machine house. Some portions of the engine and boiler house may be saved. The heavier parts of the machinery are not thought to be seriously damaged. As the supply of clay available for this yard is rather limited, some uncertainty is expressed as to what will be the decision about rebuilding.

Mr. James Florey, of Downingtown, Pa., has added to his list of brickyards the plant at Spring City, Pa., formerly owned by Mr. Frank Boyer and Mr. Abrams. He has put one of his sons in immediate charge and started the yard very promptly after obtaining possession. Mr. Florey thoroughly understands the business and also understands handling railroad deliveries of common building brick. His recent purchase, in connection with the yards previously owned, enables him to cover a wide stretch of territory around Philadelphia.

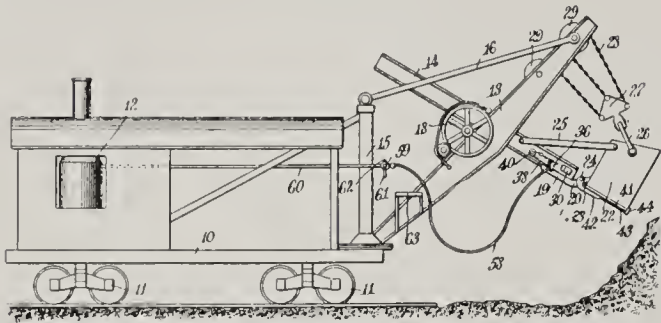
A. QUAKER.

RECENT PATENTS.

Material for this department is compiled expressly for THE CLAY-WORKER by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F street, Washington, D. C., and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same, should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cents.

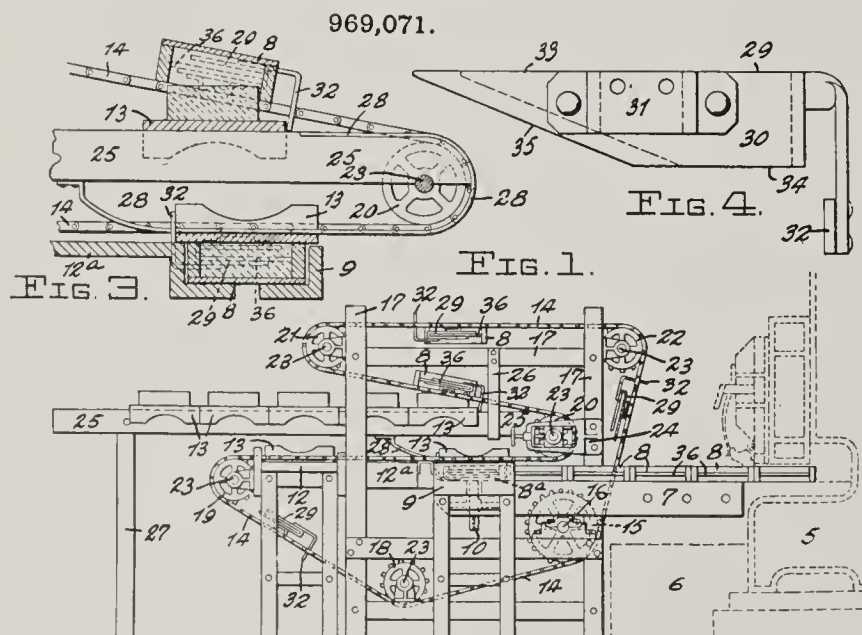
Dipper-Trip for Steam Shovels: Albert H. Geddes, of Empire, Panama. 978,575. Patented December 13, 1910.—This invention relates to steam shovels used for excavating clay and the like, and has for its object to provide fluid pressure operated by means of releasing the door of the scoop or dipper. As shown in the illustration, a pipe (60) extends from the boiler and connects, by means of a flexible hose (58),

978,575.



with a cylinder (30), the passage of steam being controlled by means of a hand valve (59). The piston of the cylinder (30) is moved one way by the steam pressure and the other way by a spring, and is connected with the latch of the door (43) by means of a rail passing over a pulley.

Brick Mold Conveying and Dumping Apparatus: Wm. E. Loomis, Sherbrooke, Quebec, Canada. 969,071. Patented August 30, 1910.—This invention relates to improvements in

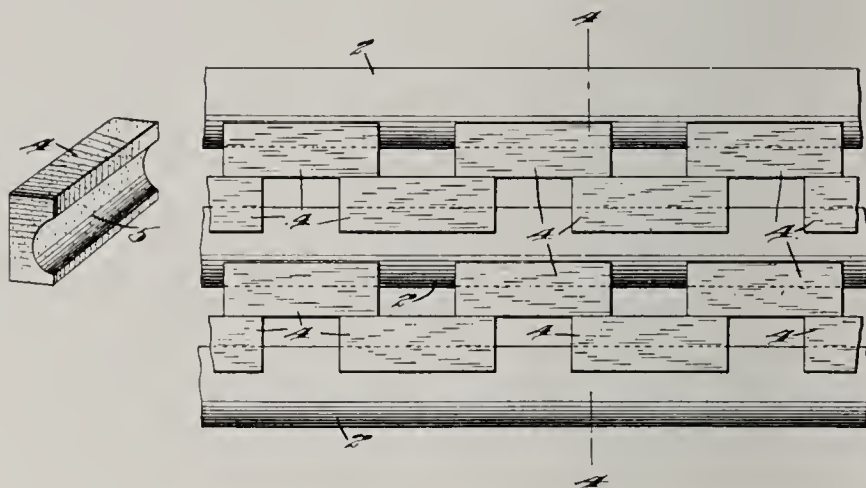


brick mold conveying and dumping apparatus and the main object is to provide a simple and inexpensive device which will automatically pick up the filled molds as they are ejected from the brick machine, convey the same to a suitable point and then dump the plastic material out of the molds without mutilating the same. A further object is to provide means whereby the plastic material will be prevented from escaping prematurely from the molds and whereby the material from each mold will be dumped onto a separate pallet. A still further object is to provide a conveyor adapted to receive the filled molds from the brick machine and deliver them to a second conveyor operating in conjunction with the brick making machine. The illustration shows a side elevation of the device. The complete drawings comprise four figures. For a full understanding of the device those interested are

referred to the patent itself, or address Wm. E. Loomis, Sherbrooke, Quebec, Canada.

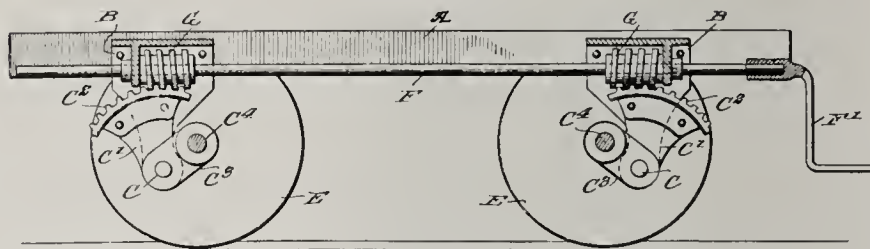
Furnace Tile: George Wm. Wood, of Camden, N. J., assignor of one-half to Michael Shapiro, of Camden, N. J. 979,627. Patented December 27, 1910.—The object of this invention is to provide an improved tile made of fire clay for use in connection with water tube boilers. As shown in the illustration, each tile or brick is flat on one face and concaved on the other so as to conform with the shape of the

979,627.



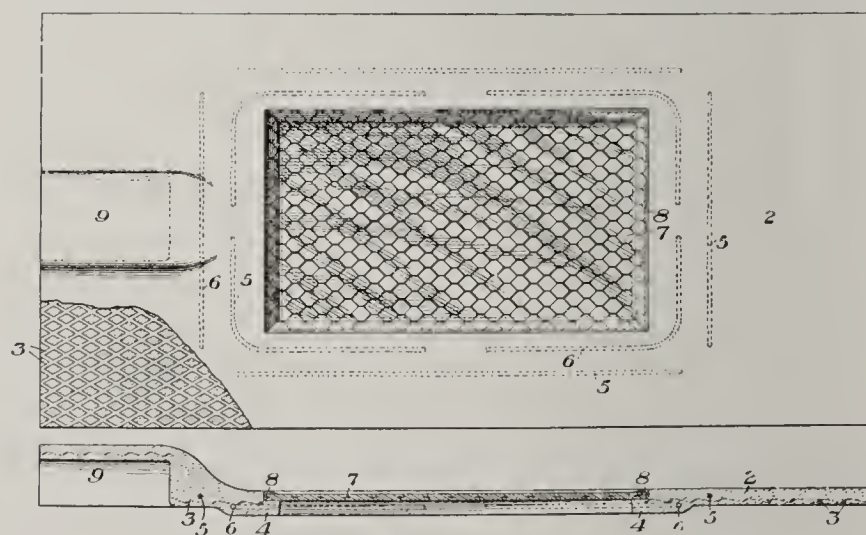
tubes, such tiles being placed back to back between the tubes in staggered relation so as to constitute baffle plates and regulate the area through which the products of combustion pass.

979,898.



Tile: Joseph Freund, of St. Louis, Mo. 979,280. Patented December 20, 1910.—This invention relates to clay roofing tiles, having in them plates of glass, for skylights, and its

979,280.



object is to prevent cracking and breaking of such tiles owing to unequal expansion and contraction of the glass and clay. To this end a thickened portion or bead (4) is formed around the window opening and imbedded in this bead are reinforcing rods (5 and 6) extending parallel with the edges of the glass. The glass is secured in place by means of a somewhat elastic cement (8).

Brick Car: Clarence M. Steele, of Statesville, N. C. 979,898. Patented December 27, 1910.—This invention is an improvement in lift cars for use in handling brick and has for

an object, among others, to provide a novel construction which can be easily operated to set the bed of the car up or down in order to lift or lower the load, and which will be found convenient in handling brick and other material on pallets. The invention also has for an object to provide a lift car having only one deck, making it flexible, thus allowing the wheels to follow an uneven track. To this end the inventor provides on each axle a pair of pivoted brackets, to which the body is also pivoted, each of said brackets carrying an arc-shaped rack adapted to mesh with a worm wheel carried on a shaft extending longitudinally of the car and arranged to be operated by a crank handle.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.



THE OUTLOOK ON 1911 building at Memphis is fair. Enough large office buildings were constructed last year to meet the needs for some time, but residence and collateral building promises to be of magnitude.

The Cubbins Brick Company report a very good situation on building and their brick works have a large amount of material on hand.

The Citico Brick Company is the style of a new organization at Chattanooga. Charles W. Howard is president. Other stockholders are J. A. Henderson, A. Shallday and John A. Chambliss. Mr. Howard has purchased the plant formerly owned by the Tennessee Brick Company, located just north of the Citico furnace. The plant covers twenty acres. Brick and tile will be manufactured and work started this year.

Wilbur A. Nelson, of the State Geological Survey, is in Memphis and expects to make a preliminary survey of the clay lands in West Tennessee. He was at the Business Men's Club and outlined what the department hopes to do. "There are large quantities of valuable clay in West Tennessee that we hope to have developed," he said. "I think the best quality of clay is found in the territory between Paris and Bolivar. I expect to visit various plants in this vicinity and get samples of the clay used and find out where it is obtained. I am of the opinion clay can be made a valuable resource in the State. It is one of the resources that has never been developed. Sewer pipe, pottery ware, tile and all such things can be manufactured with it."

Testimony was recently taken at Little Rock, Ark., by J. Edgar Smith, special examiner for the Interstate Commerce Commission, of the complaints of the Malvern Brick and Tile Company, of Perla, Hot Springs county, Arkansas, in regard to the rates on fire brick from Malvern to points in Louisiana. The roads against which the complaints are made are: The St. Louis, Iron Mountain & Southern Railway; the Chicago, Rock Island & Pacific; Kansas City Southern; St. Louis Southwestern; Vicksburg, Shreveport & Pacific; the Louisiana Railway and Navigation Company, and the Louisiana & Arkansas Railway Company.

The Mosaic Tile Company, of Mobile, Ala., is furnishing tile in a large new hotel that is being built in Tampa, Fla. Cuban tile setters from Mobile are now setting tiles in the rooms and corridors of the new part of the De Soto Hotel. These tiles are exactly like those in use for centuries in Spain and Cuba, and the big factory in Mobile is the only plant in America, except a small attempt in Yber City by some English-speaking Cubans. About \$40,000 worth of this flooring has been laid in Mobile during the past two years in the Scottish Rite cathedral, First Baptist church, the municipal buildings, court house, most of the banks and a large number of the more elegant stores, and in nearly all of the modern and costly residences of that wealthy city. The tiles, when laid rightly, are practically everlasting, and in fact improve with age. The designs are reproductions from the old cathedral floors of Spain and the mosques of the Moors. The president

of the company, F. Benemelis, a prominent resident of Mobile for the past ten years, is a Cuban by birth and was formerly president of the Benemelis Steamship Company.

E. T. Lewis & Co. report the trade situation rather quiet in Nashville at this time on brick and building supplies. The largest recent contract filled by the firm was for face brick of impervious gray, used on the Hermitage Hotel.

The Southern Clay Products Company, of Chattanooga, Tenn., located in the James building, are making both fire and face brick. Labor has been quite scarce during the harvest season. W. A. Hull is manager of the company.

Costen, Moore & Co., brick manufacturers at McKenzie, Tenn., have lately completed the work of furnishing and tile house in that town. They are now preparing to erect a building a two-story bank building and a three-story mercantile brick hotel addition there for the Wrinkle-Moore Company.

The total value of building permits issued at Mobile, Ala., during the month of December, 1909, of \$26,867, as compared with a total for the month of December, 1910, show an increase of nearly 100 per cent. for the year 1910.

Little Rock will at some near future date have a fifteen-story skyscraper. The building is to be erected at 114 West Second street, the site of the present Elks' building. Chris Ledwige is the promoter.

W. C. Edmondson, O. I. Kruger, Prof. E. E. Utterback and Architect B. C. Alsup, of Memphis, have been at St. Louis looking over the high school building there for the purpose of securing pointers in the equipment of the Memphis Central High School building.

It has been decided to erect a Pythian temple at Montgomery, Ala. The structure will cost \$50,000, of which \$12,000 has been subscribed. Present at the meeting were Chairman J. B. Ellis, Selma; Jacob D. Bloch, of Mobile, and others.

DIXIE.

BIRMINGHAM BECOMING A GREAT BRICK CENTER.

THE PROGRESS made in the Birmingham district along the lines of the manufacture of clay products, paving and building bricks and pipe during the closing year, according to the Ledger, of that city, is deserving of considerable note among the numerous developments that have characterized the year 1910.

This particular industry has made vast strides during the past few years and especially so in the passing year. Nearly every concern manufacturing the product and its branches has made extensive improvements in plans and operations, and has widened their scope both in production and selling to an extent of making the industry a potent industry of the district. The Birmingham district can justly lay claim to the supremacy of the entire South as a brick and clay manufacturing center.

Many features have distinguished the clay and brick industry during the year. The recent consolidation of the Sibley-Menge Brick Company and the Sibley Bros.' Coal Company has formed an aggregate capital of \$300,000 for the manufacture of pressed brick. Many improvements will be made in the plant of this company shortly after the first of the year and the facilities greatly enlarged.

The Copeland-Inglis Shale Brick Company, which has one of the largest plants for the manufacture of paving brick, has also made extensive improvements and has laid plans for many more important changes during the coming year. Among the many improvements begun during the past year by this concern is the construction of a mammoth kiln and storage sheds. The new kiln which is now under construction will be a continuous kiln of about 500 feet, having no parallel in the entire southern territory, and will be erected at a cost of approximately \$40,000. A new seventy-ton steam shovel has also been installed at a cost of \$10,000, and other addi-

tions have been made at a cost of probably \$50,000. The Copeland-Inglis Company has also extended their selling capacity of paving brick for municipal thoroughfares in nearly every Southern State, thus opening another avenue, and a broad one, for the brick industry in the Birmingham district. During the past year brick for paving purposes have been supplied by this concern to the cities of New Orleans, Jackson, Miss.; Columbus, Ga., and many other prominent cities of the South.

This concern has a complete plant, conceded to be the finest and best equipped of its kind in the South, which is absolutely fireproof and modern in every way. The Graves-Matthews Paving Brick Company has made many improvements during the year and broadened out considerably. Likewise L. L. Stephenson, manufacturer of shale building brick, has made strides in the brick development.

The North Birmingham Fire Brick and Roofing Company, another branch of the industry, and the Southern Sewer Pipe Works have contributed their share to the development of the brick business in the district. In fact, every manufacturer of

as weather conditions will permit. The plant will have an annual capacity of 2,000 cars. Besides drain tile and hollow blocks they will also manufacture sand-mold and wire-cut brick. The main office is at Albert Lea, Minn.

Written for THE CLAY-WORKER.

INTERESTING PROSPECTIVE BUILDERS.

AN EXHIBITION of building materials that proved very interesting to prospective builders was given under the auspices of the Cleveland Chapter of the American Institute of Architects and the Cleveland Architect Club during the last week of December and the first week in January. The show occupied the entire fifth floor of the Brotherhood of Engineers' building and was free to the public. One of the main objects of the show was to raise the standard of buildings, both in style and material, and that this was accomplished to a pleasing degree is the satisfactory report of those most interested in the exhibition at its conclusion.

We are pleased to present a picture of one of the most



Splendid Display of Clay Building Materials Made in Queisser-Bliss Company's Exhibit.

brick and clay products has done much for the industrial progress of Birmingham and the business is an important factor in the future history of Birmingham. The outlook for the coming year is most gratifying and much, it is expected, will be accomplished in this line during 1911.

NEW DRAIN TILE AND HOLLOW BLOCK PLANT.

Articles of incorporation of the Acorn Brick and Tile Company, Albert Lea, Minn., have been filed, with a capital stock of half-million dollars.

The officers and directors are: Beecher H. Ward, president and general manager; Herbert E. Skinner, vice-president; Alfred Christopherson, secretary; Charles E. Paulson, treasurer; John M. Wolf.

This company is organized for the purpose of erecting and operating drain tile and hollow block plants. The first plant will be located at Glenville, Minn.

Building operations will commence in the spring, as soon

complete displays of brick, terra cotta and kindred clay products, which was made by the Queisser-Bliss Company. A wide variety of brick was shown in addition to some of the most attractively designed terra cotta ever seen in Cleveland. It was set up in a permanent form seldom attempted at these temporary shows and created much favorable comment.

Other displays of brick were made by the Cleveland Builders' Supply Company and the Hydraulic Press Brick Company. The Ohio Clay Company also showed its hollow brick and tile for use where a stucco surface is desired. Altogether the show was the most satisfactory ever held in Cleveland.

One man is said to have beaten the railroad employing him as treasurer out of over half a million dollars. Incidentally, it may be remarked that the shippers either have paid or will pay the bill.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



ANOTHER RECORD-BREAKING year is looked forward to by Cleveland brick manufacturers, dealers and supply men. The manufacturers of machinery, who are always good barometers of business conditions, and of whom there are several located here, say that from the number of inquiries received the condition of business generally seemed to be healthy, but that in Cleveland it is doubtful if it has ever been in a sounder condition. There are the pessimistic few, of course, who are never satisfied, but for the most part everybody is looking forward expectantly to a big year's business.

Final returns for 1910 in the building inspector's office confirmed the predictions made in THE CLAY-WORKER last spring and summer that more work was actually being done than ever before in the history of the city. For the year 1910 the total number of permits issued was 7,460 and their total value was \$13,980,478. For the preceding year only 6,854 permits were issued, and their aggregate value was \$13,028,294, a gain of nearly \$1,000,000 for the year, which is going some.

A significant feature of the permits was the diminishing use of wood and the increasing use of fireproofing materials, especially of brick. While many other materials are being boomed, brick continues in universal favor. With the increased cost of wood, the heavy freight rates charged for the long hauls and the accessibility of brick plants has caused more home builders and others to favor its use than ever before.

January is usually the dull month in the offices of the brick dealers and supply companies, yet this month the salesmen are hustling about, running to their lairs some fancy terra cotta and brick orders which are about to be awarded in connection with some of the big building projects which are to start just as soon as the weather will permit. There are three or four skyscraper projects which are slowly being evolved in the offices of architects here, in which white glazed terra cotta will be the predominating material used for exterior walls.

One of these is the sixteen-story hotel for E. M. Statler and associates to be built at East 12th street and Euclid avenue. Either a light colored brick or a white glazed terra cotta, or both, will be used. George B. Post & Sons, of New York City and Cleveland, have been engaged as architects for the project, which is to cost about \$2,500,000 completed. The structure is to contain over 800 rooms and will be finished palatially throughout.

The Brotherhood of Locomotive Firemen and Enginemen, who, several weeks ago, purchased a fine site for a new building on Superior avenue at West 6th street, have just announced the employment of Knox & Elliott, Rockefeller building, Cleveland, as their architects. Plans have been prepared for a ten-story building of white terra cotta and brick. The building will be used for offices, with a banking room occupying most of the first floor. It is expected to cost about \$1,000,000. It is hoped that work can be started just as soon as some leases can be acquired.

During the past month Wentworth G. Marshall, leading Cleveland druggist, acquired an additional piece of land on Superior avenue, near the public square, and is now arranging to erect a twelve-story office building during this year. Architect W. S. Lougee, former building inspector, has been commissioned to prepare plans for it. It will be of either brick or terra cotta tile. It is to be built in sections, the sec-

tion nearest the public square being improved first, the other sections to follow.

Plans are about ready for the awarding of contracts for the three new Y. M. C. A. buildings to be erected in Cleveland this year, for which over \$600,000 is already on hand. The main building will be at Prospect avenue and East 22nd street, will be eight stories high and will cost about \$400,000. A West Side branch will be located on Franklin avenue and an East End branch on East 105th street, near Euclid avenue. Each will cost in the neighborhood of \$100,000. All three will be of brick, a warm red pressed brick being employed in the central association building. Abram Garfield is planning the East End branch and Architect Albert S. Skeel the West Side branch.

The city of Cleveland is preparing to do extensive building work during the coming year. Plans have been prepared for four brick fire stations, costing \$90,000, and located in different parts of the city. The contracts will be approved by Director of Public Safety Hogan. The same official will determine what kind of material will enter into a fine big municipal bath house, which is to be built in Edgewater Park. Architect M. M. Gleichman has prepared an elaborate plan and recommended the use of white terra cotta tile for the building. The tile for the building will cost about \$60,000. The city this year plans to spend \$1,000,000 on the extension of its intercepting sewer system. This is a fourteen-foot tunnel of shale brick under the city streets, carrying away the sewage from fourteen smaller systems and disposing of it through a filtration plant far from the city's water supply intake.

A contract was let during the past month for the foundations for the new city hall. The foundations will be almost entirely of brick. The James Connolly Construction Company's bid of \$70,900 was accepted and work is now under way. The contract for the superstructure will be let some time during the coming summer. The foundations are to be all in within 200 working days.

Jay Latimer, president of the Terminal Warehouse Company, has just announced that he has successfully financed the new project, which is to cost nearly \$3,000,000 completed, and that as soon as the weather will permit work will start on a section of the plant, which is to cost \$1,000,000. It will be a great terminal and cold storage warehouse, built of red shale brick. The walls and foundations will be unusually heavy.

A new station, costing \$60,000, of gray brick and white tile, is being built for the Nickel Plate railroad at Euclid avenue and the railroad tracks in East Cleveland. The Lake Shore is completing a somewhat similar structure at the intersection of its line with East 105th street. As soon as spring opens up a large freight house is to be built adjoining it.

The Leader Publishing Company has announced plans for a \$1,500,000 brick building, fourteen stories high, to be erected at the southwest corner of East 6th street and Superior avenue this year. Architect Charles Platt, of New York, has had the work of preparing the plans assigned him. Stone, terra cotta and brick will be employed, the latter predominating. The building will face 149 feet on Superior avenue and extend back 214 feet to an alley. It is expected to have the largest number of offices of any building in Cleveland and will directly overlook the mall of the new group plan of public buildings.

The Cleveland Hydraulic Press Brick Company has secured an order for 300,000 Bokhara brick for the new high school to be built at Youngstown, Ohio, by Andrews Bros., of Cleveland. The building is to have 24 rooms and will cost in excess of \$107,000. Charles Owsley is architect of the new structure.

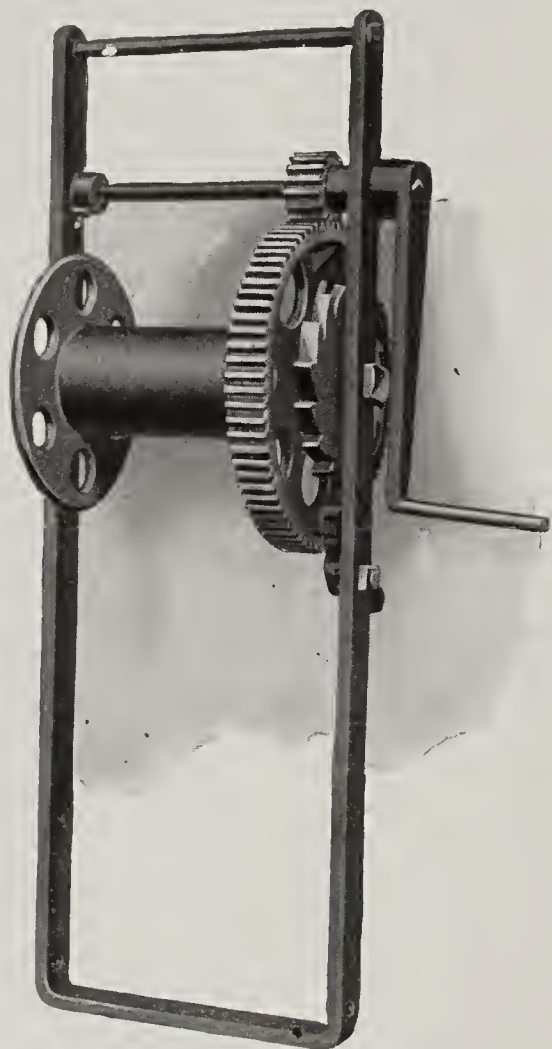
A silver loving cup has been presented to the Builders' Exchange by R. L. Queisser, of the supply firm of Queisser & Bliss, Henry A. Taylor and C. S. Bigsby, to be awarded to the member of the Exchange who brings in the largest number

of applications in the campaign to raise the exchange roster from 375 to 400 members.

The Stowe-Fuller Brick Company has greatly extended its East Side yards by the acquiring of a large additional tract of land. Ten houses located on a section of ground 325 by 162 feet have been purchased. The land will be pressed into service as it is needed. The Stowe-Fuller Company is one of the largest manufacturers of fire brick in the country, operating a number of big plants in this and adjoining States.

S. D. Wright, manager of the Atlas Car and Manufacturing Company, makers of conveying devices for brick plants, declares that the outlook for the year 1911 seems very good in his particular line of business. During 1910 the concern did a splendid business, warranting the erection of a fine new plant in the East End, which is to be pressed into service in the spring. The company is putting out some new models of cars for individual plants which are expected to meet with more favor than ever.

The year 1910 was the best in the history of the Ohio



Steel Scaffold Winch.

Ceramic and Engineering Plant, which has a large plant on Berea road, this city, and which makes one of the largest lines of clay machinery in the world, in addition to machinery for other purposes. Manager Charles F. Lang attributes this largely to the increased sales force and the modernizing of selling methods. Mr. Lang is confident that the year just beginning will eclipse that which has just closed.

H. L. Taite, sales manager for the Sawyer Belting Company, is another Cleveland man who feels sure that industrial conditions are steadily improving and that 1911 is going to be a big one all along the line. He reports a steadily increasing demand for the company's products and anticipates a banner year.

Paving operations in and about Cleveland promise to be unusually active this year, according to Deckman & Duty, leading paving brick manufacturers. They say that the coming season promises to see more paving brick used than ever before. In Cleveland over forty paving jobs are being bid on, while in Cuyahoga county the rural highways leading into

Cleveland are to have forty miles of brick pavements laid on them this year. Deckman & Duty also report orders from a number of smaller cities and towns throughout the State.

BUCKEYE.

STEEL SCAFFOLD WINCH.

WE illustrate herewith a new steel scaffold winch which has recently been placed on the market. By using this winch in connection with cables hung from above, a large item of expense is saved, as much of the false work or supports for staging are eliminated.

The scaffold is raised or lowered by the men at work on it as the work progresses. No delays are necessary and the men are not obliged to wait for new staging. The winch has an automatic safety catch, which must be held open by the operator when raising or lowering the platform.

They are used in pairs every 8 inches or 10 feet. A 3x12 plank connects the winches and on the plank the scaffold platform is placed.

The cost of these winches is easily saved on a medium sized building when used in place of the regular type of scaffold. The winch complete, ready for use, weighs 72 pounds, and the handle 6 pounds.

For price and further information address The Ohio Ceramic Engineering Co., Cleveland, O.

SIX SONS MUST BE POTTERS.

By the will of the late James Tams, millionaire potter, of Trenton, N. J., Mr. Tam's six sons are named as the executors of the estate, and they are all to take positions with the Greenwood Pottery Company and Greenwood China Company. Mr. Tam makes the request in his last will that all of the sons be instructed in the art of manufacturing the kinds of pottery and decorations produced at the two Tam plants.

A unique provision of the will is that in the event of any son, or grandson, revealing the secrets, or competing with the Greenwood Pottery Company or the Greenwood China Company, the executors are directed to withhold the annual income and his share of the residue of the estate, which is to be divided at the end of twenty years.

Mr. Tam also provides that if any of the sons fail to obey the mandates of the will he shall not receive his share of the estate.

A trust fund has been created for the widows and daughters and all of the sons are to accept positions with the Greenwood companies. William H. is to assume the management and presidency of the companies at the wish of the father, who also makes the request that the other five sons work faithfully under his guidance.

A provision has also been inserted that no grandson shall be employed in the management of said companies while any one of the sons desiring employment shall remain unemployed. He also requests that each of the boys devote his entire time to the employment at the plants.

The six sons, William H., George E., Arthur J., Thomas W., Winfield B. and Raymond H., have all signified their willingness to abide by the terms of the will.

William H. is bequeathed \$5,000 in consideration of special services rendered the father in the management of the business.

A RAPID HARD ROAD BUILDER.

When Jack Frost makes up his mind to construct hard roads, says the Alton (Ill.) Telegram, he goes at the job "hammer and tongs," with the result that speedily he builds miles and miles of hard road in a single night. He has converted all dirt roads in this vicinity into hard roads now, and

if the "hardness" is utilized the other hard road builders will find their teams will have much easier going than they had pulling loads of rocks through the mud. Jack is a first-class bridge builder also, and has spanned all of the little streams and ponds in this vicinity with a safe crossing. "Knowing how" amounts to a great deal in this world after all.

MARION MACHINE FOUNDRY AND SUPPLY COMPANY'S NEW LINE.

THE Marion Machine Foundry & Supply Co., Marion, Ind., a firm long identified with the clay trade through their excellent Rust Clay Feeder, which is now being used on hundreds of brick and tile plants, has broadened their field by purchasing the United States rights for making and selling the Bechtel cutting tables.

These cutting tables, now being made by them, have many distinctive features, and are claimed to be a triumph in the art of tile and brick cutting. The No. 25 Marion Automatic Side Cutter, which we are pleased to illustrate in this article, has for its chief merit its simplicity. It has a simple friction device which gives to the cutter the advantage of regulating the machine to any degree of speed desired. This is accomplished by moving the lever seen in illustration back and forth. The table has a strong angle steel frame, which keeps

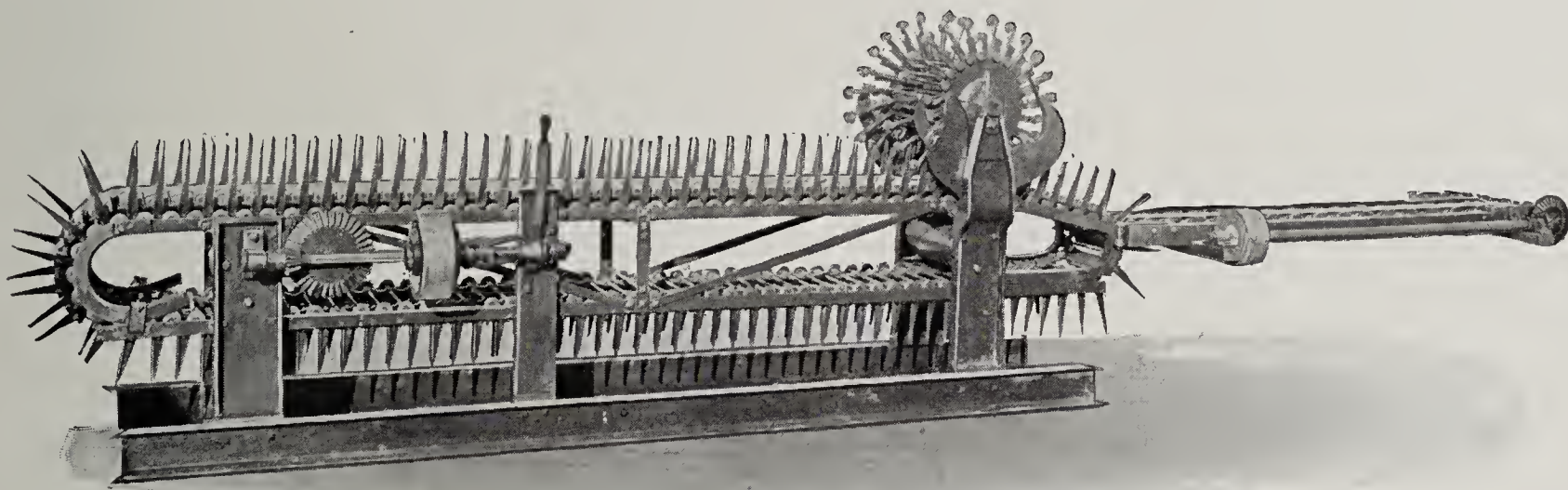
"BETTY AND I KILLED A BEAR."

James Wilson, Secretary of Agriculture, in his report recently made public, says:

"At no time in the world's history has a country produced farm products within one year with a value reaching \$8,926,000,000, which is the value of the agricultural products of this country for 1910. This amount is larger than that of 1909 by \$305,000,000, an amount of increase over the preceding year which is small for the more recent years.

"The value of farm products from 1899 to the present year has been progressive without interruption. If the value of that census year be regarded as 100, the value of the agricultural products of 1900 was 106.04; that of 1901 was 112.7; that of 1902 was 119.1; that of 1903 was 124.8; that of 1904 was 129.8; and that of 1905 was 133. The year 1906 was an extraordinary one for agriculture, both in quantity and in value of production. The value increased to 143.4, as compared with 100 representing 1899. In the next year, 1907, the value of agricultural products rose to 158.7; in the next year, 1908, to 167.3; in 1909 to 182.8; and in 1910 to 189.2, or almost double the value of the crops of the census year eleven years preceding."

A careful study of the manufacture and use of farm drain tile during the same period shows that there has been an enormous increase in farm drainage. While the increased values quoted may be in part due to advance in market



The No. 25 Marion Automatic Cutter Made by Marion Machine Foundry and Supply Co., Marion, Ind.

the weight of the machine down so that it can be easily handled. The wire-holding device on this machine is so constructed that it allows the wire to be stretched to high tension without danger of breaking. Another advantage is that the wire carrying frames being adjustable, broken wires can be replaced without stopping the machine. An important feature in this No. 25 Marion Automatic Cutter is that the length of cut on the machine can be changed to suit requirements, and the capacity can be adjusted to conform to the output of the brick machine.

The No. 35 Marion Automatic Tile Cutter can be used for cutting blocks as well as tile, and cuts blocks absolutely square. The range in tile cut on this table is from 2½ to 7 inches, inclusive, in diameter. Two thousand 3-inch tile can be cut per hour. There is little waste on this table, for it cuts off no stubs, the whole bar being continuously cut into the desired lengths. On this machine you can get the complete capacity of your tile machine when making small tile.

Besides their several styles of cutting tables, the Marion Machine Foundry and Supply Company manufactures their well-known Rust Clay Feeders and Mixers, the Marion Flue Blower and the Alexander Patent Water Gauges. We refer the reader to their advertisement on pages 169 to 172 of this issue, or, better, write them for catalog.

values, any one familiar with the subject knows there has been an increase in quantity produced far in excess of the additional acreage.

By thus aiding materially in producing larger quantities of the necessities of life the charge of the increase in cost of living cannot be laid at the door of those engaged in farm drainage. On the contrary, the influence of the tilemaker is towards reducing the cost of living by increasing the supply, as taught by the law of political economy, which says price is determined by the supply and the demand.

One very gratifying phase of this is that the tilemaker knows that he does not wrong, rob or cheat his customer when he sells him a bill of tile. On the contrary, the landowner, when he buys tile, makes one of the best investments that can be found. When the profits from farm drainage are figured on the cost of tile and laying, the conservative estimates, as shown by actual experience, range from 25 to 100 per cent. annually. That is, it repeats from year to year with only one cost.

Is the tilemaker getting his fair share of the benefits of his labor? The writer is not a Socialist, but he believes in a square deal. If the manufacturer is not getting his just profit it is his own fault. His fault not as an individual, but as a class, for he makes the prices to customers.



OFFICIAL ANNOUNCEMENT.

Twenty-Fifth Annual Convention of the National Brick Manufacturers' Association, to Be Held at Louisville, Ky., February 6 to 11, 1911.

The National Paving Brick Manufacturers' Association, the Building Brick Association and the Clay Machinery Association Hold Separate Sessions, February 6 and 7.

THE SILVER ANNIVERSARY of the National Brick Manufacturers' Association will be held at Louisville, Ky., the week of February 6 to 11, 1911. The central location and accessibility of Louisville, together with the excellent facilities afforded, make it an ideal convention city. Especially is this true to those of the members who wish to journey on South immediately following the convention, for Louisville is indeed the gateway to the South. New members or those in the craft who have not attended conventions of late years can scarcely realize the benefits to be derived from gatherings such as these.

The coming season bids fair to be a busy one; whether it may be made a profitable one depends in no small degree upon the attitude of those engaged in the business. It is well to bear in mind that competition is the life of trade only when it is intelligent; when ruthless, it spells disaster and loss to the producer, and consequently oftentimes is hurtful to the consumer as well. The N. B. M. A. has never attempted to regulate prices, but it has been the means of dulling the sharp tooth of competition by leading to friendly relations among clayworkers generally throughout the country, and in that way, no less than in the dissemination of technical knowledge, has it proven of real material benefit to those who have taken an active interest in its proceedings.

THE HOTEL ACCOMMODATIONS are the very best. The Seelbach will be headquarters; and is in the same high class as the Fort Pitt, with which the members generally were so well pleased last year. The following are the rates agreed upon, European plan:

Single rooms, without bath, for one person, \$2.00 and \$2.50 per day. For two persons, \$3.00 and \$3.50.

Single rooms with bath, for one person, \$3.00 per day and upward. For two persons, \$4.00 per day and upward.

For each additional bed put in either of the above rooms, the charge will be \$1.50.

The proprietors of the Seelbach operate two other hotels in the city, **THE OLD INN** and **THE VICTORIA**, each of which offer excellent service at lower rates, being steam heated and having hot and cold running water in each room; the **OLD INN**, corner Sixth and Main streets, makes a minimum rate on the European plan of \$1.50 and up. The rates at the **VICTORIA** are \$1.00 and up. Those desiring to order reservations are requested to address The Seelbach Hotel Company, Louisville, stating date of intended arrival, and the character of accommodation desired, and the rates they want to pay.

THE BEAUTIFUL RATHSKELLER of the Seelbach Hotel, which is illustrated and described on a previous page, will be of peculiar interest to the members who appreciate art in

architecture. By many it is thought to be even more beautiful than the Norse room at the Fort Pitt, which was so much enjoyed at our last convention. The columns, walls, ceilings and floor are all finished in Rookwood tiles and faience.

DISPLAYS OF SAMPLE BRICK, ETC. Exceptional facilities will be provided for the display of clay wares of all kinds, and the members are requested to send samples of their product, for the display of which there will be no charge to members. Those desiring to avail themselves of the opportunity for such display are requested to make shipment in their own name, care Seelbach Hotel, Louisville, Ky., in time to insure delivery by or before February 6. A limited amount of space will also be available for the display of models of machinery, factory supplies, etc. Express or freight charges should be prepaid in every instance.

REDUCED RAILROAD RATES on the certificate plan have been granted by the Southeastern Passenger Association, which covers all the territory south of the Ohio and east



The Bottomless Pit in Mammoth Cave.

of the Mississippi river. To obtain the reduced rates delegates from that territory and those accompanying them must pay full fare for the going trip and take proper certificate for same from ticket agent. This ticket, when properly vised by the Southeastern Passenger Association's representative, will entitle the purchaser to a return ticket at three-fifths the fare paid, making a four-fifths rate for the round trip. Those starting from small towns should make inquiry of local ticket agent a few days in advance, to insure the receipt of proper certificate. If certificates are not taken, the reduced rates cannot be secured. As it takes some little time to make out the certificates, delegates should present themselves at the ticket office at least thirty minutes before the departure of trains. If through tickets cannot be procured at the starting point, local tickets should be purchased to the nearest point where such through ticket can be obtained, and there purchase through to Louisville, and a certificate from the ticket agent at the place where each purchase is made should be

requested. The latter feature is imperative. No refund of fare can be expected because of failure of delegates to obtain certificates. Should any ticket agent be unable to furnish a certificate on the regular printed form, delegates should take a written receipt, setting forth the fact that certificate was asked for and could not be furnished, and stating the amount of fare paid, the name of the station where purchased, and the names of the railroads over which purchaser is ticketed. Such receipt, bearing the agent's official stamp, will enable delegates to obtain a proper refund. Return tickets will be good until midnight of Wednesday, the 15th. Tickets good going from February 2 to 8.

NO REDUCED RATES from points North, East and West of Louisville. Owing to the fact that two-cent rates now prevail in most States North, East and West of Louisville, the passenger associations having control in the latter territories have declined to make any concession. Hence members from those sections are advised to use mileage books or purchase round-trip tickets, where the latter can be obtained. The



The Bridal Altar in Mammoth Cave.

mileage book affords the advantage of a variable route, which oftentimes is quite important to those wishing to visit and inspect plants en route, either going or coming.

SIDE TRIPS OF EXCEPTIONAL INTEREST may be arranged for. Most of those attending will doubtless want to visit the famous Mammoth Cave, located on the Louisville & Nashville railroad some ninety miles from Louisville, and accordingly arrangements will be made for an excursion there Saturday the 11th. A special train will be provided and the Mammoth Cave officials will furnish guides and every convenience to make the trip a pleasant one. Quite a number of the members have expressed a desire to make a side trip after the convention to New Orleans, and arrangements will be made for special rates and accommodations for an excursion South if a sufficient number of the members signify a desire for it. It has also been suggested that those desiring to extend their winter vacation might find delightful recreation in a trip to the Panama Canal. There is a

line of fine ocean steamers plying between New Orleans and Colon, which make the trip in five days each way. Further particulars will be furnished those who care to consider such an outing.

THE ANNUAL BANQUET or Associational Dinner will be served Thursday evening, at 8 p. m., in the Banquet Hall of the Seelbach Hotel. It will be a subscription banquet, under the direction of the N. B. M. A. Executive Committee. The Governor of Kentucky, Hon. Augustus E. Wilson, will be the guest of honor, and other brilliant speakers will respond to toasts. There will be music galore. The ladies will grace the occasion, as usual, and full evening dress will be in order, though not by any means necessary. There will be other entertainment provided for the visitors, such as a smoker Wednesday evening, a theater party for the ladies, and they will also be escorted on sight-seeing trips under the guidance of the local committee.

CONVENTION SESSIONS. As in former years, the week will be divided by the National Association and affiliated bodies, as follows. The sessions of the N. B. M. A. will be held in the Convention Hall of the Seelbach Hotel, beginning Wednesday, February 8, at 2 p. m., and continuing Thursday and Friday.

THE NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION will hold its sessions in the Assembly Hall of the Seelbach Hotel, beginning Monday morning, February 6. Those desiring information relative to membership, etc., are requested to communicate with Will P. Blair, secretary, Indianapolis, Ind.

THE BUILDING BRICK ASSOCIATION OF AMERICA will hold its business sessions in the Red Room of the Seelbach Hotel, beginning Tuesday morning, February 7, and will hold a public session in the Convention Hall, Thursday forenoon. For full information, address Parker B. Fiske, secretary, Flatiron Building, New York City.

THE NATIONAL CLAY MACHINERY ASSOCIATION will hold its formal sessions in the Music Room of the Seelbach Hotel, beginning Tuesday morning. For further particulars, address W. N. Durbin, secretary, Anderson, Ind.

N. B. M. A. PROGRAM.

First Session, Wednesday, February 8, 1911, 2:00 p. m.

Prayer.

Welcome to Louisville by his Honor, Mayor W. O. Head.

Response by G. W. McNees, Kittanning, Pa.

President's annual address, Will P. Blair, Indianapolis, Ind.

Report of Treasurer, John W. Sibley, Birmingham, Ala.

Election and installation of officers and members of standing committees.

Rules of Procedure.

All formal resolutions shall be presented in writing.

At the close of each essay or address an opportunity will be afforded for the full discussion of the subject under consideration.

No papers or essays not included in the regular program will be heard, unless previously submitted to and approved by the Executive Committee.

Papers and addresses delivered during the convention become the property of the Association, and in accordance with the rules of the Association may not properly be given out for publication, except by or through the Secretary.

The proceedings of the convention will be copyrighted to prevent piracy, but the greatest publicity will be given all the convention papers and discussions at the proper time, after the report is complete, not before, when copies of any and all papers and discussions may be had free of charge on application to the Secretary.

Convention Papers.

"Good Fellowship an Asset in the Brick Business," C. Bryan, Detroit, Mich.

"The Removal of the Overburden of Clay Deposits," Paul Beer, Des Moines, Iowa.

"The Missing Link Between Success and Failure in the Brick Business," R. E. Sunderland, Omaha, Neb.

"Vitrified Clay Ware Versus Concrete," George H. Tefft, Kansas City, Mo.

"Tariff Duties Between Canada and the United States and the Effect on the Brick Business," L. S. Kendrick, Saginaw, Mich.

"Clayworkers the Real Conservationists," F. W. Fitzpatrick, Washington, D. C.

"Some of the Properties of Brick and Brick Work," J. E. Howard, Washington, D. C.

"The Manufacture and Testing of Fire Brick," A. V. Bleininger, Champaign, Ill.

"Continuous Compartment Kilns and the Common Method of Burning," Win. A. Butler, San Francisco, Cal.

General discussion, led by D. Cobb, Jacksonville, Fla.

"Idiosyncrasies of the Face Brick Business," W. J. Snyder, Brazil, Ind.

"Comparative Value of Fuels in Burning Brick," Julius J. Koch, St. Louis, Mo.

"Economy and Efficiency of Waste Heat Dryers," C. E. Fuller, Buffalo, Kas.

General discussion, led by Anton Vogt, Fort Smith, Ark.

"Trade Schools and How They Might Benefit the Brick Manufacturer," John R. Bell, Huntington, Pa.

"Natural Versus Artificial Draft in Drying and Burning Clay Ware," John C. Boss, Elkhart, Ind.

General discussion, led by Christopher Steadman, Greenridge, New York.

"System in the Clay Plant," M. E. Gregory, Corning, N. Y.

"Lessons of Experience in the Brick Business," E. P. Elzey, Parkersburg, W. Va.

"Crushing Strength of Clay Products," Harrison Everett Ashley, Pittsburg, Pa.

"Manganese Steel Applied to the Ceramic Industries," George Kneisely, Chicago, Ill.

Report of Committee on Technical Investigation, Ross C. Purdy, Columbus, Ohio.

"The Rejuvenation of Brick Plants," Ellsworth Ogden, Zanesville, Ohio.

QUESTIONS FOR DISCUSSION.

Is the use of two-inch vitrified cubes practical in constructing or resurfacing worn-out State roads?

Does too much of the brickmaker's money go up in smoke?

Is it feasible to combine the manufacture of hollow block with that of common building brick?

Does piece work pay in the face brick factory?

How can we prevent getting soft brick in the bottom of round down-draft kilns?

Why do not brick manufacturers and dealers more strongly encourage the use of roofing tiles and other clay products?

How can we reduce the percentage of soft burned brick in up-draft kilns? That is, get better burns in the corners and next to the wall of the kiln?

Is there any way to eliminate or lessen the amount of smoke emitted from a down-draft kiln when burning with soft lump coal?

What percentage of first cost should be written off annually for depreciation of brickmaking plants?

Should not the N. B. M. A. prescribe a standard system of ascertaining the cost of production, running expenses and selling price of brick?

In a brickmaking plant operated by electricity which is the more practical plan—each machine driven by a separate motor, direct connected, or motors driving counter-shafts for single machines or groups of machines?

In burning brick in open up-draft clamp kilns, with coal as fuel, which is preferable—to have fire boxes on the outside of the kilns and fire two eyes from each box, or fire direct under the arches?

SOUVENIR BADGE AND NUMBER BUTTONS. An appropriate souvenir badge and number button will be presented to each delegate and visitor with the compliments of the Louisville Brickmakers' Club. These will be distributed by the secretary of the N. B. M. A., whose headquarters will be in Parlor 210, where visitors are requested to call and register upon arrival, and where railroad certificates will be vided.

All sessions of the National Convention are open to the public. Those who are interested directly or indirectly in clay work of any character are invited to join the Association and attend the convention. Members and their families or friends who may accompany them will be entitled to reduced railroad and hotel rates, and may participate in all the enter-

tainments. Those desiring further information as to requisite of membership, etc., are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

Will P. Blair, President.

Theo. A. Randall, Secretary.

MEETING OF THE AMERICAN CERAMIC SOCIETY.

The Thirteenth Annual Meeting of the American Ceramic Society will occur at Trenton, N. J., February 14-16, 1911.

The first session will convene in the parlors of the Windsor Hotel on East State street, at 10 a. m. There will be sessions in the morning and afternoon of the 14th, morning and afternoon of the 15th, morning of the 16th and probably in the afternoon also.

The program while not yet quite ready for publication, comprises already some forty-seven papers on the various phases of the work which this society discusses. The following grouping of the papers will give some idea of the nature of the meeting:

Pottery, and manufacturing pottery products.....10 papers
Manufacture of heavy clay products..... 5 papers
Manufacture of Refractory materials..... 4 papers
Relating to Geological occurrence of clays..... 6 papers
Physical-chemical studies on clays and ceramic

bodies11 papers
On lime and sand lime brick..... 2 papers
Miscellaneous 4 papers

There are a number of other papers expected, so it is probable that the total list will comprise fifty-five or sixty papers. It is expected that the society will meet in two sections as has been customary during the last two years, one section concerning itself chiefly with allied subjects and the other with the products of allied subjects.

The program as a whole promises to be a very rich one. On the lighter side it seems evident that the Trenton members are intent on starting something in connection with this meeting, for they have arranged for the following entertainment features:

First, a visit to the industries of Trenton, comprising eight factories.

Second, automobile trip to Washington's crossing of the Delaware.

Third, automobile trip to Princeton, N. J.

Fourth, theater party.

Fifth, banquet.

How in the world all of these relaxes are going to find a place in the proposed three day meeting, or even in the fourth day if the society stays over until Friday, is a question no one is reckless enough to try to answer. It is certain, however, that there will be something doing for every spare minute which the "keramikers" can get aside from the business sessions.

Indications for attendance seem excellent.

Edward Orton, Secretary.

W. D. GATES COMMITS MATRIMONY.

W. D. Gates, president of the American Terra Cotta & Ceramic Company, of Chicago, and known to the readers of The Clay-Worker as the author of Button-Hole Talks, was married to Miss Katherine Fallon, of Chicago, recently, and forgetting to leave his address hied himself Southward on a honeymoon trip, without so much as "by your leave" to even his most intimate friends. It goes without saying that thousands of Mr. Gates' personal friends wish the happy couple unmeasured bliss.

The postal savings bank is now working. How long it may work and how much good it may do for those it is supposed to serve is a matter we will find out by and by.

THE BUILDING BRICK ASSOCIATION OF AMERICA



TRADE MARK

PRELIMINARY ANNOUNCEMENT ANNUAL CONVENTION

Hotel Seelbach, Louisville, Kentucky

Annual Meeting, Tuesday, February 7th, at 2.30 P. M.

REPORT OF SECRETARY AND TREASURER. REPORT OF AUDITOR.
ELECTION OF OFFICERS AND DIRECTORS. NEW BUSINESS.

Publicity Meeting, Thursday, February 9th, at 9.30 A. M.

AMONG OTHER SUBJECTS FOR DISCUSSION WILL BE THE FOLLOWING:

1st---"The Comparative First Cost of a Brick House and One of Wood or Cement."

An actual test case has been conducted in Boston and plans, specifications and figures will be submitted. The results will interest and surprise you.

2nd---"An Enormous New Market For Brick."

The elimination of wood in the outer walls alone of all new houses would increase the Face Brick business of the country over 150 per cent, and Common Brick business over 20 per cent. This statement is so startling as to seem incredible. But we have the proofs based on figures compiled for us by the F. W. Dodge Co., the well known authorities on building statistics. How to win this enormous market is the most vitally important question before the Brickmaker today. It can be done. It will be done if the Brickmakers seriously undertake it.

3rd---"The Brick Veneered House---It's Cheapness and Desirability," by W. E. Dunwody of Macon, Ga. Mr. Dunwody is convinced from his investigations that, in the South, Brick Veneer is cheaper than wood and far better.

4th---"Winning the Public For Brick," by John Andres, Sec'y and Treas. of the Standard Brick Manufacturing Co., of Evansville, Ind. Mr. Andres knows whereof he speaks; he is one of the most vigorous newspaper advertisers of Brick in the country. He has made it pay. He will tell us all about it.

Full discussion of all papers invited. If you have any subject relating to the increased sale of Brick which you desire to have discussed, you are invited to communicate at once with the Secretary, 1616 Flatiron Building, New York.

OUR SLOGAN FOR 1911—ADVERTISE BRICK!



TRADE MARK

Written for THE CLAY-WORKER.

THE ILLINOIS CLAYWORKERS' ASSOCIATION

Samples Chicago Hospitality for the First Time and Likes It.

IT IS A SAFE prediction that the Illinois Clayworkers' Association will not wait another thirty-two years before again holding a convention in Chicago. Their thirty-third annual meeting was held there January 17, 18 and 19, and the success of the meeting was so pronounced that the doubts of those who feared that the delegates would devote themselves mainly to sightseeing, and neglect the convention sessions, were quickly dispelled. Chicago scored an unmistakable hit, well proving the claims of its Convention League that it is unexcelled as a Convention city.

By the magic of printer's ink, the Illinois Clayworkers' Association was, in a twinkling, metamorphosed into the "Middle West Clay Convention, and by the same token, or influence, many clayworkers from adjoining states were induced to participate, and the crowd took on somewhat the appearance of a National convention. The most remarkable element in the gathering was the throng of machinery and supply salemen. Either they were exceptionally hungry for orders, or could not resist the lure of the big city, for they almost outnumbered the visiting clayworkers. As the reader may see by checking over the numerical roster, there were nearly one hundred of these trade "missionaries" in attendance. Such an army of good fellows trained in the "glad hand" art alone insured a happy time.

The local contingent, brickmakers and brick dealers of Chicago, who were almost as strong numerically, were omnipresent throughout the week. Among them are many who justly deserve the title of "prince of good fellows," and they entertained the visiting delegates in lavish fashion. The stay-at-homes who missed the good time, have abundant reason for regret, and will do well to resolve never to let it happen again.

The program arranged was excellent. The only fault to be found with it being that it was "too much of a good thing." The fact that Professor Albert V. Bleininger, Director of the Ceramic Department, Illinois University, was alone booked for five papers, attests that fact. There was a large number of instructive papers presented which were not given the consideration they deserved, simply for want of time. They will all be given in full to the CLAY-WORKER readers in subsequent issues.

The chief social event was the banquet at the Auditorium Wednesday evening. It was arranged and carried through with true Chicago spirit. The ladies participated, there being nearly as many of them present as there were gentlemen, and they evidently enjoyed the music, the speeches and the stories with equal if not greater zest than their escorts. Dr. Converse, of Springfield, who was to have served as toastmaster, arrived a day too late, having been misinformed as to the date, it having originally been announced for Thursday evening, and so was conspicuous by his absence. Our "Button-Hole King" W. D. Gates, was impressed as a substitute, and acquitted himself nobly, as he always does, brevity, the soul of wit, characterizing his introductions.

The trip to Yard No. 17 of the Illinois Brick Company, Thursday morning, was thoroughly enjoyed by those who participated. A Chicago brick plant of the best type, such as was inspected, is a revelation to clayworkers who are not familiar with Chicago plants. In this instance, the visitors were afforded an opportunity of witnessing the operation of the famous bricksetting device being introduced by the American Clay Machinery Company, and which has been illustrated in previous issues of the CLAY-WORKER.

The one disappointing feature of the convention was the failure to exhibit specimens of clay products. The only displays of ware were a half dozen drain tile and a dozen or two

specimens of pressed and front brick. The Denison hollow block was exhibited also, the balance of the displays in the exhibition rooms consisted chiefly of trade literature, brickyard supplies, etc., etc. The Mathews Gravity Carrier Company, St. Paul, Minn., assayed an elaborate display of their carrier, but for want of room they were compelled to "flock by themselves" in a parlor on the lower floor. The C. W. Raymond Company, Dayton, Ohio, occupied a parlor showing a model of the Youngren kiln and a miniature Berg press. The American Clay Machinery Company, Bucyrus, Ohio, kept open house in an adjoining parlor, exhibiting a large number of photographs of unusual excellence in brick plants in which their machinery is used. The Sawyer Belting Company, Cleveland, Ohio, vied with their neighbors in entertaining the delegates and demonstrating the superior quality of Sawyer Belting. In another parlor the Arnold-Creager Company exhibited brick molds, and other brickyard supplies. The other "missionaries" held sway in the main parlors which were all too small for their accommodation. They touched elbows with one another as well as with the visitors. Various souvenirs were distributed, the most popular being a watch fob showing a Chambers Brick machine in bas relief and bearing the inscription "Compliments of Chambers Brick Machinery Co., Philadelphia and Chicago" on the reverse side; a patent pocket pencil given by the Davenport Locomotive Works, Davenport, Iowa, bearing the inscription

"A Davenport will haul your clay
The very best and cheapest way."

One much sought after was a neat pocket knife given by the Weller Mfg. Company, Chicago. Every delegate was presented with a leather medal by the Thomas Moulding Company, Chicago, which bore the inscription "Awarded for attendance, Illinois Clay Manufacturers' Association, Chicago, 1911."

The theater party that was given Tuesday evening was much enjoyed. Indeed, there were no dull moments during the stay at the Palmer House, which was headquarters. We wish to remark in passing that the low rates that were advertised to prevail convention week were also conspicuous by their absence, and it is to be devoutly hoped that when Chicago is again our mecca, headquarters will be at one of the better hotels which afford much better accommodations at virtually the same rates.

The officers for the ensuing year are President, W. D. Gates, Chicago; Vice-President, F. R. Carter, Peoria; Secretary, George H. Hartwell, Chicago; Treasurer, J. M. Mamer, Campus, Ill.

Final Numerical Roster.

1. D. C. Haeger, Aurora, Ill.
2. Geo. H. Hartwell, Chicago, Ill.
3. C. W. Lansing, "Brick and Clay Record," Chicago, Ill.
4. A. E. Huckins, Sheldon Brick Co., Champaign, Ill.
5. A. Fischer, Chicago Brick Co., Chicago, Ill.
6. H. S. Simpson, American Clay Mch. Co., Chicago, Ill.
7. Wm. Simpson, Frost Mfg. Co., Galesburg, Ill.
8. E. A. Allen, Ohio Ceramic Eng. Co., Cleveland, O.
9. S. T. Jacobs, Chicago Brick Co., Chicago, Ill.
10. C. W. Raymond, C. W. Raymond Co., Dayton, O.
11. C. W. Raymond, Jr., C. W. Raymond Co., Dayton, O.
12. G. W. Nushaw, C. W. Raymond Co., Dayton, O.
13. E. R. Frazier, Chambers Bros. Co., Philadelphia, Pa.
14. Brent Wiley, Westinghouse E. & M. Co., East Pittsburg, Pa.
15. W. Barnes, Jr., Westinghouse Dept. of Publicity, East Pittsburg, Pa.
16. W. A. Loudon, Fairfield Brick & Tile Co., Fairfield, Ia.
17. A. Potts, C. & A. Potts & Co., Indianapolis, Ind.
18. H. Pagenstecher, Taylor Instrument Co., Rochester, N. Y.
19. A. R. Lemke, Taylor Instrument Co., Rochester, N. Y.
20. H. Tanner, Chicago Retort & Fire Brick Co., Chicago, Ill.
21. H. L. Taite, Sawyer Belting Co., Cleveland, O.
22. E. F. Deckert, Sawyer Belting Co., Cleveland, O.
23. W. Reece, Sawyer Belting Co., Cleveland, O.
24. A. W. Aylesworth, Bonnot Co., Canton, O.
25. Fred Talbot, Laclede-Christy Clay Products Co., St. Louis, Mo.
26. S. W. Wright, Atlas Car & Mfg. Co., Cleveland, O.

27. Gustav Voelcker, Deary Clay Products Co., Deary, Idaho.
28. F. L. Hopley, American Clay Mchy. Co., Bucyrus, O.
29. C. B. Sherer, American Clay Mchy. Co., Bucyrus, O.
30. M. J. Sprang, Sprang Clay Products Co., Ft. Wayne, Ind.
31. Davis Brown, H. Brewer & Co., Tecumseh, Mich.
32. J. G. Mamer, Benton Harbor Brick & Tile Co., Benton Harbor, Mich.
33. A. L. Solisburg, Solisburg Sons Co., Aurora, Ill.
34. E. O. Biglow, The E. Biglow Co., New London, O.
35. C. D. Peet, North Star, Mich.
36. J. Leo Child, Hancock Brick & Tile Co., Findlay, O.
37. G. E. Luce, Tate, Jones & Co., Pittsburg, Pa.
38. Geo. Tate, Tate, Jones & Co., Pittsburg, Pa.
39. C. H. Horton, Henry Martin Brick Machine Mfg. Co., Lancaster, Pa.
40. T. S. Rouse, Brazil Clay Co., Brazil, Ind.
41. Frank L. Thomas, Marshall Co. Brick & Tile Works, Plymouth, Ind.
42. John C. Boss, John C. Boss Co., Elkhart, Ind.
43. D. L. Wadsworth, Ohio Ceramic Eng. Co., Cleveland, O.
44. John J. Moroney, Chicago Brick Mchy. Co., Chicago, Ill.
45. G. H. Tompkins, H. N. Elmer Co., Chicago, Ill.
46. E. L. Hess, E. M. Freese & Co., Galion, O.
47. S. J. Heafield, American Clay Mchy. Co., Bucyrus, O.
48. J. M. Powell, Indiana Drain Tile Co., Brooklyn, Ind.
49. Chas. H. Carpenter, Suburban Brick Co., Wheeling, W. Va.
50. W. H. Sachs, Mfrs. Equipment Co., Dayton, O.
51. J. B. Ford, General Contractor, J. B. Ford Lumber Co., Harrisburg, Ill.
52. F. A. Smith, A. F. Smith Co., New Brighton, Pa.
53. L. D. Grimes, A. F. Smith Co., New Brighton, Pa.
54. G. W. Denison, Ohio Clay Co., Cleveland, O.
55. W. C. Denison, Ohio Clay Co., Cleveland, O.
56. R. S. Root, Acme P. B. Co., Fort Worth, Tex.
57. H. W. Spalding, Chicago Mine Brick Sup. Co., Chicago, Ill.
58. Chas. Ambrose, Am. Fabric Belting Co., Cleveland, O.
59. Harold S. Wheeler, Far West Clay Co., Tacoma, Wash.
60. J. S. Nichols, Columbus Brick Works, Columbus, Neb.
61. J. Voelker, Voelker & Groff, Winona, Minn.
62. H. T. McLaughlin, Alsey Brick & Tile Co., Alsey, Ill.
63. O. T. Christerson, Orenstein-Arthur Koppel Co., Chicago, Ill.
64. C. F. Robbett, Orenstein-Arthur Koppel Co., Chicago, Ill.
65. J. H. Coley, Davenport Locomotive Co., Davenport, Ia.
66. A. C. Heck, Buckeye Tract, Ditcher Co., Findlay, O.
67. S. M. McHose, Nevada, Ia.
68. H. B. McMillan, Western Stoneware Co., Monmouth, Ill.
69. H. Bredenkamp, 1st Ave. Brick & Tile Co., Evansville, Ind.
70. Wm. Suhrheinrich, Standard Brick Mfg. Co., Evansville, Ind.
71. P. H. Tiernan, Macomb, Ill.
72. F. W. Stuart, Shackelford Brick Co., Des Moines, Ia.
73. Geo. Yarn, Shackelford Brick Co., Des Moines, Ia.
74. Harvey Kidder, Ionia Pottery Co., Ionia, Mich.
75. Henry Witzel, Ionia Pottery Co., Ionia, Mich.
76. Jacob Hartsig, Warren, Mich.
77. No name.
78. J. M. Mamer, Mamer Bros., Campus, Ill.
79. W. W. Anspach, J. P. Anspach & Son, Edgerton, Ind.
80. F. W. Grice, Broderick & Bascom Rope Co., St. Louis, Mo.
81. H. M. Kimbell, Meacham & Wright Co., Chicago, Ill.
82. F. R. Watson, Meacham & Wright Co., Chicago, Ill.
83. J. D. Blount, Meacham & Wright Co., Chicago, Ill.
84. Jas. J. Lyons, Meacham & Wright Co., Chicago, Ill.
85. E. C. Kimbell, Meacham & Wright Co., Chicago, Ill.
86. G. B. Luckett, Crawfordsville, Shale Brick Co., Crawfordsville, Ind.
87. Wm. Hammerschmidt, Lombard B. & T. Co., Lombard, Ill.
88. Alfred Hammerschmidt, Lombard B. & T. Co., Lombard, Ill.
89. J. W. Wild, Gilman, Ill.
90. Geo. Gleckler, Elmore, O.
91. Wisconsin Lime & Cement Co., Chicago, Ill.
92. Wisconsin Lime & Cement Co., Chicago, Ill.
93. Wisconsin Lime & Cement Co., Chicago, Ill.
94. Bonner & Marshall Co., Chicago, Ill.
95. Bonner & Marshall Co., Chicago, Ill.
96. Bonner & Marshall Co., Chicago, Ill.
97. Thos. Moulding Co., Chicago, Ill.
98. Thos. Moulding Co., Chicago, Ill.
99. Thos. Moulding Co., Chicago, Ill.
100. S. S. Kimbell Co., Chicago, Ill.
101. Judge J. L. Stevens, Boone Brick, Tile & Pav. Co., Boone, Ia.
102. S. S. Kimbell Co., Chicago, Ill.
103. S. S. Kimbell Co., Chicago, Ill.
104. Jenkins & Reynolds Co., Chicago, Ill.
105. Jenkins & Reynolds Co., Chicago, Ill.
106. Jenkins & Reynolds Co., Chicago, Ill.
107. Jno. T. Hummert, Gem City P. B. Co., Quincy, Ill.
108. Richard G. Hoffmann, Chicago, Ill.
109. Thew Automatic Shovel Co., Lorain, O.
110. Fred Freese, Jr., Janesville Red Brick Co., Janesville, Wis.
111. Fred Freese, Sr., Monroe, Wis.
112. V. C. Morrison, Ind. Drain Tile Co., Brooklyn, Ind.
113. Geo. I. Dietrich, Chicago Retort & F. B. Co., Chicago, Ill.
114. G. C. F. Vater, C. W. Raymond Co., Dayton, O.
115. J. P. Williams, C. W. Raymond Co., Dayton, O.
116. Chicago Hydraulic P. B. Co., Chicago, Ill.
117. Chicago Hydraulic P. B. Co., Chicago, Ill.
118. Chicago Hydraulic P. B. Co., Chicago, Ill.
119. Jno. Benedict, Davenport, Ia.
120. J. M. Hoskins, Terre Haute Vitrified Brick Co., Terre Haute, Ind.
121. L. H. Lambert, Beaverville Brick & Tile Co., Beaverville, Ill.
122. C. W. Drake, Westinghouse Elec. Co., Pittsburg, Pa.
123. Eben Rodgers, Alton Brick Co., Alton, Ill.
124. G. C. Stoll, Am. Clay Mchy. Co., Bucyrus, O.
125. Fred Baum, Sweetser's Drain Tile Co., Sweetser, Ind.
126. Alva Williamson, Williamson Bros., Sweetser, Ind.
127. Frederick E. Bausch, St. Louis, Mo.
128. F. W. DeWolf, State Geological Survey, Urbana, Ill.
129. L. C. Thrasher, L. C. Thrasher & Co., Monon, Ind.
130. C. J. Peterson, Weller Mfg. Co., Chicago, Ill.
131. H. R. Ireland, Hydraulic P. B. Co., Brazil, Ind.
132. A. F. Greaves Walker, C. W. Raymond Co., Dayton, O.
133. S. R. Ellis, West Canton Paving Brick Co., Canton, O.
134. E. W. Wood, Hamilton Clay Mfg. Co., Hamilton, Ill.
135. Geo. B. Roller, Canton, Ill.
136. Jno. M. Heckard, M. Heckard & Son, Canton, Ill.
137. Beaver Belting Co., Chicago, Ill.
138. Anderson Fdry & Mach. Works, Anderson, Ind.
139. F. R. Carter, Peoria, Ill.
140. Walter Carter, Peoria, Ill.
141. D. D. Deeds, Thew Aut. Shovel Co., Lorain, O.
142. R. T. Stull, Urbana, Ill.
143. Harrison Everett Ashley, Clay Product Lab., Pittsburg, Pa.
144. Chas. McHose, Maxwell, Ia.
145. Jas. M. Trainor, Gilbert, Ill.
146. C. A. Rawson, Iowa Pipe & Tile Co., Des Moines, Ia.
147. H. J. Votaw, J. D. Fate Co., Plymouth, O.
148. T. A. Randall, "Clay-Worker," Indianapolis, Ind.
149. J. H. King, Colchester, Ill.
150. A. T. Leach, "Brick and Clay Record," Chicago.
151. Henry Hess, St. Cloud, Minn.
152. Jno. Venecklasen, Zeeland, Mich.
153. E. M. George, Main Belting Co., Chicago, Ill.
154. W. W. Lauer, Chicago, Ill.
155. H. B. Sackett, Screen & Chute Co., Chicago, Ill.
156. S. A. Williams, Jr., Chicago, Ill.
157. W. P. Kramb, Kramb B. & T. Co., Oak Harbor, O.
158. A. E. Ballin, Kramb B. & T. Co., Oak Harbor, O.
159. P. L. Simpson, Am. Clay Mchy. Co., Chicago, Ill.
160. Ernest Bentler, St. Cloud, Minn.
161. Jos. K. More, Denny Renton Clay & Con. Co., Seattle, Wash.
162. E. D. Packard, Chicago, Ill.
163. F. H. King, Marion Steam Shovel Co., Marion, O.
164. A. J. Wheat, N. W. Tile & Clay Products Co., Emmetsburg, Iowa.
165. Jos. Mitchell, McLaughlin Building Mat. Co., Chicago, Ill.
166. Wm. C. Crollius, McLaughlin Building Mat. Co., Chicago, Ill.
167. S. G. Cass, Jackson Tile & Brick Co., Jackson, Minn.
168. Douglass F. Stevens, Acme Brick Co., Cayuga, Ind.
169. A. A. Oldham, Bonnot Co., Canton, O.
170. J. W. Turner, Yankee Hill Brick Co., Lincoln, Neb.
171. F. Ostiek, Ostiek Brick Works, Ottumwa, Ia.
172. C. A. Marshall, Cresco, Ia.
173. J. F. M. Stewart, Port Credit Brick Co., Ltd., Toronto, Ont.
174. A. E. Barron, Barron Dryer Co., Chicago, Ill.
175. C. C. Miller, Clermont Brick & Tile Co., Clermont, Ia.
176. S. K. Leacox, Keota, Ia.
177. T. H. Bollier, Seafeld Tile Co., Seafeld, Ind.
178. Jas. Robethan, Seafeld Tile Co., Seafeld, Ind.
179. A. L. Schultz, A. L. Schultz & Son, Chicago, Ill.
180. Victor H. Whitney, Chas. Berrick's Sons Co., Buffalo, N. Y.
181. R. R. Buck, Buck Bros., Morris, Ill.
182. J. A. Steinberger, Rockwell City B. & T. Works, Rockwell City, Ia.
183. C. G. Elliott, Drainage Investigator, U. S. Dept. Agriculture, Washington, D. C.
184. C. S. Reed, Chicago Retort & F. B. Co., Chicago, Ill.
185. Mathews Gravity Carrier Co., St. Paul, Minn.
186. G. E. Achuff, Mathews Gravity Carrier Co., St. Louis, Mo.
187. E. H. Haeger, D. H. Haeger Estate, Elgin, Ill.
188. Geo. D. Drennan, J. D. Fate Co., Plymouth, O.
189. Warfield Webb, "Brick and Clay Record," Chicago, Ill.
190. M. R. Winchell, Reporter, Chicago, Ill.
191. Ehner L. Brown, H. Brewer & Co., Tecumseh, Mich.
192. Claire Camburn, H. Brewer & Co., Tecumseh, Mich.

193. A. Barr, Urbana, Ill.
194. Geo. J. Walters, Chatsworth, Ill.
195. Arthur Walters, Chatsworth, Ill.
196. John A. Mehrling, Napoleon, O.
197. A. J. Darton, Kohler Brick Co., Toledo, O.
198. H. Haigh, Catskill, N. Y.
199. H. H. Fate, J. D. Fate Co., Plymouth, O.
200. N. L. Mamer, Campus, Ill.
201. Oscar Frazee, Mowcaqua, Ill.
202. Frank H. Reid, Memphis, Tenn.
203. M. J. Williams, Williams Pat. Cr. & Pul. Co., Chicago, Ill.
204. Frank J. M. Silha, Chicago, Ill.
205. Albert Geasser, Dubuque, Ia.
206. Otto Schober, Monroe Steam Brick Works, Monroe, Wis.
207. F. J. Lemley, Jones Fdry. & Mach. Co., Chicago, Ill.
208. J. D. Rumsey, Secy. N. W. Drain Tile Assn., Stryker, O.
209. Frank Fellers, Ridge Farm, Ill.
210. J. C. Paterson, Glasgow, Scotland.
211. M. E. Gates, Am. T. C. Co., Terra Cotta, Ill.
212. W. D. Gates, Am. Terra Cotta Co., Chicago, Ill.
213. N. H. Gates, Am. Terra Cotta Co., Chicago, Ill.
214. A. V. Bleininger, Champaign, Ill.
215. Ernest Reckitt, Chicago, Ill.
216. Curt M. Treat, Ch. Assn. of Com., Chicago, Ill.
217. H. R. Straight, Dallas Co. Brick & Tile Works, Adel, Ia.
218. J. W. Weston, Blackmer & Post Pipe Co., St. Louis, Mo.
219. J. T. Wallace, Blackmer & Post Pipe Co., St. Louis, Mo.
220. John Heim, Dubuque, Ia.
221. A. E. Giles, Peoria, Ill.
222. J. S. Small, Browning Eng. Co., Cleveland, O.
223. August Machee, Michigan City, Ind.
224. C. E. Merry, Brown Instrument Co., Chicago, Ill.
225. Peter Munson, Capron, Ill.
226. W. H. Roettger, Salina, O.
227. Jno. L. Hull, Cambridge, Ill.
228. C. E. Hull, Cambridge, Ill.
229. H. J. Flood, Chisholm, Boyd & White Co., Chicago, Ill.
230. L. W. Flood, Chisholm, Boyd & White Co., Chicago, Ill.
231. V. S. Curtis, Alonzo Curtis Brick Co., Chicago, Ill.
232. C. Fred Foley, Independent Powder Co., St. Louis, Mo.
233. L. Shackelford, Des Moines, Ia.
234. Fred Stafford, Freight Agent, N. Y. C. R. R., Chicago, Ill.
235. Paul Grace, West Salem, Ill.
236. Fred Titterton, Argillo Works, Rock Island, Ill.
237. A. H. Yoder, Argillo Works, Rock Island, Ill.
238. C. W. Boyden, Sheffield Shale Tile Co., Sheffield, Ill.
239. Charles P. Stevens, Acme Brick Co., Cayuga, Ind.
240. L. E. Rodgers, L. E. Rodgers Eng. Co., Chicago, Ill.
241. A. A. Johnson, L. E. Rodgers Eng. Co., Chicago, Ill.
242. C. H. Johnston, Chicago, Ill.
243. Geo. White, Port Credit Brick Co., Port Credit, Canada.
244. G. D. Brubaker, H. Brewer & Co., Tecumseh, Mich.
245. Jno. W. Anderson, Jr., Woodland Clay Co., Woodland, Ill.
246. F. Lawson Moores, Harris Brick Co., Zanesville, O.
247. T. A. Hadel, Henning, Ill.
248. No name.
249. A. S. Currie, Reddick B. & T. Co., Reddick, Ill.
250. F. W. Wood, Adams Brick Co., Indianapolis, Ind.
251. J. W. Hensley, Indianapolis, Ind.
252. James Barr, Chicago, Ill.
253. C. D. Erlewine, Marion Mch. Fdry. & Sup. Co., Marion, Ind.
254. Frank McLellan, Arnold Creager Co., New London, O.
255. Fred C. Pulliam, Benton Brick Co., Benton, Ill.
256. J. H. Millsom, McComb Sewer Pipe Co., McComb, Ill.
257. W. D. Richardson, Ohio Mg. & Mfg. Co., Shawnee, O.
258. J. W. Robb, Clinton, Ind.
259. S. Kelly, Scott Madden Iron Works Co., Rushville, Ind.
260. W. R. Cunningham, Am. Clay Mch. Co., Bucyrus, O.
261. Anton Vogt, Down Draft Kiln, St. Louis, Mo.
262. A. J. Freese, E. M. Freese & Co., Gallon, O.
263. D. H. Anderson, "Irrigation Age," Chicago, Ill.
264. L. Aulmann, Eagle Iron Works, Des Moines, Ia.
265. H. C. Steinmayer, La Salle Pressed Brick Co., La Salle, Ill.
266. W. C. Hoover, Portland Drain Tile Co., Portland, Ind.
267. Ellis Lovejoy, Richardson-Lovejoy Co., Columbus, O.
268. I. C. Adams, Wellman, Ia.
269. R. S. Smith, Jno. A. Donorue Co., Chicago, Ill.
270. J. A. Glandon, Mexico Brick & F. C. Co., Mexico, Mo.
271. Bernhard Hammerschmidt, Lombard Brick Co., Lombard, Ill.
272. Finlay M. Drummond, Utica F. B. Co., Utica, Ill.
273. Arthur Keiler, Lombard Brick Co., Lombard, Ill.
274. Henry Kuhlmann, Lombard Brick Co., Lombard, Ill.
275. J. Parker B. Fiske, Sec. Building Brick Assn., New York, N. Y.
276. H. A. Sodergren, Minneapolis, Minn.
277. L. W. Penfield, Am. Clay Mch. Co., Willoughby, O.
278. S. Gunther, Port Washington, Wis.
279. H. A. Hilker, Hilker Bros. Brick Mfg. Co., Racine, Wis.
280. Jno. Ringle, Ringle Brick Co., Wausau, Wis.
281. W. J. Craney, Craney & Spaulding, Kenosha, Wis.
282. F. Vogt, Milwaukee Bldg. Sup. Co., Milwaukee, Wis.
283. J. W. Stipes, Sheldon Brick Co., Champaign, Ill.
284. A. W. Hilker, Hilker Bros. Brick Mfg. Co., Racine, Wis.
285. Salveson Bros., Petersburg, Ill.
286. J. O. Trautwein, L. E. Rodgers Eng. Co., Chicago, Ill.
287. Stanley Timberman, Brick Salesman, Chicago, Ill.
288. Harry Anderson, Brick Salesman, Chicago, Ill.
289. H. S. Preston, Mgr. Vigo Clay Co., Terre Haute, Ind.
290. Geo. C. Stephens, Bryant Supply Co., Kansas City, Mo.
291. F. W. Butterworth, Western Brick Co., Danville, Ill.
292. Warren Overpack, Alberta Clay Products Co., Medicine Hat, Alberta, Canada.
293. E. G. Westerberg, Chicago Fire Brick Co., Chicago, Ill.
294. C. C. Barr, The Barr Clay Co., Streator, Ill.
295. Illinois Brick Co., Chicago, Ill.
296. Illinois Brick Co., Chicago, Ill.
297. Illinois Brick Co., Chicago, Ill.
298. Illinois Brick Co., Chicago, Ill.
299. Illinois Brick Co., Chicago, Ill.
300. Illinois Brick Co., Chicago, Ill.
301. F. G. Matteson, Purington Paving Brick Co., Galesburg, Ill.
302. F. L. Warner, Standard Brick Co., Crawfordsville, Ind.
303. F. H. Meier, St. Anne Brick & Tile Co., St. Anne, Ill.
304. U. A. Cote, St. Anne B. & T. Co., St. Anne, Ill.
305. J. B. Ashline, St. Anne B. & T. Co., St. Anne, Ill.
306. E. A. Morse, South Bend Brick Co., South Bend, Ind.
307. W. H. F. Parry, Brick Broker, Gary, Ind.
308. S. M. Chase, Chase Fdry. & Mfg. Co., Columbus, O.
309. A. C. Solisburg, Aurora, Ill.
310. A. J. Dunn, Chase Fdry. & Mfg. Co., Columbus, O.
311. R. C. Penfield, American Clay Mch. Co., New York.
312. Frank Halbeisen, Fremont, O.
313. Fred A. Bach, Chicago, Ill.
314. S. S. Kimbell, Brick Co., Chicago, Ill.
315. S. E. Kimbell Brick Co., Chicago, Ill.
316. Frank Biesanz, Winona, Minn.
317. N. L. Weir, Norman Coolie Brick Works, La Crosse, Wis.
318. J. H. Zeller, Brazil Clay Co., Brazil, Ind.
319. W. J. Snyder, Brazil Clay Co., Brazil, Ind.
320. Julius C. Bach, Chicago, Ill.
321. E. B. Griffin, A. Curtis Brick Co., Grant Park, Ill.
322. H. B. Crum, American Clay Mch. Works, Chicago, Ill.
323. F. W. Von Oven, Martin & Von Oven, Naperville, Ill.
324. Illinois Brick Co., Chicago, Ill.
325. Illinois Brick Co., Chicago, Ill.
326. Illinois Brick Co., Chicago, Ill.
327. Illinois Brick Co., Chicago, Ill.
328. Raymond T. Moore, Denny Renton Clay & Coal Co., Chicago, Ill.
329. E. H. Achoff, Matthew Gravity Carrier Co., Minneapolis, Minn.
330. E. S. Ketchum, Chicago, Ill.
331. C. L. Rorick, Arnold Creager Co., New London, O.
332. C. C. Carhart, Sheffield Brick & Tile Co., Sheffield, Ia.
333. S. H. Trainor, Chicago, Ill.
334. W. Sedgley, Nebraska Brick & Tile Co., Omaha, Neb.
335. F. A. Hoiles, Alliance Brick Co., Alliance, O.
336. C. L. Buxton, Globe Mch. & Supply Co., Des Moines, Ia.
337. Thew Automatic Shovel Co., Lorain, O.
338. M. W. Blair, Indianapolis, Ind.
339. A. W. Gates, Monmouth, Mining & Mfg. Co., Monmouth, Ill.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its annual convention at Boone, Iowa, January 25 and 26, 1911. The first day's sessions will be held at Boone, and the next morning the members will be conveyed by special train to Ames, where the Ceramic School will be inspected and the program carried out to completion. Secretary C. B. Platt, Van Meter, Iowa, will mail programs when complete to those requesting them.

The Wisconsin Clay Manufacturers' Association will hold its convention at Milwaukee, Wis., February 1, 2 and 3, 1911. Headquarters will be at the St. Charles Hotel, where arrangements will be made for an exhibit of clay products, and a banquet will be given. The secretary, Prof. Samuel Weidman, Madison, Wis., will give particulars on request.

The National Builders' Supply Association will meet in annual convention at Chicago, Ill., February 21 and 22, 1911. Congress Hotel Annex will be headquarters. Further particulars can be had from Secretary James W. Wardrop, 404 Frick building, Pittsburg, Pa.

Written for THE CLAY-WORKER.

REVIEW OF THE NINTH ANNUAL CONVENTION OF THE
CANADIAN CLAY PRODUCTS MANUFACTURERS'
ASSOCIATION, HELD IN TORONTO DECEMBER
14, 15 AND 16.

THE NINTH ANNUAL meeting of the Canadian Clay Products Manufacturers' Association was a success in every way. Twenty-six new members were enrolled. Every session was well attended and the enthusiasm displayed in the discussions and the attention given to the several interesting papers demonstrated the healthy condition of the association.

On Wednesday morning a meeting of the Executive Committee was called by President McCredie to consider the proposed "Constitution and By-Laws." Several changes were made at the morning session and after adjournment for lunch it was finally passed on and given to Vice-President J. W. Ball for presentation to the convention.

After lunch and until just previous to the time of the opening of the convention the delegates passed the time in registering and exchanging greetings. Shortly after 2:30, President McCredie called the convention to order and invited Messrs. Chas. J. Miller and Wm. Pears, of Toronto, to say a few words of welcome. They extended a hearty welcome to the delegates and spoke enthusiastically of the association's strength and capabilities. President McCredie then replied in behalf of the association, thanking the gentlemen for their hearty words and expressed his pleasure in seeing present such capable Toronto men who would be with them to consider the needs and problems of the clayworking industry. Following this response he read the President's annual address in which he spoke of the greatness of Toronto in the clayworking line, the accomplishments of the association during its eight years and the outlook of the clay trade in general, touching briefly on the advantages and needs of technical schools.

Secretary-Treasurer D. O. McKinnon then read his annual report in which he pointed out the three principal questions he desired the association to consider in its deliberations. His financial statement showed a balance of \$31.01 in the treasury.

Mr. J. S. McCannell, of Milton, a member of the Technical Education Committee, stated that the Dominion Government had appointed a Royal Commission on technical education with one of the leading men in Canada, Professor Robertson, as chairman, and that the commission had held sittings in the leading cities throughout Ontario. Mr. McCannell said he felt it would be wise to present to that commission the claims of the clayworking industry for technical education in that line. Messrs. Fox, Bechtel, Brownscombe and Pears spoke in favor of the association's passing a resolution embodying its views on this question, to be placed before the commission. The chair appointed Messrs. McCredie, Bechtel, McCannell, Ball, Lochrie, Janes, Wm. Pears, Miller and Crain as a committee to draw up a suitable resolution which was presented Thursday morning and favorably passed upon. Messrs. J. W. Ball and J. H. Freeborn were delegated to present the resolution before the commission at the first convenient meeting.

At the close of the first session a new constitution was presented, each clause of which was taken up separately and discussed at length. With the exception of a few changes, the constitution was adopted as read.

The Thursday morning session opened with a discussion and acceptance of the resolution on Technical Education, after which Mr. Geo. E. Biglow, of New London, O., made an address on "Efficient Methods in Tile-making." He described the process from the method of digging clay to the most minute particulars of kiln construction, methods of burning and his system of selling. This paper will appear in a subsequent issue of The Clay-Worker.

During the Thursday afternoon session the following pa-

pers were presented: "The Hollow Clay Block," by President McCredie, Lyons, Ont.; "Up-to-date Kiln Construction," by J. H. Warwood, Toronto, Ont.; "Kiln Troubles," by J. W. Ball, Toronto, Ont.; "The Advantage of Electric Power," by C. A. Miller, Toronto, Ont.; "Combustion in a Steam Plant," by A. M. Wickers, Toronto.

Thursday evening was given over to the banquet, which was well attended, and made unusual by the serving of a splendid moose ham, presented by John T. Miller, vice president of the association in 1910. Mr. J. W. Ball was the happy choice of toastmaster. The following were on the toast list: Messrs. W. Moore, O. L. McCredie, C. A. Miller, J. S. McCannell, B. E. Bechtel, W. McCredie, A. Berg, G. Crain, C. W. Lansing and D. O. McKinnon.

Two interesting papers were read during the last session, held Friday morning, the first by S. J. Fox, of Lindsey, Ont., while the second was by J. S. McCannell, of Milton, Ont. The subjects of the two papers were practically the same, dealing with the difference in value of piece work and day work. These papers were followed by long and enthusiastic discussions, the consensus of opinion being that the piece-work system would bring better results than the day-work system, if properly installed and managed. Before the election of officers Mr. Jervis, of Dorchester Station, exhibited some samples of peat found in his locality, and explained the methods followed in mining same, while Mr. W. Devon, Rochester, N. Y., spoke on the advantages and methods of using pyrometers in keeping track of kiln temperatures.

The election of officers resulted as follows:

President—Robert Davies, Don Valley Brick Co., Toronto.

First Vice President—Dan A. Lochrie, Toronto.

Second Vice President—W. H. Freeborn, Brantford, Ont.

Third Vice President—David Martin, Thamesville, Ont.

Secretary-Treasurer—D. O. McKinnon, Editor Canadian Clay-Worker, Toronto.

Executive Committee—Chas. A. Miller, Standard Brick Co., Toronto; J. S. McCannell, of the Milton Pressed Brick Co., Milton, Ont.; W. McCredie, Lyons, Ont.; S. J. Fox, M. P. P., Lyons, Ont., and Joseph Russell, M. P., Toronto, Ont.

Auditors—J. S. McCannell and S. J. Fox, M. P. P.

Votes of thanks to President McCredie and Secretary McKinnon were passed, after which the convention adjourned sine die.

NEW DIRECTOR FOR ILLINOIS GEOLOGICAL SURVEY.

The State Geological Survey Commission of Illinois has just selected Frank W. DeWolf as Director of the Survey. Mr. DeWolf came to the State work from Washington, D. C., in 1907, as assistant state geologist, to look after the studies of Illinois coals. He has been acting head of the survey since the resignation of Mr. H. F. Bain, two years ago.

The mineral production of Illinois has a value of \$150,000,000, annually. The deposits of coal, oil, and clay are nearly as important as any in the world. The purpose of a strong geological survey is to bring about the development of local resources and industries, and to diminish the imports from neighboring states. The other functions include preparation of drainage maps, of topographical maps, and research work on mining and the utilization of coal, clay and other minerals. Already detailed surveys have been made of 2,250 square miles of the coal fields, and of 2,500 square miles of over-flowed lands subject to reclamation.

The General Assembly is asked to extend survey work during the coming biennium. Funds should be provided for the collection of samples of clay and shale for practical tests. Although Illinois imports clay wares valued at about \$30,000,000 annually, nevertheless, they probably have at home suitable raw materials to meet all needs. Similarly, an investigation of the coal industry should be taken up in co-operation with the University, and the U. S. Bureau of Mines.

This would show the extent and causes of the present losses, both of life and of natural resources. Important problems refer to the actual losses of coal due to various causes; the source, amount and danger of gas and dust, and the effectiveness of mine ventilation.

Governor Deneen has recently recommended as generous support for the geological survey work as the finances of the state will permit, in order that they may reap the benefits at an early date.

A CALENDAR AND A SOUVENIR SHOWER.

As usual THE CLAY-WORKER's sanctum sanctorum has been supplied with attractive calendars and useful souvenirs sent us with the compliments of our friends among the machinery and supply firms and brick and clay product manufacturers. While the supply of calendars and souvenirs has not been as copious as was the case this time last year, the ones received have been unusually artistic and attractive.

One of the finest of our collection is that of the Deckman Duty Brick Co., of Cleveland, Ohio. Their calendar appears on a 29-inch x 42-inch beautifully printed paper, the general design representing a craftsman metal panel which is printed in grey. At the top of the calendar appears the name of the company, while in the center, just above the large calendar pad, are the words "Paving Block Capacity 30,000,000." Below the pad is printed the office address of the firm. The main beauty of the calendar is in a large reproduction in photo color from an original painting by J. L. G. Ferris styled "Lord Howe's Ball, Philadelphia, 1777." In this picture Major Andre is seen presenting to Miss Shippen, General Knyphausen, amusingly described by those who knew him as a man of military standing, very scrupulous in his dealings, and who "spread the butter on his bread with his thumb." Miss Shippen has just stepped out of a sedan chair while several couples who are without carriages, due to the appropriation of same by the British officers for their own use, are seen about to enter the house in which the ball is to be given. The general air of the picture is thoroughly colonial and brings to the observer a likeness of that stirring period and a few of the actors in what will always be to America a deathless drama.

A most appropriate calendar for their line is that of the Roessler-Hasslacher Chemical Co., of 100 Williams street, New York City. The picture on the calendar, which consists of a heavy card board 18 x 20 inches in dimensions, printed in brown, is called "The Greek Pottery Dealer." Two Grecian maidens dressed in breezy costumes are examining with evident delight a Grecian vase. They are resting on the wall part of an attractive fountain built on the outskirts of some Grecian city which is seen in the direct background. Back of the wall between two trees is the Greek pottery dealer holding a handsome vase. In the right of the picture is seen the patient burro laden with pottery while beyond is an inviting lake shining in the sun.

We have been favored with another interesting calendar sent out by Mr. James W. Hensley, of Indianapolis, Ind. The picture is that of a young auburn haired girl riding through the autumn woods on a thoroughbred, her hunting dog running ahead, full of the spirit of the season. The observer's attention is directed to the reverse side of the calendar on which is printed a complete list of the improved brick machinery and clay working devices that Mr. Hensley handles.

The C. K. Williams and Co. of Easton, Pa., has mailed us their attractive calendar which bears their enlarged label printed in red, blue, gold and brown. It is not necessary for us to describe this label as a great number of clayworkers are familiar with it as it appears on every shipment the company makes and stands for a guaranty of the high quality of that company's goods. The calendar pad contains memoranda lines

on each date allowing sufficient space for the user to note down matters that he wishes to remember or keep track of.

A calendar that we are particularly proud of is that of the Stevenson Co., Wellsville, Ohio, the manufacturers of high grade brick, sewer pipe and tile machinery. It is called the everlasting calendar and consists of large movable date cards, and circular pasteboard arrangements, one showing the day and one showing the month. We are glad to make a convenient and conspicuous place on our walls for this present, for it is useful as well as neatly gotten up.

"Ready for business" is the title of a neat calendar mailed to the trade with the compliments of the Coffeyville Shale Brick Co., of Coffeyville, Kans. The background of light green brings out effectively the grey portrait of a smiling young lady who is in the act of sharpening a large carving knife. We would like to have the Coffeyville Brick Co. introduce us to this maiden and serve use with some of the turkey and cranberry sauce which she has evidently prepared in a most palatable manner.

C. B. Dobbs, of 1218 Chestnut street, Philadelphia, Pa., one of the largest distributors of face brick in the world, has favored us with his desk calendar which consists of an excellent photograph of an unusually pretty woman, a calendar pad to keep us from getting our dates mixed and a thermometer to take our temperature if necessary. This present finds a welcome place on the editor's desk.

One of the most useful souvenirs we have received this year is the gift of "Marse" John Sibley, of Birmingham, Ala., the faithful treasurer of the National Brick Manufacturers' Association. The souvenir which he mailed us with the compliments of the Sibley-Menge Press Brick Company is a combination knife and letter opener. The handle is in the shape of a knife with the company's name and address in relief on both faces. A wide sharp knife blade is concealed in the handle. At the base of the blade is a notch for the cutting of cigars or stogies, whichever the recipient can afford to use.

Two other most acceptable souvenirs are leather pocket-books presented by the E. M. Freese Company, clayworking machinery manufacturers of Galion, Ohio, and the Bessemer Limestone Company, of Youngstown, Ohio. These are pleasant reminders of the firms whose names are embossed thereon in gold. They are well made, and are useful and welcome souvenirs.

A beautifully and daintily covered vest pocket memoranda book was kindly mailed us by the Pearl Clay Products Company, of Bradford, Pa. The inside covers contain calendars for 1911 and 1912, while the first and second and last two pages consist of well written advertisements of the company's high class face brick. We believe thoroughly in their statement, "Courtesy hath a charm to be remembered and the strength of a strong arm" and hope to grasp the "glad hand" of this firm's representative at the Louisville convention.

FAST COLORS FOR MORTAR, ETC.

Dealers and users of colors for mortar, cement or sand-lime brick will do well to get into correspondence with C. K. Williams & Co., of Easton, Pa., who are today one of the largest manufacturers of mineral and earth colors in the world. They have made a special study on colors best adapted for this work. Their celebrated Anchor Brand, they claim, stands at the head of the list for fineness of grinding, uniformity of color and tinting or coloring strength. There is a great advantage to the user in having colors which are ground impalpably fine, and this advantage can best be demonstrated by making a practical test of the color. They manufacture an extra strong black, which mixes very readily with water for either mortar, lime, cement or sidewalk work, and call special attention of the trade to this black. Their shipping facilities are the best and orders are promptly filled. If dealers have not definitely settled on the color they expect to handle during 1911 it would certainly not be amiss to take this matter up with them, obtain their prices, samples, etc.

Written for THE CLAY-WORKER.

KENTUCKY

BY CHAS. DENNIS

*Kentucky, Oh! Kentucky, Oh!
No other commonwealth can show
Such ladies fair, such gallant men;
And it is Fame's own camping ground,
Where Glory keeps its hallowed round,
And Honor's echoes wake again.*

*It is the Southland's sunlit gate,
Where tip-toe Welcome, all elate,
With open, hospitable hand,
Invites the stranger, far and near,
And seats him by the firelight's cheer—
A welcome all can understand.*

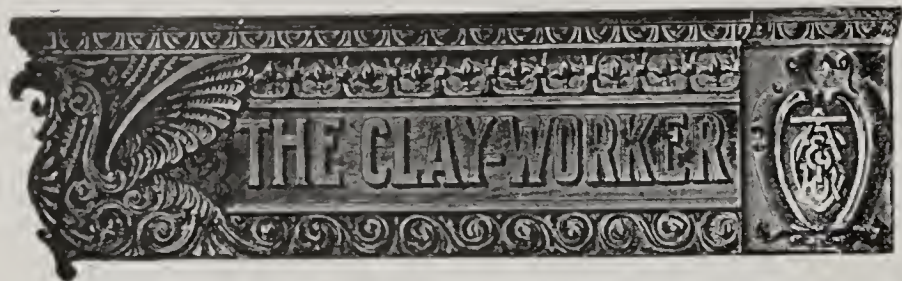
*Kentucky, Oh! Kentucky, Oh!
That name brings a responsive glow,
And every sense new pleasure yields;
The minted fragrance that distills
Amid thy grand, historic hills,
Sweeps o'er thy wond'rous blue grass fields.*

*Oh! land of love and old romance—
Light hearts that sing, light feet that dance!
An oasis thou wilt remain,
From the green tide of yesterday,
While all around is desert gray,
Or only never-changing plain.*

*With thee come thoughts of horse and knight.
Of lovers' tryst at candle light.
Of hot pursuit among the hills:
The Parson—and the knot is tied,
Young Lochinvar has won his bride—
To share life's joys, to share life's ills.*

* * * * *

*Yes, Colonel, surely we'll be there
To clasp your hand, partake your fare,
To hear your toast, all that you say,
In that Kentucky accent sweet—
Ah, no! we cannot fail the treat—
Of course we'll come, N. B. M. A.*



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-EIGHTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LVI.

JANUARY, 1911.

No. 1.

CURRENT COMMENT.

How good, not how cheap, is the better motto.

* * *

If you go to Louisville it is promised that you will be made happy. If you don't go you will likely regret it.

* * *

If you have broken a few resolutions get busy now and mend them, for even a mended resolution is better than none.

* * *

Read the Official Announcement carefully, and you will find in it just the information you want relative to the N. B. M. A. Convention.

* * *

Are you making brick for pleasure? Then indeed you should plan to be in Louisville, February 6 to 11, for there will be more pleasure for you there than you can crowd into any other week in the year.

* * *

Are you making brick for profit? Then you cannot afford to miss the Louisville convention. More practical information about the brick business can be gathered there, February 6 to 11, than at any other place in the wide, wide world.

* * *

The wily Scot, with the millions in steel bonds, has other things in his head besides substantial libraries, as was evidenced by his recent donation of ten million dollars to further the idea of international peace. This is easily the greatest idea and the wisest donation of the age.

* * *

The National Association of Manufacturers has appointed a special committee to study the employers' indemnity laws abroad with a view to recommending something as near the ideal as it is able to devise for the employer and employe. This is a move in the right direction, and we hope it will be carried to the point of definite action, because we need both

specific and uniform regulation in this matter. For as it stands today both the employer and the employe are uncertain of their chances.

* * *

Mammoth Cave as a side trip from Louisville is both appealing and suggestive. Let us make the meeting a mammoth one—the largest yet.

* * *

Old 1910 was a good year for "craps," and it also seems to have proven a healthy and prosperous year for most all industrial lines. Here's hoping that 1911 will go it one better.

* * *

The wise thing to do is to go to the convention and lend an attentive ear to those who speak from the rostrum, and apply the pump to those who talk best in the lobby. There is much to be gained thereby.

* * *

Of course, you can stay at home and read about the meeting afterward, which will help some, but that is nothing to the benefits that you may derive from being there and taking a part in the meeting which is to be held in Louisville, February 6 to 11.

* * *

An example of the fact that co-operation is the order of the day in all lines is furnished by reports from the department of agriculture saying that there is a continually increasing number of co-operative associations among farmers and truck gardeners for marketing their products. It has reached the point where brick manufacturers must all co-operate or be at a disadvantage.

THE CLAY-WORKER'S NEW DRAINAGE EDITOR.

Mr. Daniel W. Stookey, who, with this issue, assumes charge of our Drainage Department, which in the past was edited by the late J. J. W. Billingsley, needs no introduction to our older readers, for in years past he was a regular contributor to our columns, and frequently represented THE CLAY-WORKER at tile conventions. For many years he has been an earnest and enthusiastic advocate of land drainage, is himself a successful manufacturer of drain tile, and will bring to his work for our readers a vast fund of knowledge based on practical experience. He will endeavor to make the Drainage Department a source of real, tangible value to the tilemakers and users of the nation. We bespeak for him the cordial co-operation of those directly interested. Communications touching on any phase of the tile industry are solicited and will be heartily appreciated. Those wishing to contribute to the department are requested to address Daniel W. Stookey, Editor Drainage Department, THE CLAY-WORKER, Cedar Rapids, Ia.

STUDY THESE FIGURES.

One of the most impressive lessons we can get on what a burden it is to build fire-traps comes in with the annual reports from the different cities about the requirements in the way of funds for the year. These bring before us graphically the amount of cost of maintaining city fire departments without taking into consideration the loss by fire itself, and in some cities it will be found from the annual apportionment of funds that, next to the schools, the greatest expense of the city is the fire department. In one city, figures of which are before the writer, showing how each dollar of taxes collected is divided, gives to the school fund 19 cents of it, for general purposes 16 cents, and for the fire department practically 12 cents. Since the general purpose fund goes into a number of divisions, it is evident that these figures show the fire department as being next in cost to the public schools. Figures from the different cities, of course, will vary, but all of them furnish an impressive lesson on what

it costs to keep what fire protection we have. So study the figures, not with a view to reducing the cost by improving the quality of the fire protection maintained, but with a view to eventually seeing the importance of building as nearly as practical fireproof homes, so that at some time in the future we may get rid of a part of this burdensome expense. Lots of it could have been gotten rid of long ago if we would have but seen the matter in the right light and set about it in the right manner. A study of these figures should help put people in the right light for future development in fireproofing.

THE YEAR IS WHAT WE MAKE IT.

There is an unusual disposition and a rather peculiar sentiment in the industrial world at the beginning of the year 1911. Usually at such times we find people taking stock, buckling on their armor, so to speak, and preparing to do valiant deeds in excess of anything done before, and if there is any word of caution or advice to shorten sail it is more likely to come during some other period of the year, when everybody is under full headway. This time it is different. Consellers of the business and industrial world are advising curtailment in manufacture and very cautious extension of business, because it is not thought the present year will be a very strenuous one, and it is the part of wisdom to be on the safe side and conservative.

HOW BUSINESS IS INFLUENCED.

In a way this advice is good, and yet, when we come to think of it right, the new year and every other year is just what we make it. If enough people conclude that it is going to be slow and act accordingly they, by their acts and thoughts contribute materially to making it a slow year, whereas if, on the other hand, everybody enters into the new year with enthusiasm and a spirit full of promise of good things to come, they, by these actions and tokens, contribute materially to the prosperity and wide-awake sentiment of the season. In short, the year, so far as the industrial and commercial world is concerned, is largely just what the people themselves make it. If every man is looking forward to bigger times than ever the chances are it will help the times be better.

There are, of course, limitations to this. Times when people pursue this course in a headlong manner until there is a sudden slump and abnormal let-up in industry and commerce until everything is adjusted and straightened out again. Ordinarily, however, we may argue that within reasonable limitations the spirit of faith and confidence in good things before us contribute materially to the realization of these good things, and for that reason we do not feel inclined to urge drawing in one's horns and figuratively crawling into a hole for the year.

LET US BE UP AND DOING.

Hibernating is not a part of the higher creation of the earth. That is the part of the lower animals, and mankind should be up and doing all the time. We may well take the good advice of conservatism to mean we should add all possible strength to support any business plans we may have and safeguard the ship of commerce in every possible way so that it may not be wrecked in any temporary squall, but further than this we have but little use for the check-rein or spirit of caution. Indeed, it is better to blunder a little in a headlong course and take a fall now and then than to be too conservative and stolid and fail to make progress. There will always be some errors, some business troubles, both individual and general, but if we balk or stop and lay down or give up the fight because we fear to meet these things on the way we are not worth much. The only man, or institu-

tion or industry worth while is the one that keeps pushing energetically and when it meets bumps adjusts itself as soon as possible and keeps going. In like manner the better spirit for the industrial and commercial world is that one which looks upward as it looks forward with a view to bigger, better and brighter things ahead. That is the first step toward realizing on them.

THE YEAR IN BRICK.

As to the year in the brick business, that is, the past year, there may be individuals who have some form of complaint and have failed to realize all they think they ought out of the business, but taking the business as a whole it has been normally prosperous, and there is really but little cause for complaint. There will probably never come a time when everybody is entirely satisfied with the margin of profit in the business. Entire satisfaction of this kind is not for us and probably is not good for us. However, there has been more of the cheerful and encouraging nature attending the brick industry of the past year than of the adverse and discouraging. Material progress has been made and the industry as a whole has prospered. Moreover, it is in excellent shape for the new year, and from all indications 1911 should be a much bigger year, both in building brick and in paving brick than 1910.

THE TREND OF NATIONAL SUPREMACY.

There are a few changes in our national supremacy and also in municipal affairs that may well have a little of the special attention of the brick manufacturers. One of these noticeable changes is from agricultural supremacy to manufacturing supremacy. We are a great agricultural nation, but every month now the fact is being borne in more strongly that our great ascendancy now is in manufactures. We are becoming an important nation in the export of manufactures. The meaning of this to brick manufacturers is that there will be more upbuilding in the cities and towns in the manufacturing districts. Not only more factory building, but more town building.

THE BURDEN OF OPEN ACCOUNTS.

What has admittedly been one of the severe drags or handicaps to business during the past year has been poor collections or open accounts. The complaint has been almost universal and there is beginning to dawn now a realization that we must put our account and collection business on a more positive basis. A certain amount of it must go on a strictly cash basis, and where time payments are involved it is a matter of adopting specific contracts and financing accordingly.

This thing of keeping open accounts and having them drag along in an uncertain manner is like hobbling a horse and trying to make him do steady duty. Or, rather, it is like hobbling a whole herd of horses, for each man failing to receive for his accounts promptly is unable to meet his own obligations, and thus the hobble becomes a sort of continuous chain that hampers the progress of every business man. The time has come to look this matter straight in the face and to adjust it in a businesslike way, and the sooner we get at this in the new year the better. Open accounts should be limited. That is, there should be a specific understanding as to the limit of time for payment. It should be within thirty days of the end of the month that the purchases are made, otherwise it should not be considered an open account. When accounts are made for a greater length of time than this they should be made by specific contract and covered with notes or some legal form that will give some positive business value to them. There is no question but what eventually in extending our commerce it will be necessary in many lines

to extend long credits. This is generally the case as a country grows older. However, the extending of long credits does not mean the keeping of open and uncertain accounts that drag indefinitely. Where long credits are extended they are a matter of notes or contracts that become banking assets and have a definite time of termination. No matter whether their time is three months, six months or a year. Then they have not only specific value, but specific times of falling due and usually carry with them interest or a price increase that provides for the interest. That puts it on a proper business basis and takes the heavy burden out of it. Let us see if we can't get down to some basis of this kind early in the present year and get rid of the burdensome part of this open account business.

MUNICIPAL AWAKENING.

This brings us to the other important matter worthy of special consideration, and that is the matter of civic pride and enterprise in connection with towns and cities. There has never been a time on record when the cities all through the country have shown such a general spirit of municipal enterprise. This has manifested itself quite conspicuously in extensive advertising campaigns to exploit the attractive features, business opportunities of various kinds to encourage population and industry, and there has gone with it more than the usual amount of expenditure of money in municipal improvements, in the building of new streets and sewers and public buildings. There should be even more of this in 1911 than during the past year. It is not merely a matter of a few cities here and there, but nearly every city in the nation is developing and improving, all of which should mean one of the greatest years on record for the next season in paving brick, and also in building brick and other clay products for the larger undertakings in the cities for office buildings and other public structures. These naturally follow or go with civic awakening and exploitation. Moreover, we are informed that many architects have in hand plans for new buildings next spring. So that so far as the brick industry itself is concerned the outlook is indeed very bright.

THE WISCONSIN CLAYWORKERS' CONVENTION.

The eleventh annual convention of the Wisconsin Clay Manufacturers' Association will be held at Milwaukee, February 1, 2 and 3. Headquarters will be at the St. Charles Hotel. An interesting program has been prepared, and an earnest effort has been made to induce every brick, tile and pottery manufacturer of the State to be present. A series of instructive papers will be presented, among which are the following:

"A Proposed Exhibit of a Model Brick Dwelling and Other Brick Structures for State Fairs," S. Weidman, Madison, Wis.

"Some of the Difficulties of Operating Medium Sized Plants," J. G. Hamilton, Grand Rapids, Wis.

"Some Common Troubles of Burning Brick in Up-Draft Kilns, and Their Remedy," Prof. Ross C. Purdy, Columbus, Ohio.

"The Proposed Legislation Relating to Employer's Liability and Industrial Insurance," A. W. Sanborn, Ashland, Wis.

"A Scheme in Theory of How the Limey Clays of Eastern Wisconsin Could Be Manufactured into Paving Brick," Prof. Ross C. Purdy, Columbus, Ohio.

"Present Tendencies in the Manufacture of Clayworking Machinery," Davis Brown, Tecumseh, Mich.

"The Capacity of Brick Structures to Withstand Fire," E. H. Korrer, Fond du Lac, Wis.

There will be a banquet Thursday evening, an interesting exhibit of clay products and many pleasant happenings not on the program, which will conduce to the pleasure and profit of all who attend.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 223.]

FOR SALE, WANTED, ETC.

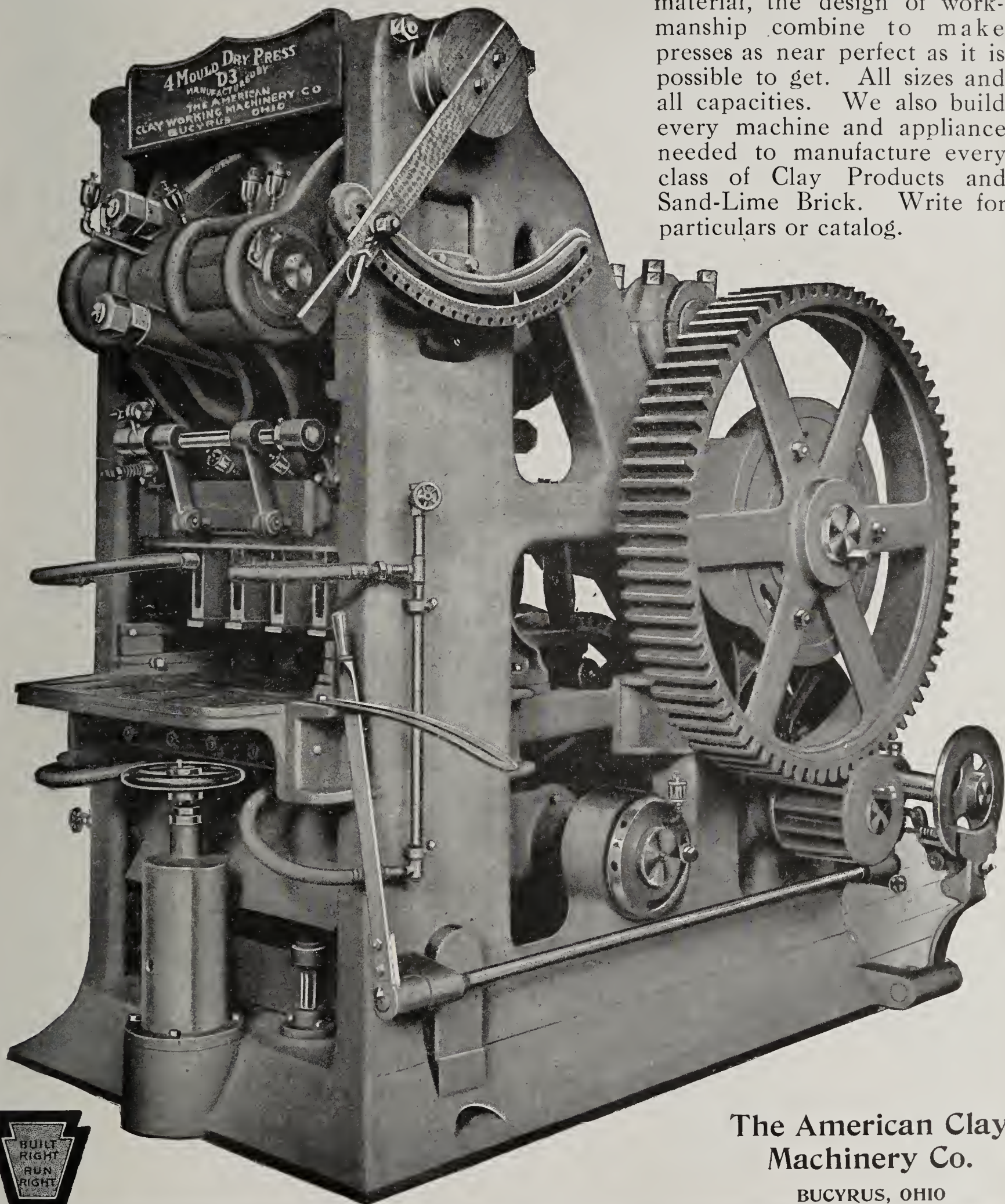
FOR SALE—Brick yard in Ohio; good railroad facilities; 30 acres shale; capacity 40,000. Practical man with \$4,000 can borrow balance from local bank on long time, or will trade for farm or city property. Address
ATTORNEY HOPWOOD,
11 tf d Kenton, Ohio.

For Sale, Wanted, Etc., Ads Continued on pages 164, 174, 175, 176.

"A Quality Above All Others in Clayworking Machinery."

The World's Best Dry Presses

From our Six Mould Dry Presses down to our Hand Presses we can guarantee the quality and performance of each machine. Our Press Builders are experts who build nothing but Dry Presses in our own factory under our close supervision. The quality of material, the design of workmanship combine to make presses as near perfect as it is possible to get. All sizes and all capacities. We also build every machine and appliance needed to manufacture every class of Clay Products and Sand-Lime Brick. Write for particulars or catalog.



The American Clay Machinery Co.

BUCYRUS, OHIO

"A Quality Above All Others in Clayworking Machinery."

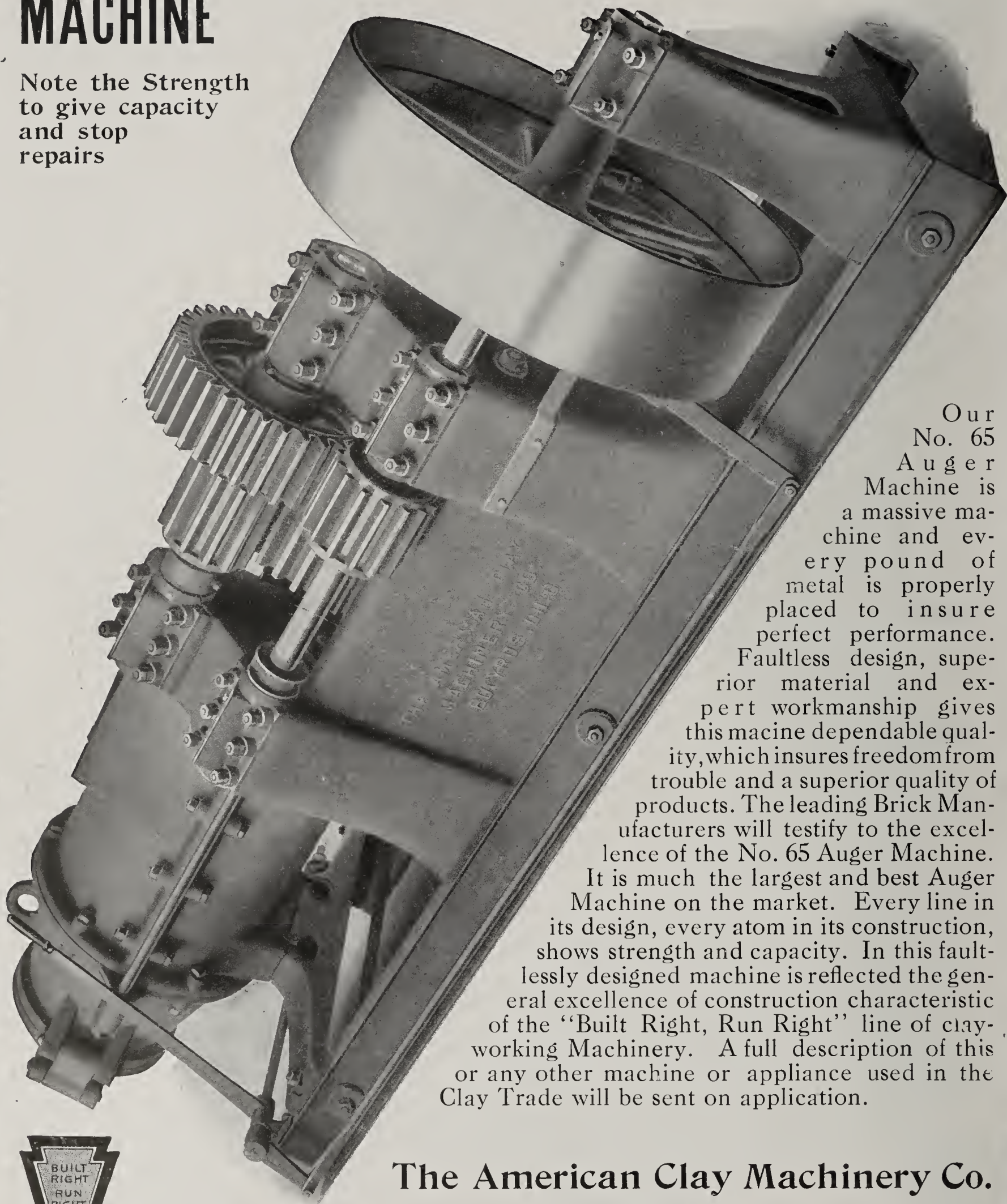
Mention THE CLAY-WORKER

"A Quality Above All Others in Clayworking Machinery."

MONSTER MACHINE

Note the Strength
to give capacity
and stop
repairs

The Greatest Machine for Paving Brick
ever built. More Brick, Better Brick.
Fewer Repairs.



Our
No. 65
Auger
Machine is
a massive ma-
chine and ev-
ery pound of
metal is properly
placed to insure
perfect performance.
Faultless design, supe-
rior material and ex-
pert workmanship gives
this machine dependable qual-
ity, which insures freedom from
trouble and a superior quality of
products. The leading Brick Man-
ufacturers will testify to the excel-
lence of the No. 65 Auger Machine.
It is much the largest and best Auger
Machine on the market. Every line in
its design, every atom in its construction,
shows strength and capacity. In this fault-
lessly designed machine is reflected the gen-
eral excellence of construction characteristic
of the "Built Right, Run Right" line of clay-
working Machinery. A full description of this
or any other machine or appliance used in the
Clay Trade will be sent on application.



The American Clay Machinery Co.

BUCYRUS, OHIO, U. S. A.

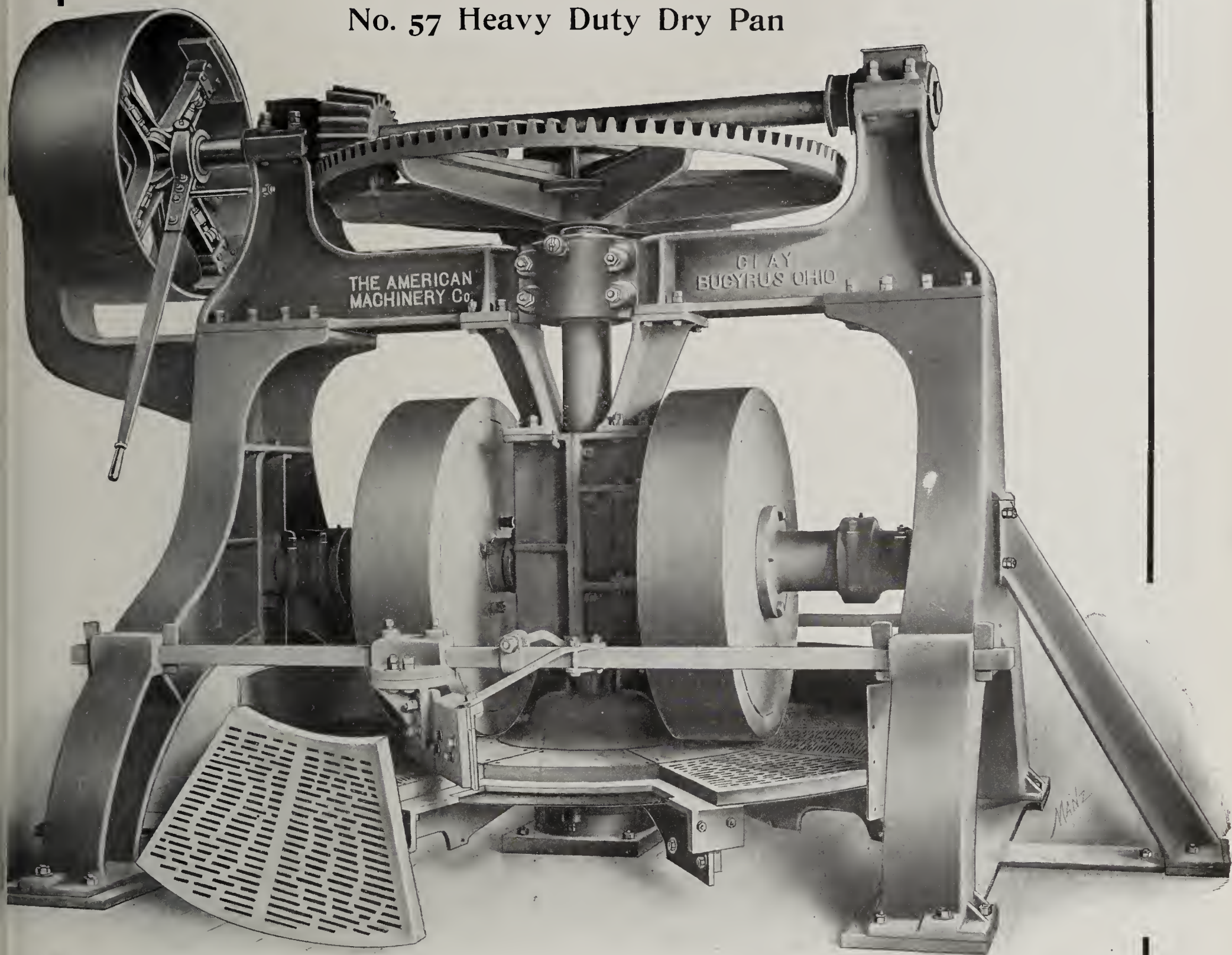
"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

Heavy Duty Pan

No. 57 Heavy Duty Dry Pan



The No. 57 Dry Pan is especially designed to give satisfactory service where extra heavy reducing machinery is required. Particularly adapted to refractory clay. The mullers are large and heavy, 54 inches in diameter and 13 inches face. Weight of each muller, 8,300 pounds. Should a heavier muller be desired, the construction of the pan is so ample that 2,000 pounds can be added to each muller if necessary. To safely carry these mullers the pan has been designed throughout in a manner to provide an ample factor of safety. The revolving base, step and vertical shaft are all proportioned to easily carry the load placed upon them. The gearing is large, giving a great leverage to drive the heavy base for the large mullers to ride upon when grinding the material. The driving shaft is 4 inches in diameter, the vertical shaft is 8 inches, and the muller shafts 5 inches, all being made of steel.

The mullers have independent drive, with heavy steel shock absorbers. Long muller sleeves, with automatic oil device. The step is our equalizing type, with phosphor bronze disc run in oil. Disc removable without molesting step or housing. Vertical shaft is quickly removable. Mullers removable independent of each other. Adjustable and reversible steel scrapers. Face plates, muller tires and muller plates all made of special wear-resisting iron. Full description for the asking.

We build every class of clayworking machinery.



The American Clay Machinery Co, Bucyrus, Ohio

"A Quality Above All Others in Clayworking Machinery."

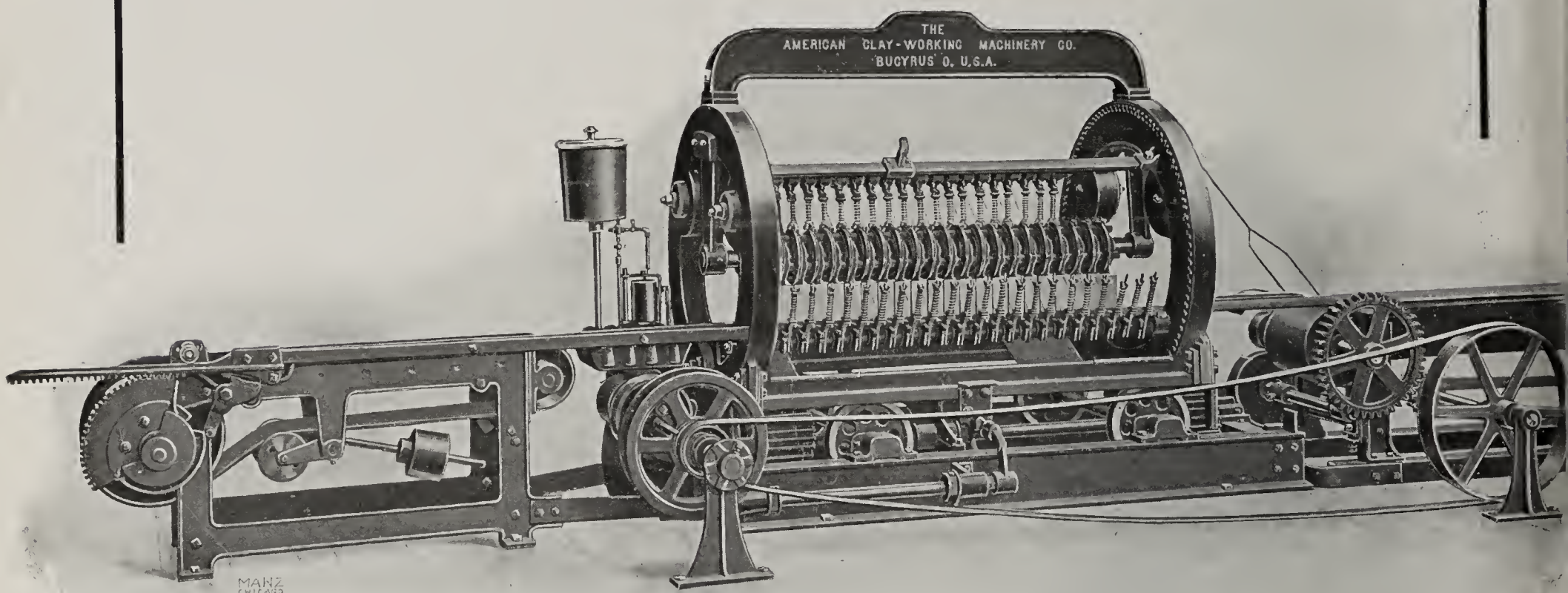
Mention THE CLAY-WORKER.

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Automatic Cutter

The accompanying cut shows our No. 20 Automatic Cutter, which is one of a half dozen styles of automatic cutters we build. This cutter is simple, durable, accurate and rapid. It is compact, occupying the minimum of space, and overcomes the swelling and buckling of the bar of clay.

The rotary wire frame is driven by two large pinions in the center of the machine. These pinions are driven by a worm gear and worm, which gives a steady motion to the wire reel. The worm, or driving shaft, is set at right angles with the cutter and is driven with a friction clutch pulley. This friction clutch pulley is operated by the movement of the carriage which starts the wire reel in motion, and it is thrown out of gear by the rotating wire reel.



There are two sets of improved toggle wire fasteners, which permit more time for the wires to pass through the column of clay and leave them at rest in a horizontal position, which is the most advantageous position in replacing broken wires. This can be done without stopping the machine. The wires have a shearing action when passing through the bar of clay, making as perfect a cut as can be made with a wire-cut machine.

The wires are prevented from cutting the bar of clay before the proper time by means of a simple band brake and brake wheel. The carriage is kept in register with the moving bar of clay by a most simple register device. There is rotating motion to all its parts, so that any wearing of these parts does not affect the accuracy of their operation. The platens can be changed for cutting different thickness in a few minutes. The wire reel is carried on six track wheels, which are provided with eccentric pins to take up the wear. The cutter is built high-grade throughout. We also build other automatic cutters as well as every machine and appliance needed in every branch of the clay trade.



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Bucyrus, Ohio, U. S. A.

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Cheap Drying

The best Dryer for your plant depends entirely upon the conditions which surround you. The nature of your clay may be a large factor and the layout of your plant may be almost as important. There are so many points which are vital in the installation of a really successful and economical dryer that we long ago put the dryer problems into the hands of a special dryer department. Only in this way can there be perfect assurance that the dryer will be all that we want it to be and what you have a right to expect it to be.

For this same reason we build every kind of dryer, so that the special conditions and requirements of every plant may be met to the full satisfaction of ourselves and our customers. Under these conditions we are able to supply the dryer best adapted to the conditions. There is no need of a prejudiced opinion toward one system just because we want to sell it. We build all systems and can recommend the one which is best, and there can be only one best for each plant.

Our Waste Heat Dryers are giving the best of satisfaction. They are designed and laid out by competent experts and the equipment is all that quality of material and workmanship can insure.

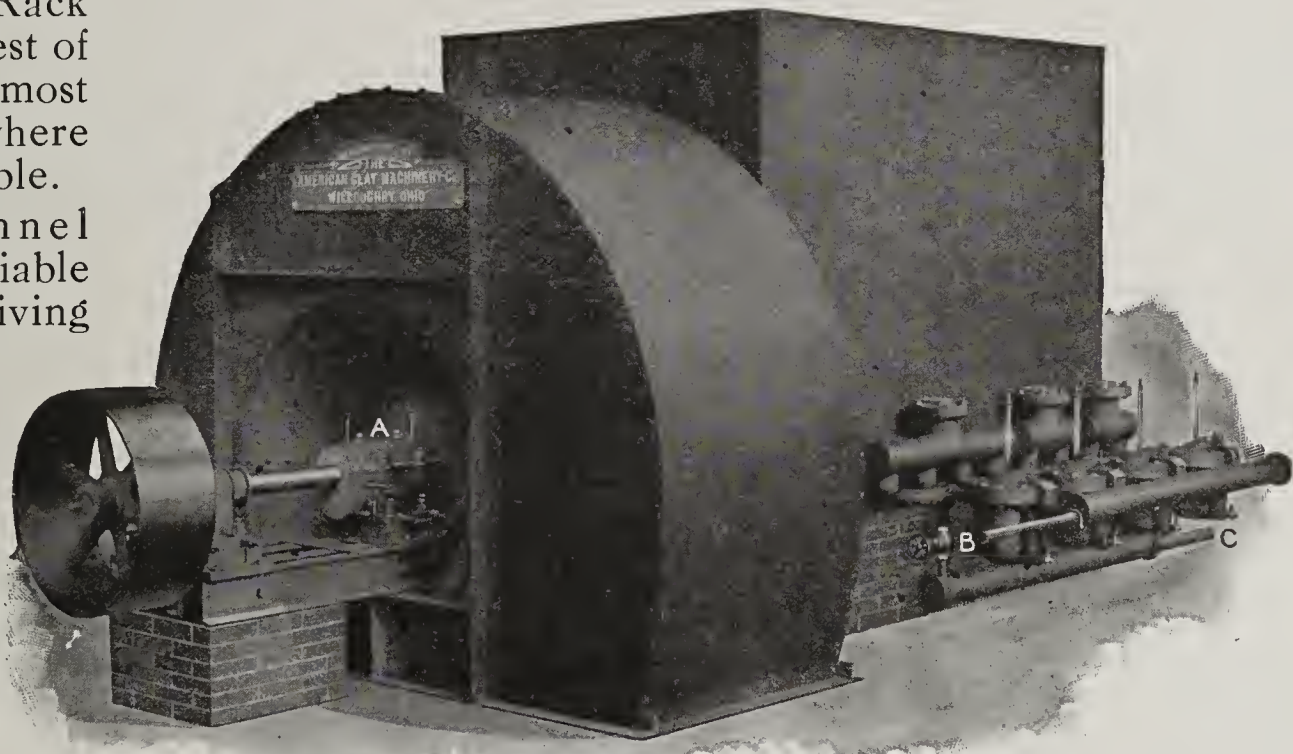
Our steam Pipe Rack Dryer is giving the best of satisfaction and is most highly recommended where its use is found advisable.

Our Steam Tunnel Dryers have an enviable reputation and are giving excellent results wherever used.

Our Hot Air or furnace Dryers are making good everywhere they are used, and we also build and equip dryers to be operated by the carless system.

If you are at all interested in economical drying we will be pleased to take the matter up with you and suggest a dryer plant that will give you the highest possible efficiency with the least possible cost for installation and maintenance.

We are the only concern building all classes of dryers and the only one building our dryer equipment in our own factories. We are much the largest manufacturers of clayworking machinery in the world, and can give you the benefit of our fifty years' experience and extensive equipment and organization. We build every machine and every appliance required for the manufacture of every class of clay products by every process. Correspondence solicited.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

SOFT MUD BRICK MACHINERY

There is many a clay which can best be worked on Soft Mud Machinery. To handle such clay on Stiff Mud or Dry Press machinery would prove a failure in the long run.

We build a complete line of Soft Mud Brick Machinery and appliances to meet the needs of such clays. We are not interested in selling you machinery which may prove a failure. We have the very machinery you require to make a success of your business, and that is the only machine we sell you.

Our Upright Stock Brick Machine is built for long and continuous use. It has many satisfied users who will cheerfully recommend it. Our line of Plunger machines is complete with a size range to meet your requirements. Our Eagle Horse Power and Eagle Steam Power machines are popular favorites in their class.

Every machine we build has a quality behind it attained only by faultless designing, excellent material and superior workmanship.

In buying the "Built Right Run Right" line you buy quality and that means successful operation.

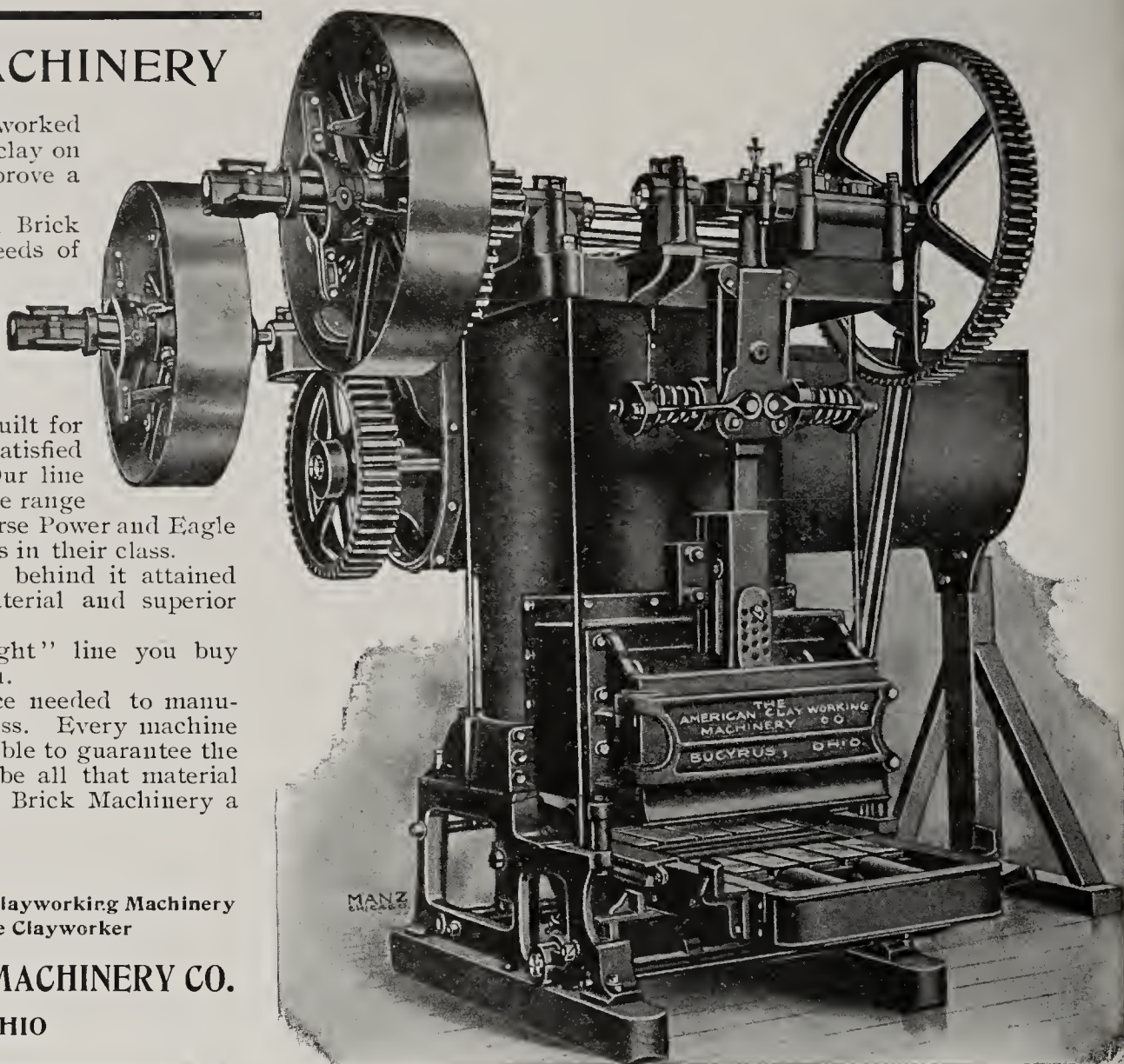
We build every machine and appliance needed to manufacture Clay products by any known process. Every machine built in our own factories, so that we are able to guarantee the quality because we know that quality to be all that material and workmanship can attain. Sand-Lime Brick Machinery a specialty.



World's Largest Manufacturers of Clayworking Machinery
Everything Needed by the Clayworker

THE AMERICAN CLAY MACHINERY CO.

BUCYRUS, OHIO



UPRIGHT STOCK BRICK MACHINE AND PUG MILL

American Steam Pipe Rack Dryer, Patented

Too much care cannot be taken in laying out and constructing your Dryer. That is why we maintain an engineering department competent to successfully carry out this work. It is no more expensive to be right, in fact it eliminates a great deal of operation trouble and expense. Our engineering department will look over your plant and give you the proper layout. Our factory will deliver you an equipment for the dryer which is faultless in material and manufacturing. With these attributes of success your dryer trouble will be eliminated.

The American Patented Steam Pipe Rack Dryer is designed by specialists in this class of dryers. It is constructed of the very best material in a thoroughly workmanlike manner, under the direct supervision of the best Engineering and Manufacturing Departments in the clay-working field.

It is the **ideal dryer** with **no cost of maintenance** and the **lowest possible cost of operation**.

The Cable Delivery System **Saves Labor, Protects the Product and Economizes Space**.

We own and control the vital patents which make the Steam Pipe Rack Dryer a success and will protect with a surety bond any user of the American Steam Pipe Rack Dryer who has fears of interference.

We have just received a number of additional patents on this dryer which place it still farther in advance of others. We will be glad to correspond with you relative to this or any other Dryer. We build every type of dryer and are prejudiced in favor of none. Your clay and its drying properties govern us in recommending a dryer.

We build every machine and appliance needed for the production of every class of Clay Products by any process.



The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



A GREAT RUSH of business was expected around the holiday season, especially after the dullness that prevailed during the fall, but conditions locally have been rather better than was anticipated. The weather has been especially favorable, causing no perceptible delay anywhere in California, and work on old contracts has been going on about as usual, though few new jobs have come up in San Francisco. In some of the other coast cities, however, contracts have been let on quite a number of large brick and terra cotta structures.

Notwithstanding adverse conditions, several of the larger local brick manufacturers have had a fairly good year, and a few report a steady growth. The outlook for the new year is generally regarded as favorable, with prospects of a decided improvement in San Francisco. A great deal depends upon the decision regarding the Panama-Pacific Exposition, which would bring out a large volume of work which has been delayed. The architects are busier than usual, and the plans now on the boards include many buildings of the most important class.

A turn for the better has taken place in the common brick market, which has been in uniformly bad condition for the last year. The price-cutting reported last month was of short duration, the market being supported by some of the stronger concerns, and the large surplus which was oppressing the market has been shipped out. The McNear Brick Agency, represented by W. W. Dennis, has done good work along this line, sending a cargo of brick to British Columbia. Other local interests take different views of this experiment, but the comment is generally favorable, as this shipment certainly relieved the market for the time being, even if it should not be repeated. Mr. Dennis feels confident that other shipments will follow from time to time, and that the outside market will afford a permanent outlet for the surplus which always tends to accumulate here. Another cargo will probably be shipped about February 1. Prices have already picked up a little, and not only is the spot market pretty well cleaned up, but large consumers are placing orders in advance of their requirements at fair prices, taking up the output of several large plants for some months to come. Prices have for a long time hovered around \$6.00 to \$6.50, San Francisco, or \$4.50 to \$5.00 at outside kilns, but it is expected that about a \$7.00 market will soon be established as a basis for this year's operations. Even this is a lower price than was usual a few years ago, but conditions have changed, and the introduction of labor-saving machinery has enabled several manufacturers to come out ahead even on last year's operations. Any great advance always brings out an enormous production, with heavy shipments from the interior, and even the present slight improvement in the market is likely to cause more increase in the output than the situation warrants.

The United Materials Company, with offices in the Balboa building, reports steady progress during the past year, and is now a more important figure in this market than ever before. Mr. Smith, of this company, takes a very optimistic view of the outlook, and reports a large amount of work in prospect. The company has the sales agency for the products of the Los Angeles Pressed Brick Company, which has a large plant at Richmond, as well as those in southern California, and these articles have been handled with great success. The Richmond plant has just turned out its first kiln of new face brick, with which it has been experimenting for some time, and samples are shown at the United Materials Company's office. They are in two shades, old gold and cream color. This plant was greatly improved last year, and a number of new kilns are to be added during the coming spring.

Chris Berg, of the Port Costa Brick Works, was in the city recently and is now at the works, making arrangements for

the reopening of the plant. A number of improvements are being made, and work will probably be started by February 1 or sooner. This plant has been quite a large producer of common brick, and this season experiments are to be made with face and paving brick.

N. Clark & Sons are still working on their sample room at the local office, where they have already placed a large display of architectural terra cotta, roof tiles, polychrome work and general pottery.

Gladding, McBean & Co. are now making deliveries on the architectural terra cotta for the Hearst building, which will be one of the largest and finest jobs of the year.

C. Hidecker, president of the Ione Fire Brick Company, has taken the place of Samuel Hubbard, Jr., as general manager of the Vallejo Brick and Tile Company, Consolidated, the city office of which has been moved to 946 Monadnock building. The McNear Brick Agency has opened a downtown office at the same location, and W. W. Dennis, of the latter concern, will have charge of the selling end for the products of all three companies. Mr. Dennis is well known in the local building material trade, having been with the Holmes Lime Company for some time previous to his connection with the McNear Company. The Vallejo Brick and Tile Company continues to do well with its sewer brick, having taken some new contracts in addition to a large amount of old work still unfinished. The Ione fire brick has been sold on the open market for the last year, and will continue to be handled in this way. The McNear Brick Agency has closed a very successful year, having disposed of the entire output of the plant, amounting to over a million and a half a month.

A cargo of 500 tons of brick has just been shipped from Seattle, Wash., to Manila.

The Pacific Tile and Terra Cotta Company, with a large plant near Corona, Cal., has issued \$450,000 bonds, and it is reported that extensive improvements are to be made on the company's property this year.

A new company is being formed at Baker, Ore., for the purpose of building a large brick and pottery plant five miles from that city.

The Temescal Clay Products Company has been incorporated at Los Angeles with a capital stock of \$1,000,000 by V. Graves, S. N. Coulter, G. H. Turner, H. D. Lore and H. B. Duncan.

A return to the simple dignity of plain red brick architecture is noted in the plans now being prepared for the Mount St. Joseph's Orphan Asylum in South San Francisco. The main building will be 300 feet long, with three 150-foot wings projecting to the rear. It will be divided into five sections by substantial brick partition walls, with fire doors, and will have numerous wide stairways, both inside and outside. It will be three stories high, in the Tudor style, of red brick, with gray terra cotta trim.

After considering granite for the entire building, the Sacramento supervisors have decided to build a new court house with the upper stories of pressed brick, with terra cotta trim. The Lindgren Company has the general contract.

San Francisco, January 5.

SUNSET.

DOINGS AT GALESBURG.

The Purington Paving Brick Company reports a fairly satisfactory year's business, notwithstanding coal strikes, labor troubles, etc., of which they have had their full share the past season. Owing to ill health W. S. Purington, the president and general manager of the company, has found it desirable to retire from business for the time being, and so has disposed of his holdings in the company. At the annual meeting of the board of directors, held January 17, the following officers were elected: D. V. Purington, chairman board of directors; Frank G. Matteson, president; George C. Prussing, first vice-president; C. D. B. Howell, second vice-president; W. H. Terwilliger, secretary; C. H. Chamberlain, treasurer, and George W. D. Ohr, general manager of plants. The board resolved to shut down for repairs until February 15, at which time work will be resumed and all the plants run to full capacity.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



SO FAR AS New Jersey is concerned structural work seems to be about normal. Forty-five cargoes of brick reached the New York market during the last week of the year, and about half of those went into New Jersey, in addition to what was taken of its own product via train delivery. Probably low prices of all structural material, including brick, has had much to do with maintaining this activity. Higher prices would surely check it, but if the present level is maintained the relative amount of building will probably continue unabated. For the winter season the operations are unusually large in most New Jersey centers. The promise of the future is encouraging, and many builders are under the impression that there will be better business during this year than was noted during 1910.

There is a movement in the suburban sections of New Jersey to build semi-fireproof buildings. In fact, according to the statements of architects who watch those features of the business the bulk of the spring feelers for such enterprises are all from the suburban sections. Money lenders are cautioning promoters to use care in going ahead with new building projects if they are large, but the small builder is not included in this category. He can go on and do his work as he chooses with no fear of adverse supreme court decisions or anything else.

The approximate totals for New Jersey show that there

was a difference of nearly \$35,000,000 in the amount of building in New Jersey between 1909 and 1910. The falling off was due to the large number of school houses and to some large factories and a few public works which were built during the earlier year. The truth is that a good many of those millions which were figured on the totals for 1909 are not yet finished, and 1910 had some share in them. In fact, a few will lap well over into 1911. It will be seen from this, therefore, that the record for 1909 was not so much better than others after all.

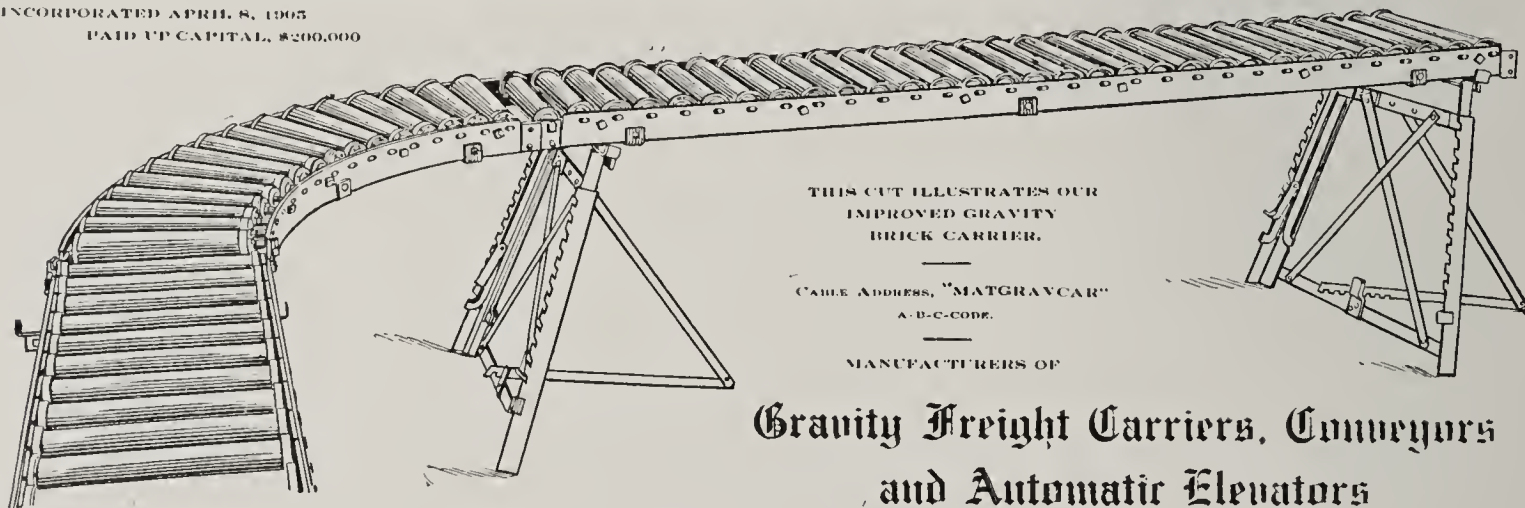
All through the section near New York the railroads have endeavored to improve transportation while they have advanced the price. The result has been that they have lost none of the traffic and the improvement has made transportation so much better than it is in the crowded subways and other transportation systems in New York that it seems attractive, even though the price has advanced. These influences are all working in favor of the development of the suburban section of New Jersey.

The price of New Jersey brick is pretty low, scarcely anything going above \$5.25, and some as low as \$4.75, but this helps in a way, because the low figures have a tendency to cause builders to purchase and thus clear the market, leaving it bare for the coming opening of the spring season. The low price is rather discouraging for the past season, but it promises better things for the season to come, since the market will be bare of brick when the new season opens. Inquiries are moderately numerous and sales have continued upon a reasonably satisfactory basis recently. A. L. B.

"THE PROOF OF THE PUDDING."

Mathews Gravity Carrier Company

INCORPORATED APRIL 8, 1905
PAID UP CAPITAL, \$200,000



Gravity Freight Carriers, Conveyors
and Automatic Elevators

REPRESENTED IN
NEW YORK, HONOLULU, CHICAGO, ST. LOUIS, KANSAS CITY, SAN FRANCISCO,
SEATTLE, INDIANAPOLIS, MONTREAL, VANCOUVER, LONDON.

CORNER HAMPTON AND WABASH AVES.

Merriam Park, St. Paul, Minn. December
Third,
1910

F.E.M.-1p.

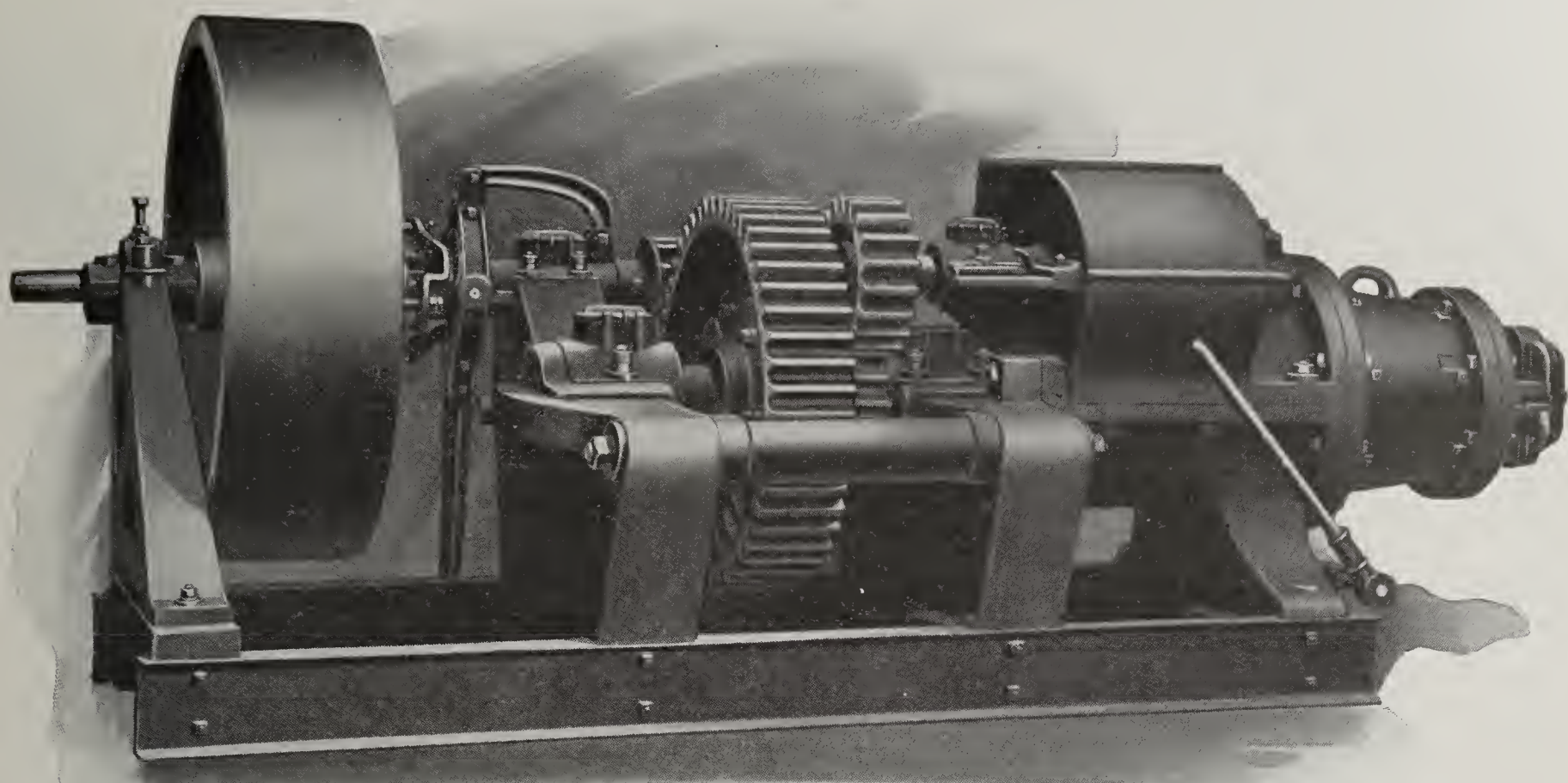
The Clay-Worker,
Indianapolis, Ind.
Gentlemen:

We wish to take this occasion to advise you that we are more than pleased with the results which we are obtaining from our page advertisement in your journal; there is hardly a day that goes by but what we receive from one to half a dozen inquiries which can be traced directly to "The Clay-Worker."

Yours very truly,

MATHEWS GRAVITY CARRIER CO.

By F. E. Moore, Treas. and Mgr.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 232-235.



Barrett's PAVING PITCH



A fifteen-year old brick pavement in Chicago filled with Barrett's Paving Pitch.

MAKING BRICK LAST FIFTEEN YEARS

A brick pavement in a city street will not last very long unless the proper filler is used. If sand is employed, water and frost will penetrate into the foundation and cause settling and upheavals until the contour of the street is ruined. Asphalt filler is better, but its adhesion to the brick is weak, and accordingly it does not stay water-tight, and the foundation suffers just as with sand filler.

Cement grout is rigid and does not provide for expansion and contraction at varying temperatures. Moreover, cement-filled pavements bridge depressions in the foundation and then break under heavy loads, making long, dangerous cracks that are hard to repair.

Grouted brick cannot be removed for excavation except with complete loss of the

brick. Being brittle, a cemented pavement breaks along street railway tracks on account of the vibration.

The above photograph shows a brick pavement in Chicago that is fifteen years old. The joints are filled with *Barrett's Paving Pitch*. The pitch is always plastic and makes an absolutely waterproof seal, protecting the foundation against dampness and frost. Accordingly the contour of the pavement has been preserved unimpaired. There are no cracks in the pavement. Cracks are impossible in a pitch-filled pavement. There is no bulging, there have been no explosions from expansion, and the pavement, in spite of its long service, is good for many years more.

Booklets about Barrett's Paving Pitch free on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

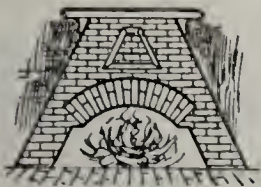
Minneapolis
New Orleans

St. Louis
Seattle

London,
England

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



AFTER COMPLETING their inventories, brick manufacturers in Milwaukee and throughout the State of Wisconsin are now making extensive improvements to their plants and making repairs, necessitated by the heavy run of business during

1910. Prospects for the new year are exceptionally bright, as there is a large amount of building and paving being planned. The total building operations during the past year did not reach the expectations which were brought with the close of 1909. This fact is largely due to the depressed condition of business, which resulted in a number of large projects being held over, and which will swell the operations of 1911.

As the year was passing and the new year was entering the portals of time, James Ricketson, of the firm of Ricketson & Schwarz, famous for its advertisement of "Who Furnished the Brick," celebrated his fifty-third birthday anniversary. Mr. Ricketson's birthday looms up on the calendar with more prominence and personal interest to a very large circle of friends than any other social feature of the day and congratulations poured in from representatives of the firm and personal friends.

The Cooper, Hughes & Braun Company, well known building supply dealers of Delavan, Wis., has been reorganized as the Cooper & Hughes Mercantile Company, R. E. James succeeding Mr. Braun. The capital stock has been increased from \$50,000 to \$100,000 and officers elected as follows: President, W. E. Cooper, Milwaukee; vice-president, T. J. Hughes, Waukesha; secretary-treasurer, R. E. James, Delavan.

Preparations for the next annual meeting of the Wisconsin Clay Manufacturers' Association, to be held in Milwaukee, February 1, 2 and 3, are now being completed by Secretary Samuel Weidman. It is planned to make the coming convention a greater success even than those which have already been held. Among the features of the sessions will be the exhibits of clay products by individual members of the association and the special entertainments which will be provided for the guests by members.

In addition to the regular business program Prof. R. C. Purdy, of the University of Ohio, will give two comprehensive lectures and discussions on the drying and burning of clay products and on testing of clays. A matter of especial importance to the trade will be a general discussion of railway freight rates on brick. A representative of the railroads, reputed to be a specialist on freight rates, will address the association during this discussion. In addition to these matters several legislative measures and a plan for advertising clay products will be taken up during the different meetings.

A large banquet is to be given on the evening of February 2 in the St. Charles Hotel, where all of the meetings are to be held.

Kemmeter Brothers, of Jefferson, Wis., have a large crew of men at work in the woods near Eland Junction cutting wood to be used at their brick plant during the coming season.

As the result of an opinion by Special Assistant City Attorney Clifton Williams, of Milwaukee, that when the time limit of a contract expires the contract can not be extended until the next season, forty-three paving contracts for work aggregating about \$100,000 will be readvertised by H. E. Briggs, Commissioner of Public Works.

The Metropole Hotel Company, of Madison, Wis., will erect a new hotel building to be known as the Hotel Metropole, next summer. The building will be eight stories in height, 44 by 132 feet in dimensions and fireproof. It will cost about \$200,000.

The wearing qualities of brick were well shown in a fire which recently gutted the building occupied by the Hungarian

Cafe and several other concerns at 179-187 Second street, Milwaukee. These brick are more than thirty years old and have been used in three different buildings, all of which have been destroyed by fire. Building Inspector Koch says that the walls of the present structure are sufficiently strong to be used again.

Plans have been completed by the city engineer of La Crosse for a new trunk sewer, with several branches, to be built next summer. The sewer will be seven and one-quarter miles in length, and the estimated cost is nearly \$100,000. Bids are to be received for both brick and concrete work.

Plans are being made at Sheboygan, Wis., for paving twenty-eight different streets during the coming season. Brick will be the material used in a number of these pavements.

The Board of Public Works of Oshkosh, Wis., has been ordered to advertise for bids for a large amount of paving to be done during the summer. Bids will be received on several kinds of material, including brick.

A. BADGER.

Written for THE CLAY-WORKER.

NORTHWESTERN CLAY ASSOCIATION DEFERS ITS DATES.

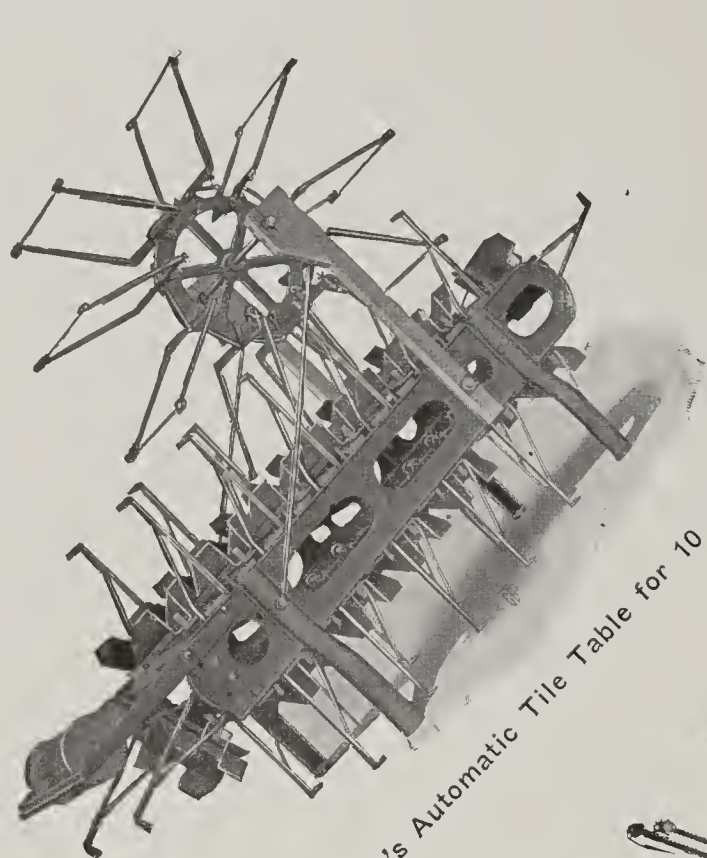
THE NORTHWESTERN CLAY ASSOCIATION, which had set its dates for February 1 and 2, at Minneapolis, found same conflicted with the dates of the Wisconsin meeting, and so, after due consideration, it was decided to extend the time for several weeks in order to be assured of clearing all other dates. So Wednesday and Thursday, March 15 and 16, have now been selected. This will give the program committee a longer time in which to prepare its program, and will allow the speakers a longer time in which to make up their addresses. The committees having the present gathering in charge have it in mind to make the meeting the best ever held by the organization and desire to avoid any factors which might serve to prevent their accomplishing this end.

The meeting will be held in the quarters of the Builders' Exchange, third floor of the Warner building, 17 South Sixth street, in Minneapolis. There will be a banquet served to the visitors in the evening of the first day, and the event will doubtless include some able addresses at the same time. In the past the meetings have been limited to a single day, and the banquet has been a noonday function, which has taken considerable time from the business hours of the day. Yet the social features of a gathering are such that it is not desired to do away with it, and so a two days' session, with a banquet in the evening, has been decided upon.

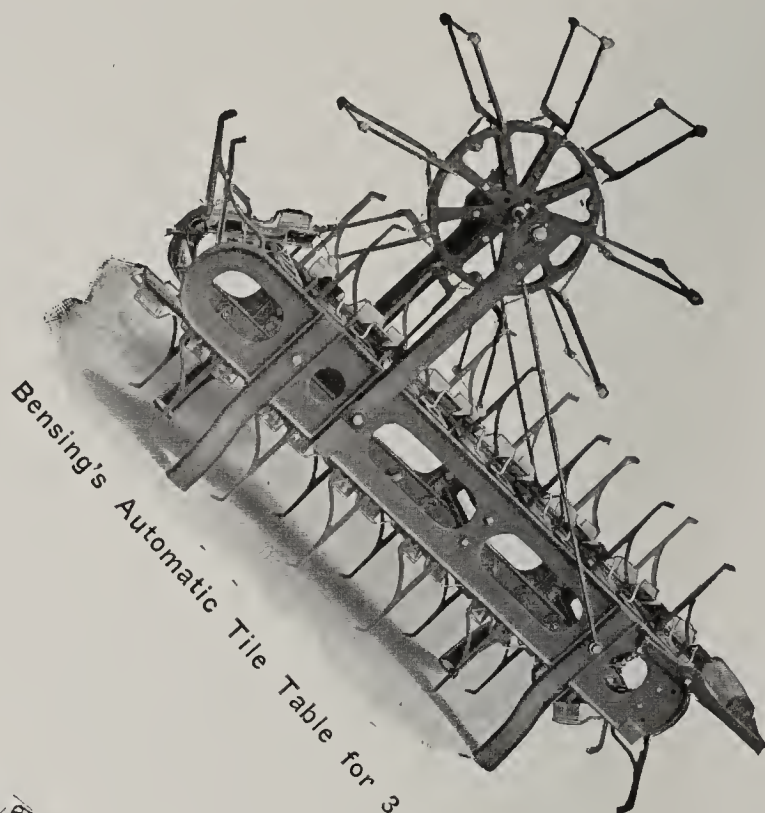
The program committee, with Ira C. Jones, of Minneapolis, as chairman, has worked out a list of topics and a number of tentative speakers. Some prominent out-of-town speakers have been invited, from whom acceptances are confidently expected, but until they are positively made no announcements will be given out.

It is believed that the Northwestern Clay Association is at the beginning of a larger growth and development, and this meeting in March is counted upon to start the interest in this lively young association. The Northwest has had a very difficult contest on its hands for the maintenance of the proper position of brick, tile and clay products. The competition of concrete is probably stronger here than anywhere else. But the turn of the tide seems to have come, and there is every reason to believe that clay products will come into their own in a way which has not been the case in the past.

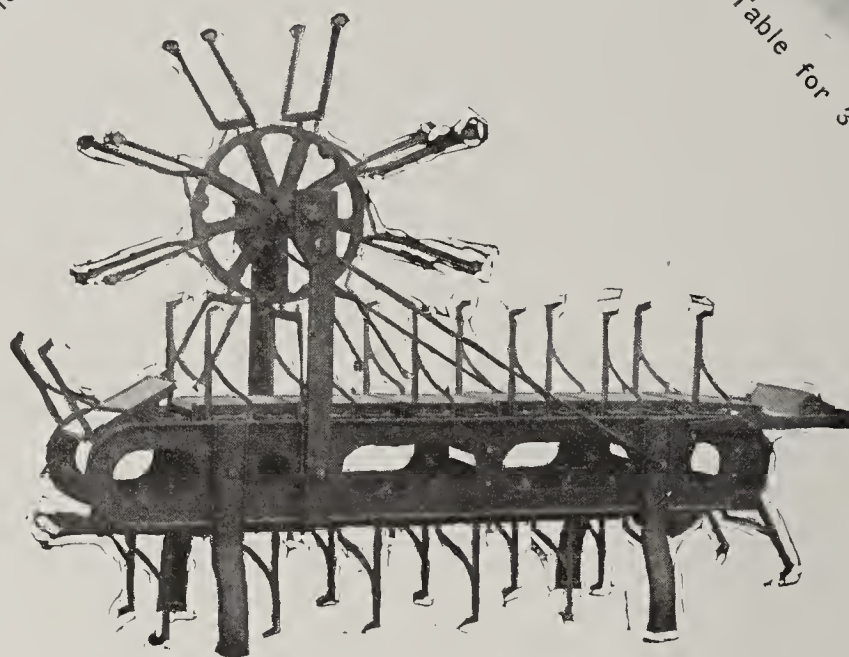
Some people are already beginning to worry lest the opening of the Panama Canal in 1915 creates a disturbance in the distribution of merchandise and material that will unsettle trade in some sections of the country. There are some so addicted to the trouble-seeing habit that they will look years ahead for it if they can't find enough trouble in the present.



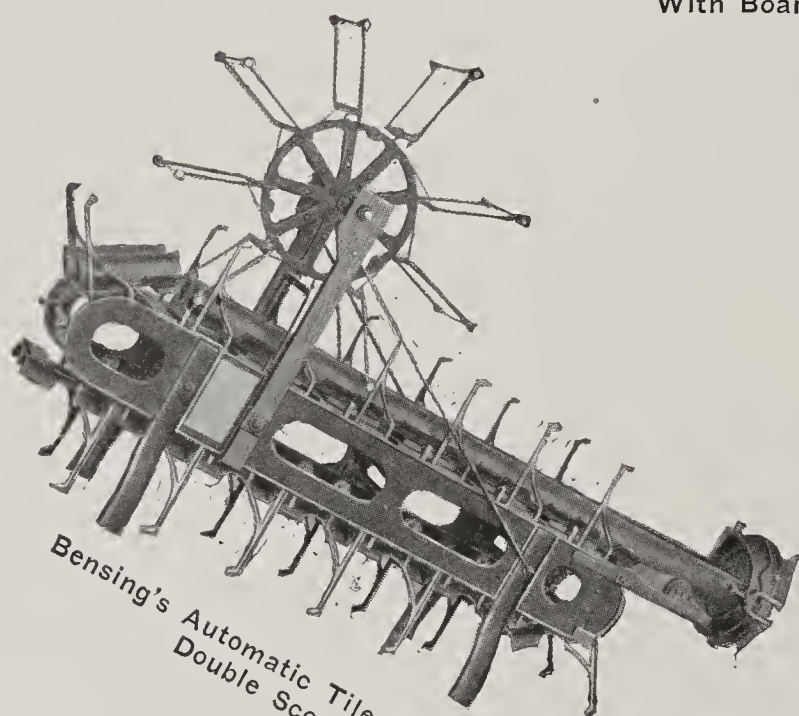
Bensing's Automatic Tile Table for 10 and 12-Inch.



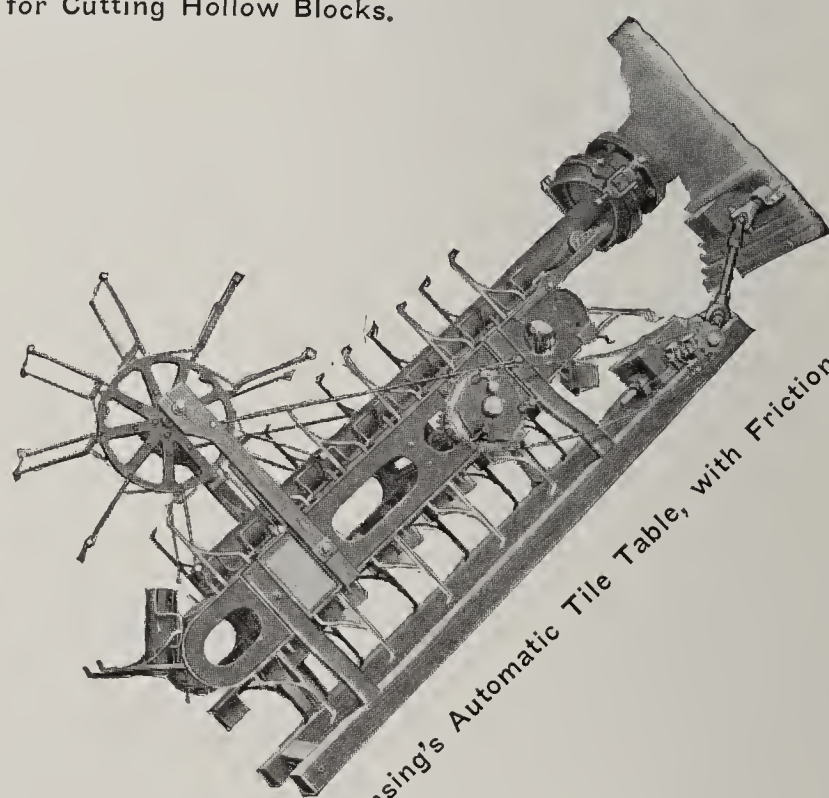
Bensing's Automatic Tile Table for 3 to 8-Inch.



Bensing's Automatic Tile Table,
With Boards for Cutting Hollow Blocks.



Bensing's Automatic Tile Table, with
Double Scoops.

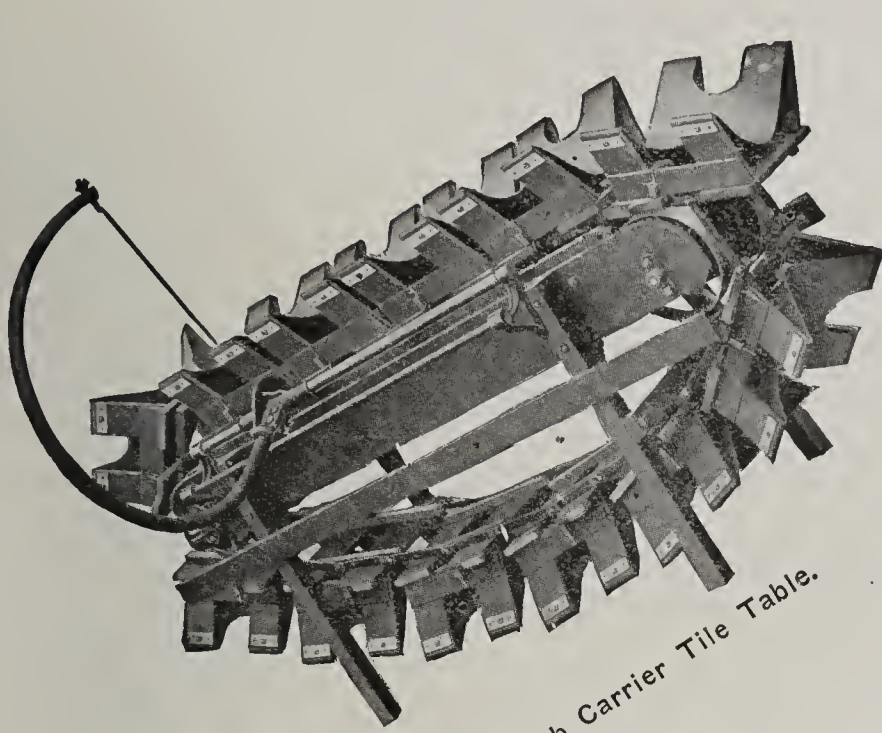


Bensing's Automatic Tile Table, with Friction Drive.

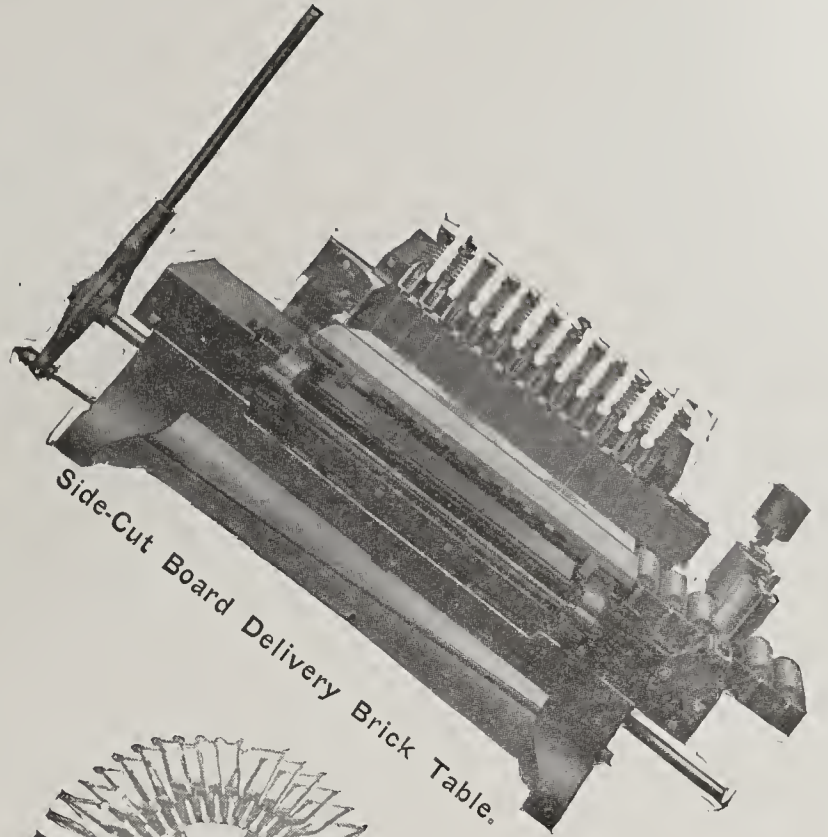
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

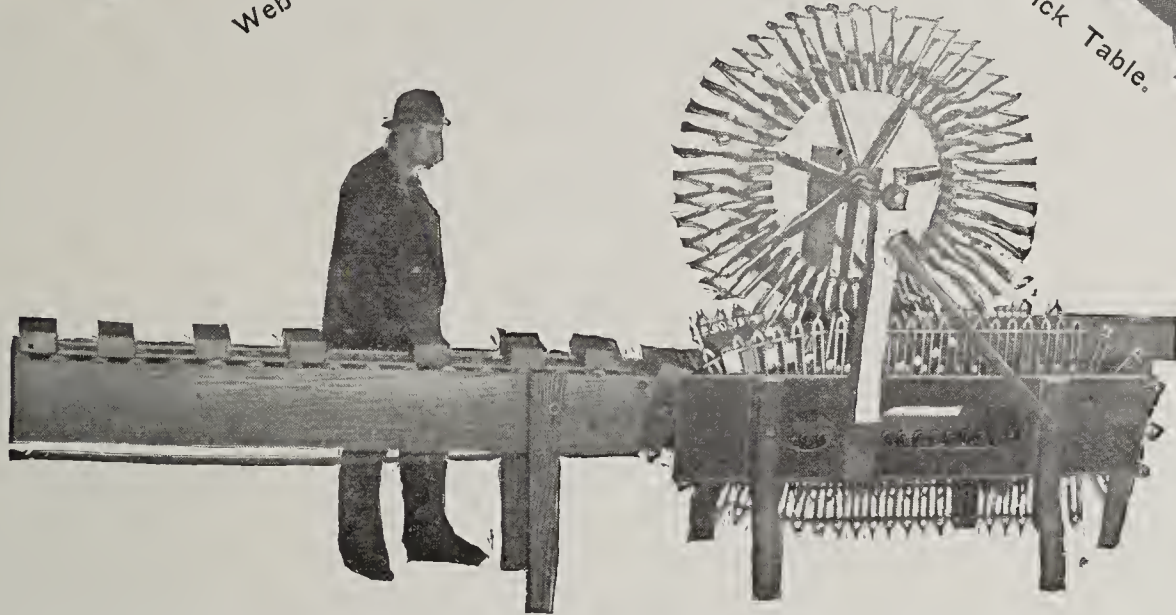
Mention THE CLAY-WORKER.



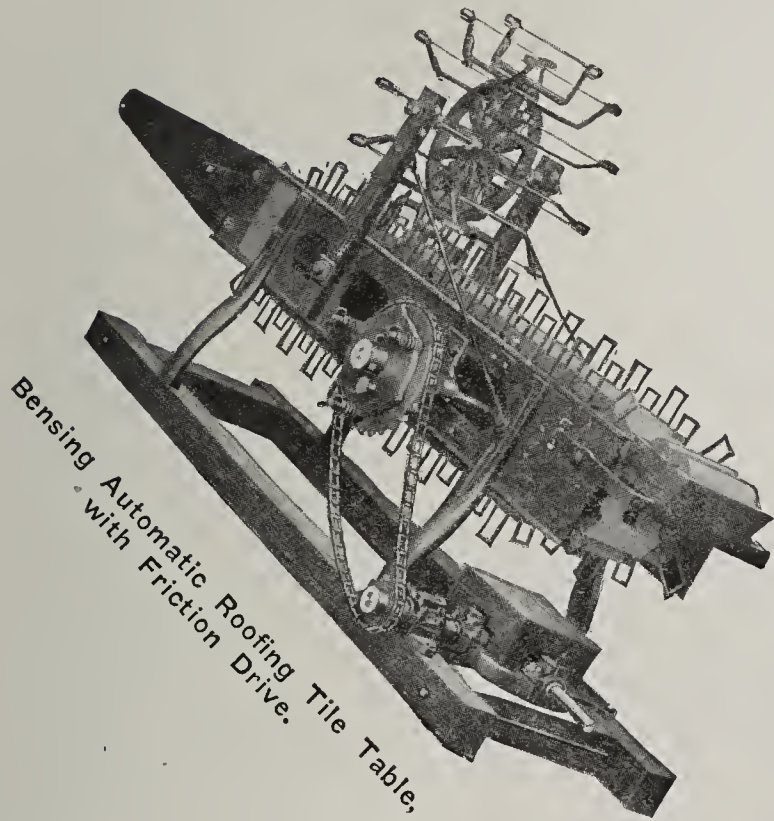
Web Carrier Tile Table.



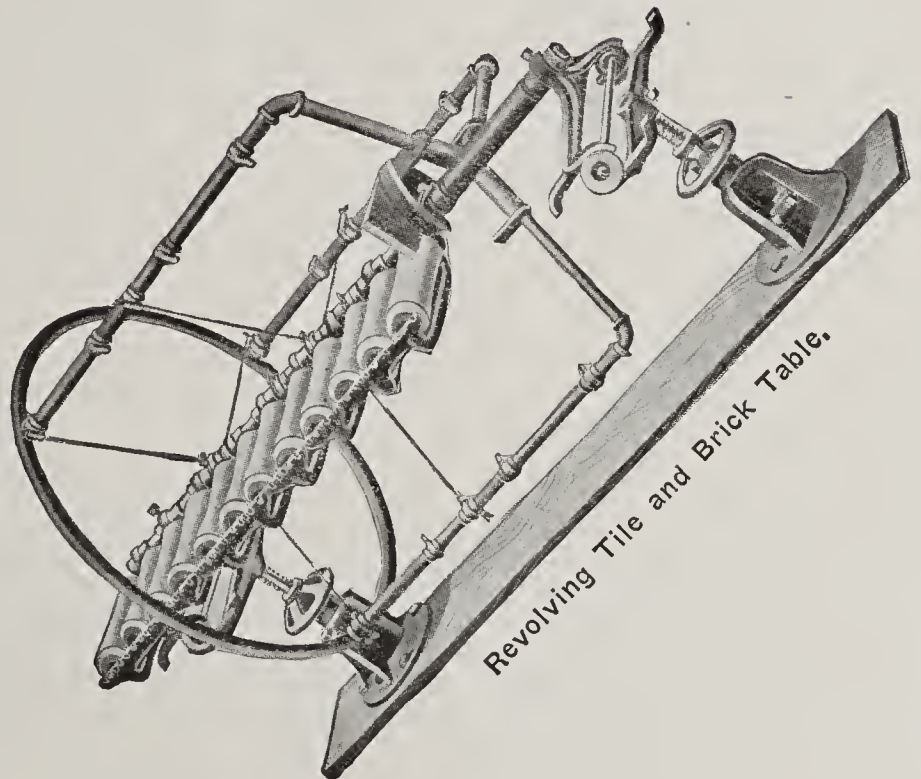
Side-Cut Board Delivery Brick Table.



Mr. Jacob Bensing and His First Automatic Side-Cut Brick Table.



Bensing Automatic Roofing Tile Table, with Friction Drive.

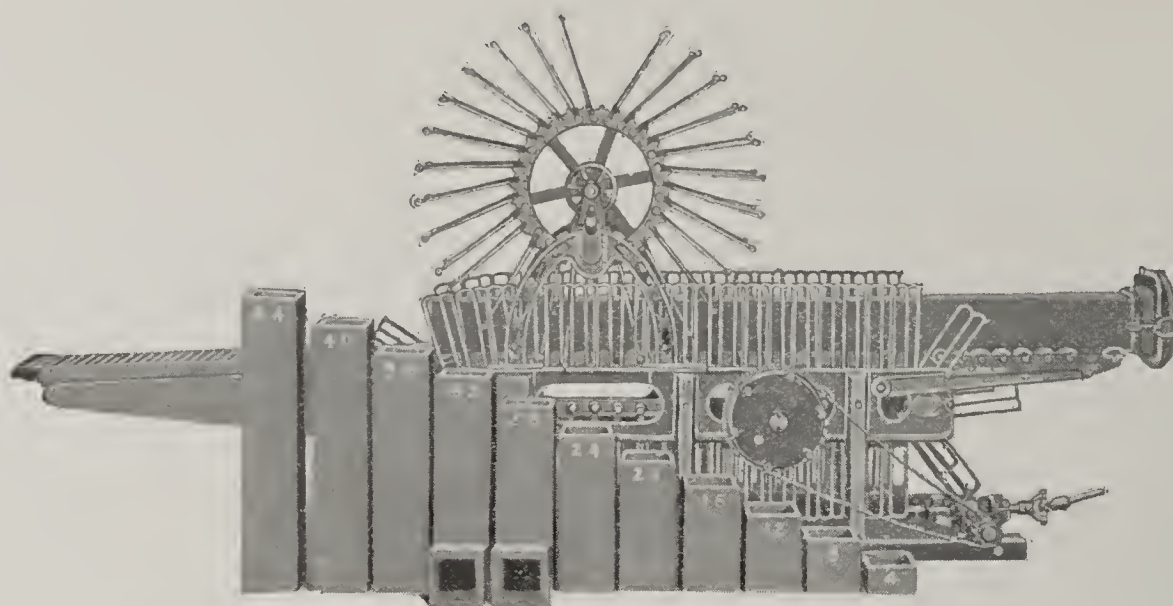


Revolving Tile and Brick Table.

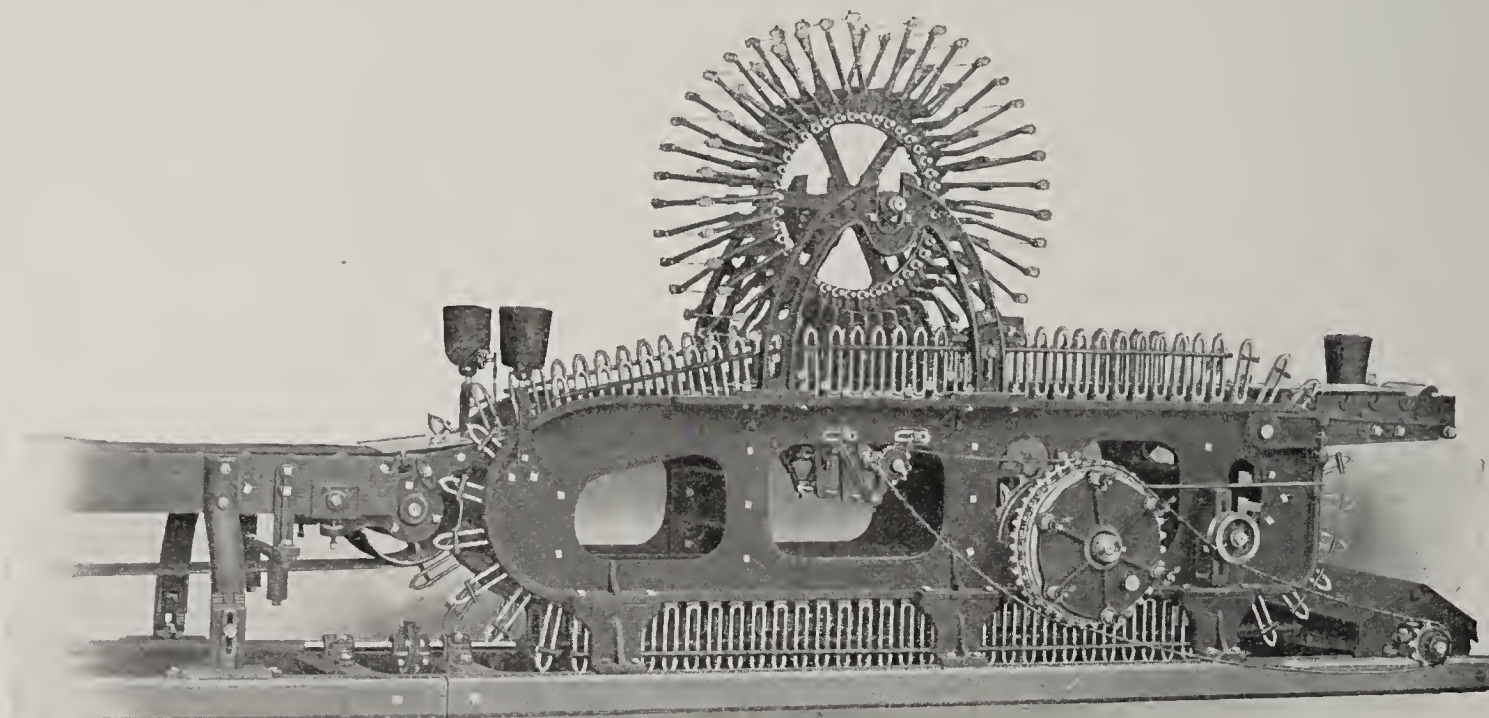
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

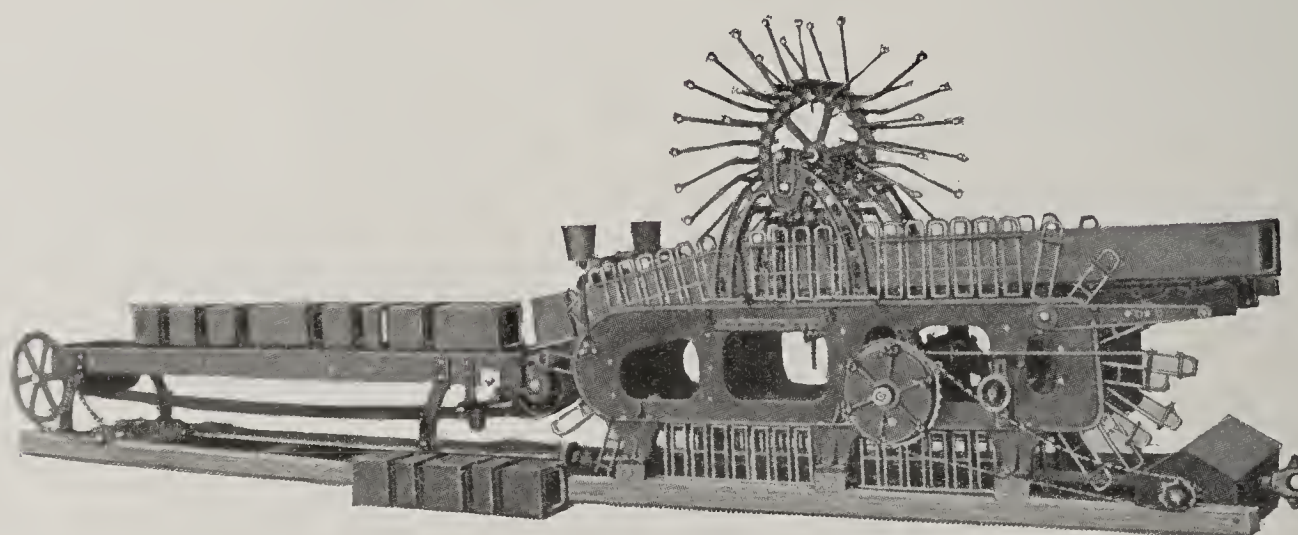
See ads on pages 238 and 239.



Bensing's Automatic Side-Cut Brick Table for Hollow Blocks.



Bensing's Automatic Side-Cut Brick Table.

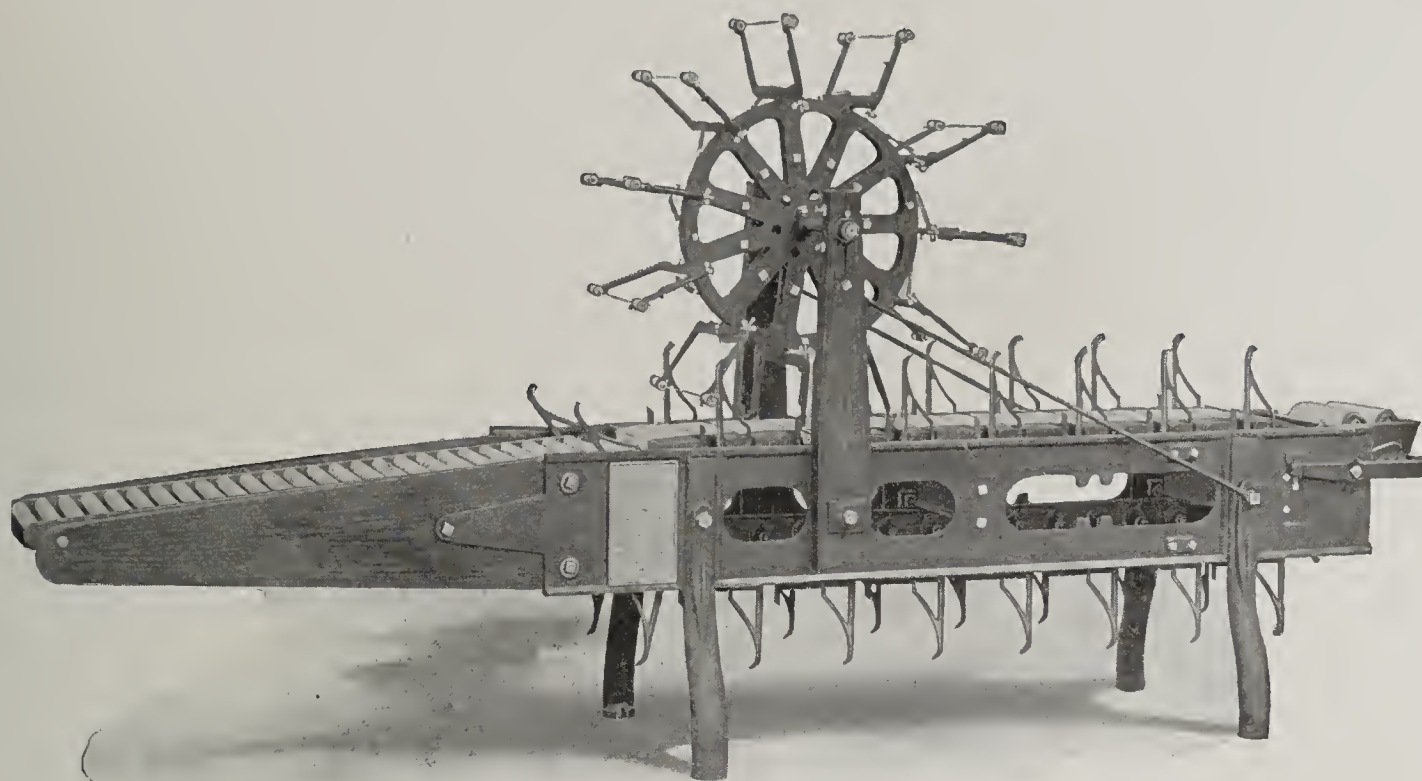


Bensing's Automatic Side-Cut Brick Table for Face Blocks.

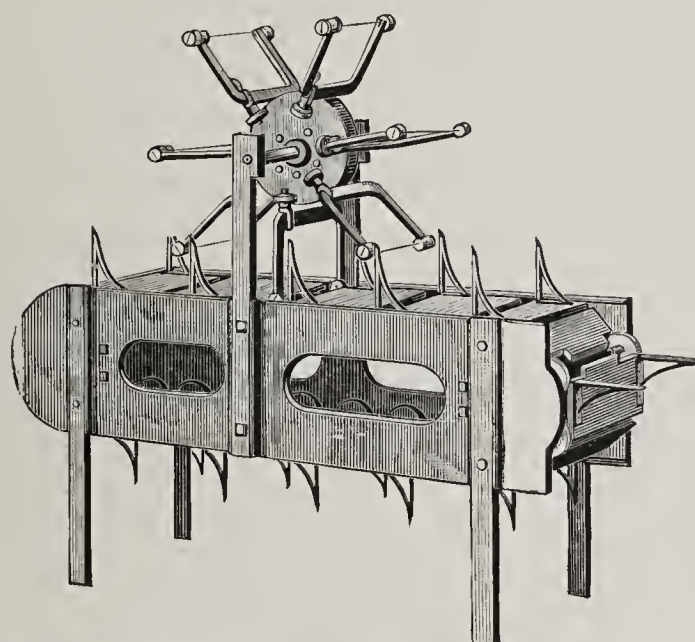
The J. D. Fate Co., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

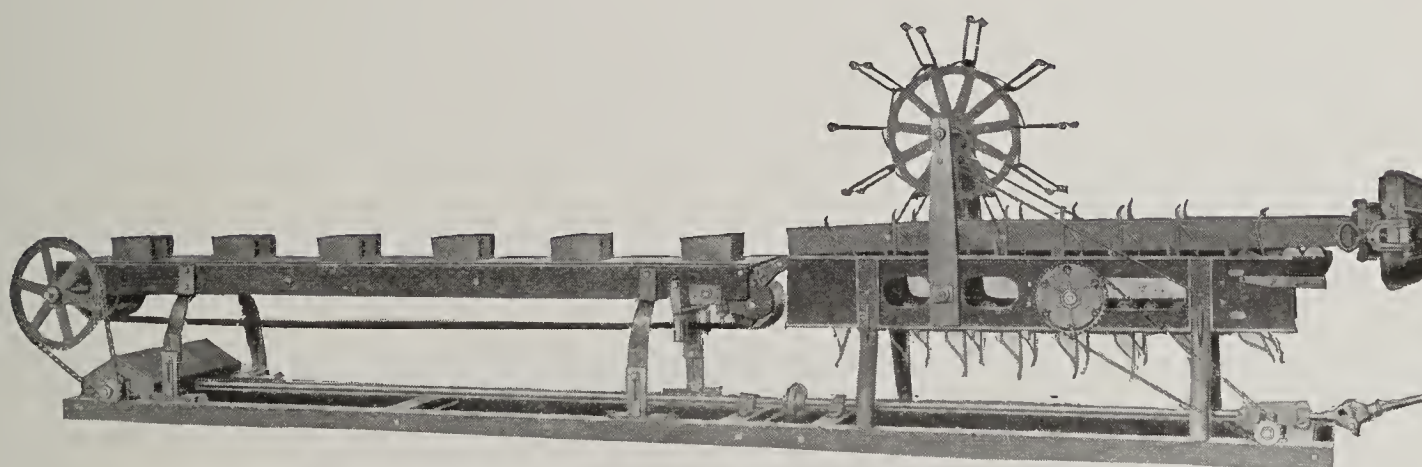
Mention THE CLAY-WORKER.



Bensing's Automatic End-Cut Brick Table with Roller Delivery.



Bensing's First Automatic End-Cut Brick Table.



Bensing's Automatic End-Cut Brick Table, with Belt Delivery.

The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

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FOR SALE, WANTED, ETC.

WANTED—Position as superintendent or burner or two burners. Can furnish best of references; 25 years' experience with all kilns and clays. Address L. D. R., 1 2 d Care Clay-Worker.

WANTED.

A foreman for brick and drain tile plant in Illinois. State qualifications and salary desired. Address BOX 1, D. H., 1 1 d Care Clay-Worker.

BRICK AND TILE PLANTS FOR SALE BY FRANK P. CLEVELAND.

Brick and tile plant and 36½ acres of land, located at a good shipping point in Ford County, Ill. Price, \$16,500.
Drain tile plant and 21 acres of land, in Wells County, Ind. Profits average \$3,500 net per year. This is a well-equipped plant. Price, \$10,000.
Vitrified brick and tile plant in Tulsa County, Okla.; capacity, 75,000 bricks per day; kiln room for two million bricks. Price, \$45,000.
Full description of above plants furnished on application.
I bring buyer and seller together. If you want to buy, sell or exchange any kind of business or property anywhere, at any price, address
FRANK P. CLEVELAND,
965 Adams Express Bldg.,
1 1 d Chicago, Ill.

FOR SALE—Brick plant, with a capacity of 40,000 per day. Located on two railroads, with 15 acres of ground. Ill health of the owner the reason for selling. Address BOX 12, W. M. F., 12 2 d Care of Clay-Worker.

FOR SALE.

Antigo Clay Company offers its plant for sale; 10 acres of clay for making brick; located in city of Antigo. Good machinery, good market; steam power. Good reason for selling. A bargain if sold soon. M. M. ROSS, 1205 Seventh Avenue, Antigo, Wis.

FOR SALE AT A BARGAIN.

One No. 1 Monarch brick machine.
One Potts disintegrator.
One Potts mold sander.
One 40 h.p. tubular steel boiler.
One 35 h.p. Richards engine.
SIMON & KESSLER,
1 1 d Sawyer, Wis.

WANTED.

Position by a practical clay man as superintendent or head burner of paving, face or common brick plant. Thoroughly understand every detail from clay bank to loading finished product. Can construct and remodel plant. Will run a plant successfully. All references. Address BOX 1, EDWARD, 1 1 c Care Clay-Worker.

IT'S A BARGAIN.

First-class stiff mud brickyard. No local competition. Demand for all brick it will make. A money maker. Town 5,000 population. Trade or sell. Fifty cents on the dollar for cash if taken soon.
GRIGGS-HOLLAND REALTY CO.,
12-1-cm Marion, Ill.

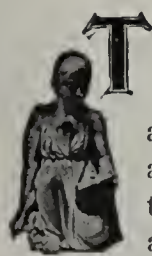
FOR SALE OR EXCHANGE—One eight-foot American Clayworking Machinery Company's wet pan, in perfect working condition; good as new; used only about one month for experimental purposes. Will sell cheap, or exchange for a not less than 50-kilowatt electric light plant.
IRONTON IRON COMPANY,
1 1 d Ironton, Ohio.

FACING AND PAVING BRICK PLANTS

Desiring an active representative in Chicago and vicinity, address WISCONSIN LIME AND CEMENT COMPANY, Chicago's Largest Supply House, Chamber of Commerce Bldg., Chicago.
1 1 d
(Continued on pages 174-176.)

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



THE YEAR JUST closed has been one to cause considerable uneasiness on the part of such brick manufacturers as tried to look into the future and see what was coming to them a little further along. It developed into a year which made cautious men more cautious, and in which little encouragement was offered to contractors who made it their business to build houses and then sell them, as the men who had money to loan on such security were hard to find. In spite of this fact there has been a slight increase shown in the total value of buildings for which permits were taken out, as compared with the permits issued in 1909. The increase was only \$414,458, however, while the increase over 1908 was \$3,176,155. A good many people in the brick business have expressed surprise that so good a showing was made, as they had been figuring that a great deal less building was done than during the previous year.

There is a pretty fair demand for brick at the present time, so the yards report which are in operation, and this will probably continue right through the winter, with occasional shut-downs on account of severe weather. The Diamond plant of the Kansas City Hydraulic Pressed Brick Company is the only plant here to run on regular time, without any shut-downs, but others have made short runs from time to time, but are handicapped by the fact that they must depend upon gas as a fuel, and gas is a pretty scarce article at this season of the year except in the mildest of weather.

Quite a large percentage of the Kansas and Oklahoma plants are closed down, most of them on account of lack of water with which to make steam, as the recent rain was no help to the creeks and ponds, as the ground absorbed the rain as it fell. The plants which are in operation are thus able to find a better market than would otherwise be the case, and they are making money. A large percentage of the brick is going to Southern markets, where building operations are in full swing in the winter. Plants turning out a good paving brick are reported to have already booked orders as far ahead as they care to book them, and could take on more business almost any day they chose to accept the orders.

According to the plans of those who have large projects under way or are about ready to launch them here, there will be something like \$27,000,000 spent here in 1911 on these larger jobs, to say nothing of the regular run of small jobs which are in sight. This expenditure on the big jobs should greatly stimulate the building of smaller jobs, so the coming year should show a good increase in the amount of the smaller work. From present indications this will be a strong market for all kinds of building material, and for all kinds of workmen, and there is every reason to expect all local brick plants to run steadily as soon as those depending upon gas will be able to get hold of a sufficient supply.

The Pittsburg Brick Company has fortified itself against any shortage of shale for a considerable time to come by buying a tract of eighty acres lying to the north of their plant in Pittsburg, Kas., covered with the same kind of shale they have been using in the past.

The Fort Scott Brick and Tile Company has been incorporated with a capital of \$200,000, and succeeds to the business of the Fort Scott Brick Company, in Fort Scott, Kas., which was recently sold by the bankruptcy court. W. K. Calhoun is the president of the new company and W. C. Gunn is treasurer, and they state that they will soon add the

The Buffalo Brick Company, of Buffalo, Kas., is building several new kilns, thus enlarging the output, and this enlargement means something to this company, for it has managed during the past year to keep well sold ahead, and the necessary machinery for the making of tile as well as brick. plant has been running regularly all the time. A pretty good record for a Kansas plant.

The Eadie Building Supply Company reports that it has

just closed the biggest year it ever had, but expects the coming year to show a marked improvement over the past. Their total deliveries in the last year are said to be over 24,000,000 brick.

Frank C. Nicholson, of the Altoona Vitrified Brick Company, was a recent visitor to Kansas City, and stated that the plant would be in operation again the latter part of January. They had no trouble cleaning out the kilns early in the winter, and as the work had progressed rapidly on the new kilns being built, it was decided to start the plant much earlier than they had supposed possible when the shut-down was made.

K. A. W.

DANGERS OF CONCRETE

As a Building Material Found to Be Serious by the Committee Which Investigated the Recent Collapse in Cleveland.

Astonishing methods used in the construction of large concrete buildings in American cities are revealed in a report compiled during the past month by a commission of architects, engineers and building contractors to investigate the collapse of a four-story concrete building at Cleveland, Ohio, where four persons were killed outright and eight were seriously injured.

The committee investigated the accident very thoroughly and discovered that the workmen employed on the building were of the most ignorant type of foreign laborers; that the reinforcing used in the concrete was broken, carelessly placed and of little value as an element of strength; that 20 per cent. less cement was delivered on the job than such a building required; that the sand used in the concrete mixture was composed largely of loam, extremely detrimental to the strength of concrete, and that forms were removed too soon and without the consent of the architect.

The report, in part, is as follows:

"It is the belief of your commission, based upon the evidence submitted and investigation of ruins, that the contractor was negligent in the following particulars:

"1. The foremen employed on the building were ignorant of the requirements of the drawings and specifications; were ignorant of the proper methods of handling concrete for reinforced concrete work; did not know what kind of cement was being used; did not exercise proper care in the measurement and mixing of concrete aggregate and the placing of reinforcing steel; allowed brickwork and erection of forms to proceed upon green concrete, and conducted the work generally in a loose, slipshod and hurried manner.

"2. The reinforcing steel was carelessly placed in ribs, girders and columns, and no provision was made to insure steel being in its proper position after concrete had been poured.

"3. The structural members of concrete were not of proper sizes, concrete was of poor quality and not properly placed.

"4. The sand used was, in many cases, of inferior quality, contained loam and clay and did not meet the specification requirements for washed sand.

"5. The cement delivered at the building was apparently 20 per cent. less in amount than the amount necessary to properly construct the work in accordance with the specifications.

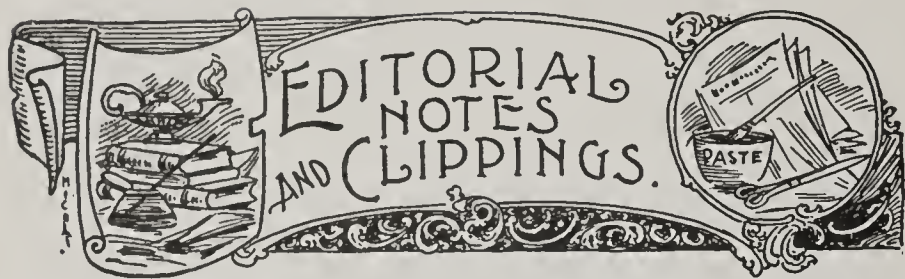
"6. The forms were usually removed without the consent of the architects in violation of the specification requirements.

"In the east side of the third story forms supporting the fourth floor were removed in sixteen days after the pouring of concrete and the floor reshored. The removal of these forms in this short time was, considering the weather conditions during the month of November, extremely dangerous. This time would hardly have been sufficient under favorable weather conditions.

"These forms were removed without the consent of and contrary to the instructions of the architects.

"It is the opinion of your commission that the removal or changing of these forms and shores was the one primary cause of the collapse.

"In the opinion of your commission the owner was negligent in that he did not employ a special reinforced concrete inspector on the building as advised by the architects."



C. W. Groves has purchased the plant of the Central Brick Company at Macon, Ga.

T. L. Rosser, of Dozier, Ala., contemplates the establishment of a brick plant at Shady Grove, Ala.

The Sibley Brick Company, of Sibley, Mich., has changed its name to the Church Brick Company.

C. R. Ball is at the head of a company being organized to manufacture drain tile at Plainview, Texas.

A. L. Gorley, Linwood P. O., N. C., contemplates the establishment of a plant at Southmont, N. C., for the manufacture of brick, tile, etc.

The Sheldon Brick Company, Sheldon, Ill., has certified to a change of name and will hereafter be known as the Sheldon Brick and Building Supply Company.

The Western Brick Company, Danville, Ill., started the new year well by granting their employes a 6 per cent. increase in wages, same to take effect April 1, 1911.

S. Dickenson and other stockholders of the Columbus Brick Company, Columbus, Neb., have sold their stock to J. L. Nichols, who will carry on the business in his own name.

The Alvin Brick Company's plant at Alvin, Texas, which has been in the hands of a receiver for the past year, has been sold to Messrs. Kimbrough and Dodson, of Dallas, Texas.

The Memphis Pressed Brick Company has been incorporated at Memphis, Tenn., with \$50,000 capital stock. The incorporators are J. S. Cobb, J. W. Massey and J. W. Greenwood.

The plant of the Marion (Ala.) Brick Company was totally destroyed by fire early in the morning of December 27. The loss is partly covered by insurance, and the plant will, in all probability, be rebuilt.

The Whiteacre Fireproofing Company, of Waynesburg, Ohio, has taken over the business of the Pittsburg-Malvern Clay Company, operating a twelve-kiln plant at Strassburg, Ohio, manufacturing paving brick.

George W. Kennedy has sold his interests in the Manitowoc Clay Products Company, at Manitowoc, Wis., to E. Clark and Elmer Leach, of Oshkosh, Wis. The new owners will move to Manitowoc and take personal charge of the plant.

John Dee Smith, of Timber Lake, S. D., has been experimenting with a deposit of clay on his farm with very satisfactory results, and will erect a plant for the manufacture of brick. There is a good market in that immediate vicinity for all the brick he can make.

F. G. Moore, treasurer and general manager of the Mathews Gravity Carrier Company, St. Paul, Minn., manufacturers of gravity freight carriers, conveyors and automatic elevators, writes that 1910 business was very satisfactory and the outlook for 1911 is better than ever before. In fact, they anticipate doubling their output the coming year.

The Fort Scott Brick and Tile Company is the new name for the company, formerly known as the Fort Scott Brick Company. The officers of the new company are: President, W. K. Calhoun; vice-president, Rice Gunn; treasurer, W. C. Gunn, and secretary, W. J. Gunn. They will manufacture drain tile as well as brick and expect to have the plant running full force in a short time.

S. L. Scholl, a pioneer brick manufacturer of Lansdale, Pa., died from pneumonia January 5. He was sixty-eight years old and had been engaged in the brick business nearly all his life, having been taken into business with his father when a very young man, and later on took his two sons into

business with him, who will continue the business. Besides these two sons, a wife and two daughters survive.

The American Sewer Pipe Works Company will erect a plant at Brazil, Ind., which they estimate will cost in the neighborhood of \$100,000.

The Standard Sewer Pipe Company, Rome, Ga., of which D. Hamilton, Jr., is president, will open bids for the erection of a substantial addition to their factory.

The brickyard of T. W. Spinks, at Latonia, near Covington, Ky., was damaged to the extent of \$1,000 by fire which started in the kiln sheds from a defective gas main. The loss is covered by insurance.

Samuel Huggins, of Hartford City, Ind., a pioneer brick manufacturer of that section, died at his home near that city last month at the advanced age of seventy-eight. He is survived by his wife and ten children.

The Amalgamated Brick and Tile Company, of New York City, has been incorporated with a capital of \$1,500,000. The incorporators are Edward N. Hill, Walter L. Goghan and M. E. Nauk, all of New York. The office of the company is at 800 Broad street.

D. C. Haeger, of Aurora, Ill., and D. A. Haeger, of Dundee, Ill., have formed a new corporation known as the Illinois Shale Tile Company and will erect a factory at Coal City, Ill., for the manufacture of drain tile and brick. They expect to have the factory in operation by the first of June.

The Table Rock (Neb.) Clay Company at its annual meeting elected the following board of directors: E. B. Bracken, William Sutton, C. H. Barnard, C. R. Smith and George T. Cotton, who in turn elected the following officers: E. P. Bracken, president; George F. Cotton, secretary, and J. D. Miller, treasurer.

LeRoy W. Gaddis, Charles F. Harrison, M. R. Thornton, H. Miller and Barton Griffith have incorporated the Gaddis-Harrison Brick Company, of Columbus, Ohio, with a capital stock of \$25,000. The company will manufacture and sell brick. Mr. Gaddis is well known in Columbus building circles, as he has had a selling agency for several well-known brick plants for some time, his office being located in the Brunson building.

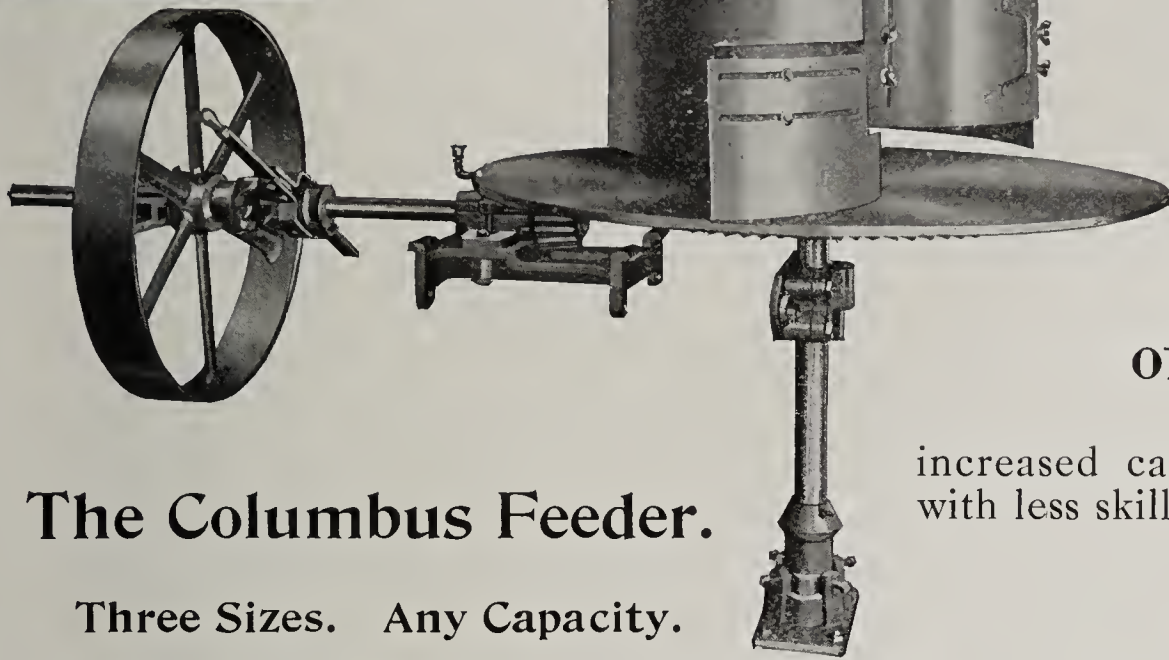
The plant of the Northwestern Terra Cotta Works, Chicago, Ill., was burned to the ground January 12. The fire started in the elevator shaft and a brisk wind from the lake fanned the fire into a roaring furnace and scattered sparks in all directions. The loss on the building is estimated at \$150,000 and on the contents at \$300,000, which is only partly covered by insurance. The plant will be rebuilt as quickly as possible.

John H. Gray, treasurer of the Illinois Brick Company, died suddenly at his home, 4733 Michigan avenue, Chicago, December 16, from a complication of diseases. He had been in ill health for some time, but had not been confined to his bed. Mr. Gray went to Chicago in 1887 and has been identified with the brick company since its organization. He was a member of the Illinois Athletic and Builders' clubs and of the National Brick Manufacturers' Association.

A preliminary report of the operations of the Illinois Brick Company, Chicago, Ill., for the year 1910, submitted by President William Schlake to the board of directors, shows net profits of \$595,000, which is equivalent to nearly 13 per cent. on the \$4,600,000 capital stock. After paying \$345,000 in dividends, the company carried \$250,000 to the surplus account. The dividends totaled 7½ per cent. for the year, the first quarterly disbursement having been at the rate of 1½ per cent. and the other three at 2 per cent. each.

W. R. Barnhart, Jr., of Wooster, Ohio, has struck a gas well on each side of his brick plant and is now burning, drying and running his entire plant with natural gas. The wells are both about 3,200 feet deep and good producers. Mr. Barnhart has now formed the Barnhart Oil and Gas Company, and has a pipe-line system leased into the town of Wooster, and expects to supply gas for that town. He has also taken out a charter for the brickworks under the name of the Wooster

(Continued on page 168.)



The Columbus Feeder.

Three Sizes. Any Capacity.

AUTOMATIC FEEDING

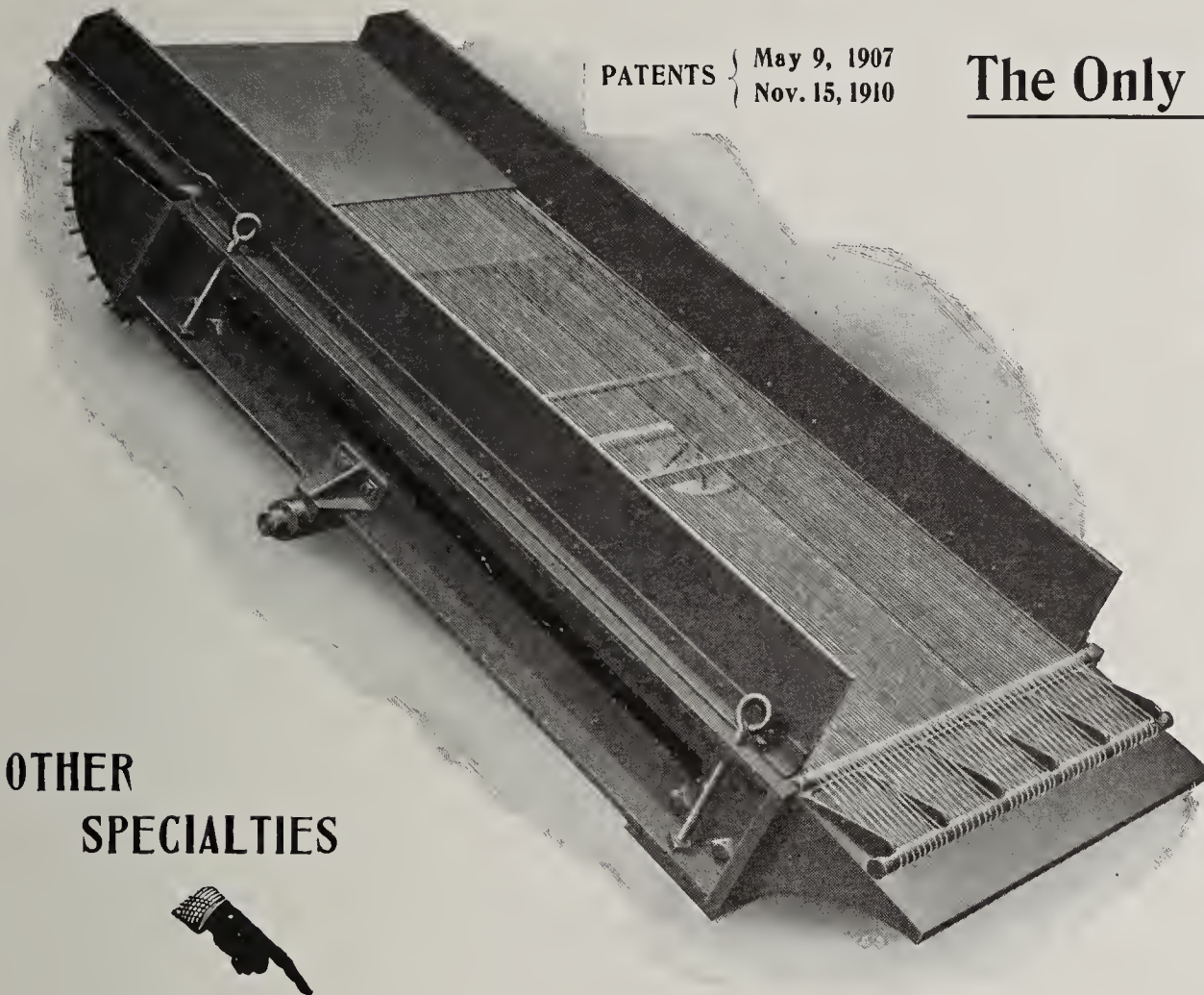
of Pulverizers

means increased capacity,
less strain upon machinery
and less labor

of Pug Mills

increased capacity and better product,
with less skill and attention.

Send for Catalog.



PATENTS { May 9, 1907
Nov. 15, 1910

The Only Piano Wire Screen

The wires of which
are prevented from
spreading apart.

Also Other Superior
Patented Features.

Any Capacity
Sent on Trial.

Ask for Catalog.

OTHER SPECIALTIES

Draft Gages,
Thermometers,
Pyrometers—
Recording or indicating.

Elevators,
Conveyors,
Pulleys,
Belting,

Wire—
For all purposes.
Furnace Doors,
Kiln Bands & Castings,
Repairs.

Write for Prices.

The Ceramic Supply and Construction Co.
Contracting Engineers and Machinists. COLUMBUS, OHIO

EDITORIAL NOTES AND CLIPPINGS—Continued.

Shale Brick Works, and will greatly increase the capacity of the plant.

Jacob W. Wagner, general manager of the United Clay Company, Brooklyn, N. Y., died at his home in that city of pneumonia December 27.

The Milldale (Conn.) Brick Company are well pleased over an order booked recently calling for 5,000,000 brick for the Connecticut Reformatory.

A. C. Free, a brick manufacturer of Okmulgee, Okla., died suddenly of heart failure January 5. The remains were taken to West Virginia for burial.

Owing to the increased demand for their product, the Harlingen Brick Works will double their present capacity and have work now under way for same.

J. A. Long, of Portland, Ind., has purchased the plant of the Hibbard Drain Tile Company, at Hibbard, Ind. The plant was formerly owned by O. E. Dietrich & Bro.

The Richwood Clay Company, of Richwood, Ohio, has been incorporated with capital stock of \$100,000. The incorporators are J. A. Shipler, C. M., J. B. and M. L. McAlister.

The Phoenix Brick Company, of New Britain, Conn., which has been in charge of Virgil M. Palmer as receiver for several months, has been purchased by W. J. Jordan, of New Haven, Conn.

At the annual meeting of the stockholders of the Queen City Brick and Tile Company, Cumberland, Md., the following officers were elected: President, W. C. White; treasurer, F. A. Blaul, and secretary, C. C. Hetzel.

David H. Valentine, long prominent in the business life of Brooklyn, N. Y., died at his home in that city December 21 from pneumonia. He was a director in many financial and other institutions and was a member of the firm of the Brooklyn Fire Brick Company.

The National China Company, East Liverpool, Ohio, six kilns capacity, has sold its plant to the Parker Pottery Company, a concern operating an adjoining property, which increases the capacity of the Parker Company to thirteen kilns. The National China Company will do business hereafter at its Salineville, Ohio, plant.

A stock company is being organized in Sharon, Pa., with a capital of \$100,000 to take over the J. V. Rose fire brick plant, in Brookfield township, Ohio. Vitrified shale paving block will be manufactured. The plant has not been in operation for more than a year. F. R. Kanengeiser, of Youngstown, Ohio, who until recently was general superintendent of the Bessemer Limestone Company, is interested in the deal. A large amount of new machinery will be installed.

Half the Alton Paving and Fire Brick Company's plant, at Alton, Ill., was destroyed by a fire that started at noon and was not controlled for two hours. The loss is about \$35,000, and Harry Meyers, superintendent of the plant, says the insurance was small. Eben Rodgers, general superintendent of the company, says the plant will be rebuilt at once. The plant employed 200 men and made all the brick used for paving in Alton and shipped large quantities to other cities.

The annual meeting of the Red River Valley Brick Corporation, Grand Forks, N. D., was held January 12. The reports showed that the company had experienced a very profitable year in 1910, and that they would have 7,000,000 brick ready for sale in the spring, so there will be no repetition of the shortage such as they had last spring. The following officers were elected: President, A. I. Hunter; vice-president and treasurer, James A. Dinnie; general manager and secretary, Louis Campbell.

Alfred Mitchell has filed a suit against the Excelsior Brick Company, of Denver, Colo., asking \$10,000 damages as compensation for permanent injuries received when his foot was caught in a machine at the company's plant, June 7, 1910. He alleges negligence on the part of the company in not providing proper protection to the worker who was feeding the machine in the shape of a railing about the platform on which the

worker stood. He also alleges that he was not warned of the dangerous nature of the work.

The Lambertville Pottery Company has been chartered at Lambertville, N. J., by G. E. Pauck, A. Volts and others, with \$50,000 capital stock.

The Western Clay Company, Ltd., is the name of a new concern that has been organized at Edmonton, Alberta, Can. They will erect a plant of 40,000 daily capacity.

The Waverly Brick and Coal Company, of Waverly, Mo., has been incorporated with \$300,000 capital. C. C. Christie, Wm. Huttig and J. H. Berkshire are interested.

The Lone Star Kaolin Company, of San Antonio, Texas, has been incorporated by J. E. Webb, C. A. Goeth and others. They will manufacture a general line of clay products.

The Gadsden (Ala.) Brick Company report a very successful year for 1910, having turned out over 6,000,000 brick, all of which were used locally. The outlook for the coming year is still more promising.

The barn of S. B. Densmore, brick manufacturer, at Portland, Me., and used by him for the teams used on the brickyard, was burned to the ground recently. Fortunately the fire occurred in the afternoon when the barn was empty.

The Salina Vitrified Brick Company directors held a meeting January 3, elected officers for the year and declared the annual dividend. The officers re-elected are as follows: Dr. J. W. Neptune, president; R. Turner, vice-president; F. C. Hadden, secretary; F. W. Ekstrand, treasurer.

According to the local papers the State of New York has in contemplation the construction of many miles of country roads of vitrified brick. Division Engineer of the State Highway Department Paul McLoud is heartily in favor of vitrified brick in place of macadam, which has been used pretty generally throughout the State.

Ground has been broken for a new brick plant of the Garrison Pressed Brick Company, at Garrison, Texas. At the start the company will manufacture a high grade of pressed brick, but later on will put in an equipment for the manufacture of tile, etc. The plant will probably be ready for operation in sixty days.

The plant of the Sumter Brick Works, at Sumter, S. C., was almost entirely destroyed by fire December 22. The fire occurred about 7:30 while the workmen were trying to thaw out the various water pipes, which were frozen up. The main plant, which contained a lot of latest improved machinery, was destroyed, as were a good many kiln sheds and other accessories. A \$2,500 machine had been installed a few weeks ago, and had not yet been insured, and this is a loss. There was very little insurance on the plant because of the high rate. The loss is estimated at \$20,000.

The Southern Indiana Brick Company has been organized at Linton, Ind., with the following officers: E. R. Cravens, president; Charles Beck, first vice-president; Wm. C. McBride, second vice-president; J. W. Maddow, treasurer, and Jasper Thompson, secretary. The company is organized for the purpose of manufacturing paving, building and fire brick and has a 25-foot deposit of fire clay and a 44-acre hill of shale, which has been thoroughly tested. The company is capitalized at \$80,000.

Thomas B. Anderson, general manager of the Edwin M. Knowles China Company, of Chester, Ohio, has been appointed general manager of the Knowles, Taylor & Knowles Pottery, in East Liverpool, Ohio, to succeed William Cook, resigned, the change becoming effective January 1, 1911. Mr. Anderson will divide his attention between the K., T. & K. plant and the Edwin M. Knowles pottery. He is one of the most experienced pottery operators in the county, and has been connected with the industry for years, and has been associated with the Edwin M. Knowles China Company at Chester as manager for some time.

The Minneapolis (Minn.) Brick and Tile Company has completed the repairs at its plant, which was burned last August, making it thoroughly fireproof and the most up-to-date and best-equipped plant in the Northwest. They were the pioneers in that field in working out the problem of drying tile in a rack pipe dryer and conveying them from machine to kiln on gravity rolls and cable conveyor. The plant is equipped with Brewer machinery, New York Blower Com-

(Continued on page 173.)

Our CUTTING TABLES are RIGHT

Hundreds of Successful Clayworkers are Using Them

HERE ARE A FEW FACTS WORTH THINKING OVER

No. 35 MARION AUTOMATIC TILE CUTTER

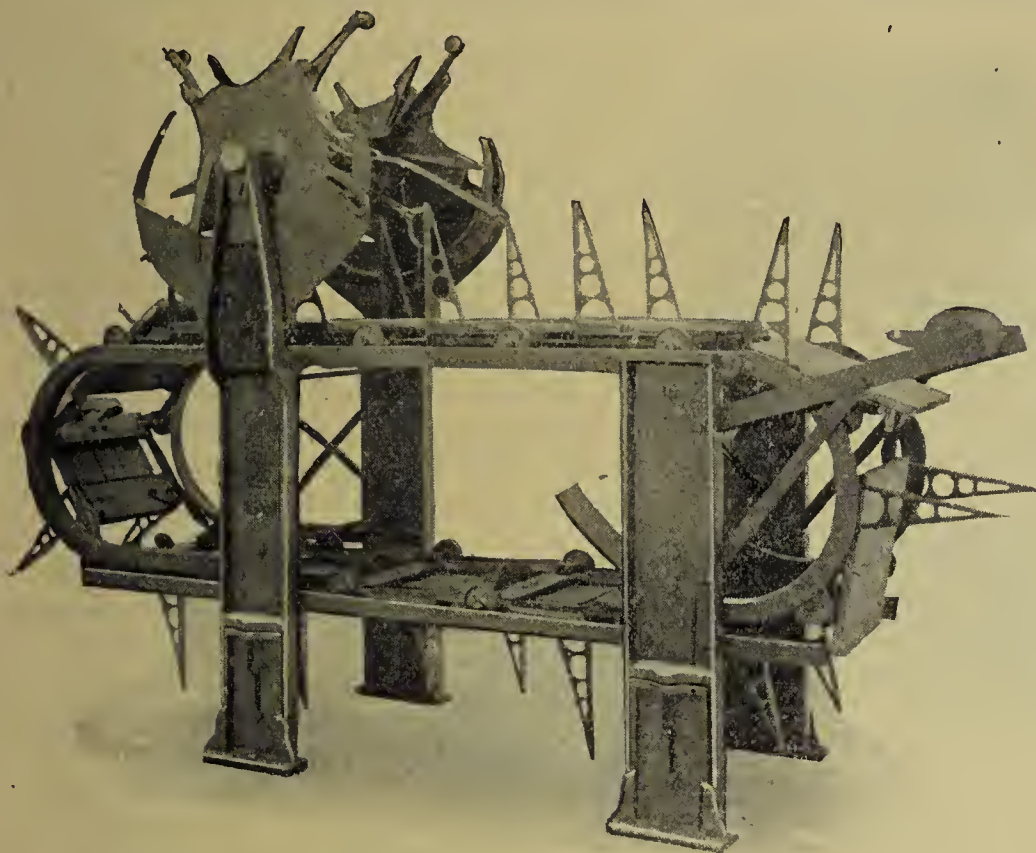
This machine is a triumph in the art of tile cutting. A great deal of clay and power has been wasted in the past on account of the necessity of cutting off stub ends if a good article was desired. This machine cuts off no stub, the whole bar being continuously cut into the desired lengths. It also makes it possible to get the complete capacity of your tile machine when making small tile. The machine cuts blocks as well as tile, and cuts them absolutely square. Its range in tile is from 2½ inches to 7 inches (inclusive) in diameter.

Capacity, 2,000 3-in. tile per hour.

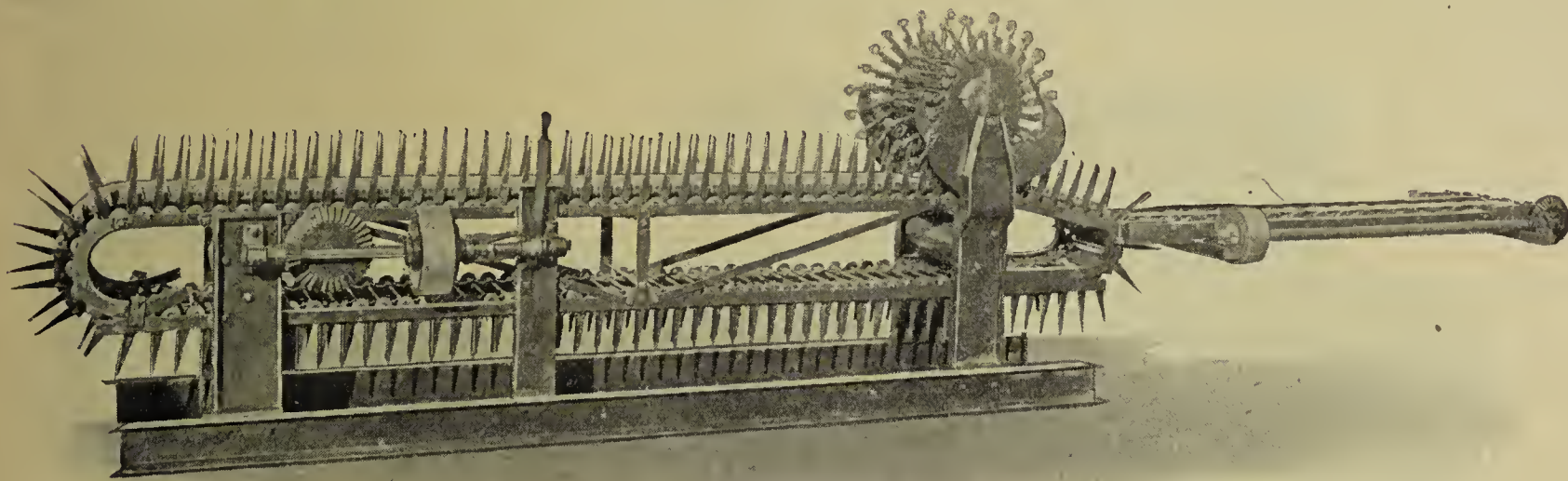
Weight, 900 lbs.

Wire carrying frames are adjustable, and the broken wires can be easily replaced while machine is in operation.

Working parts of machine work on roller bearings.



No. 35 Marion Automatic Tile Cutter



Above is a cut of our **NO. 25 MARION AUTOMATIC SIDE CUTTER**, which is, without doubt, the simplest automatic side brick cutter on the market. Note the simple friction device. any degree of friction can be had by simply moving the lever back and forth. Note the strong angle steel frame, which keeps the weight of the machine down so that it can be easily handled. Note the wire holding the device which is built on the piano principle, allowing the wire to be stretched to high tension without danger of breaking.

The machine can be directly connected, or can be fitted as per cut to run from a pulley. Capacity can be adjusted to conform to the output of your brick machine.

Note that the wire carrying frames being adjustable, the broken wires can be replaced without stopping the machine. This is a very important feature, and the feature alone places this cutter far in the lead.

Another important feature is that the length of cut on this machine can be changed to suit requirements.

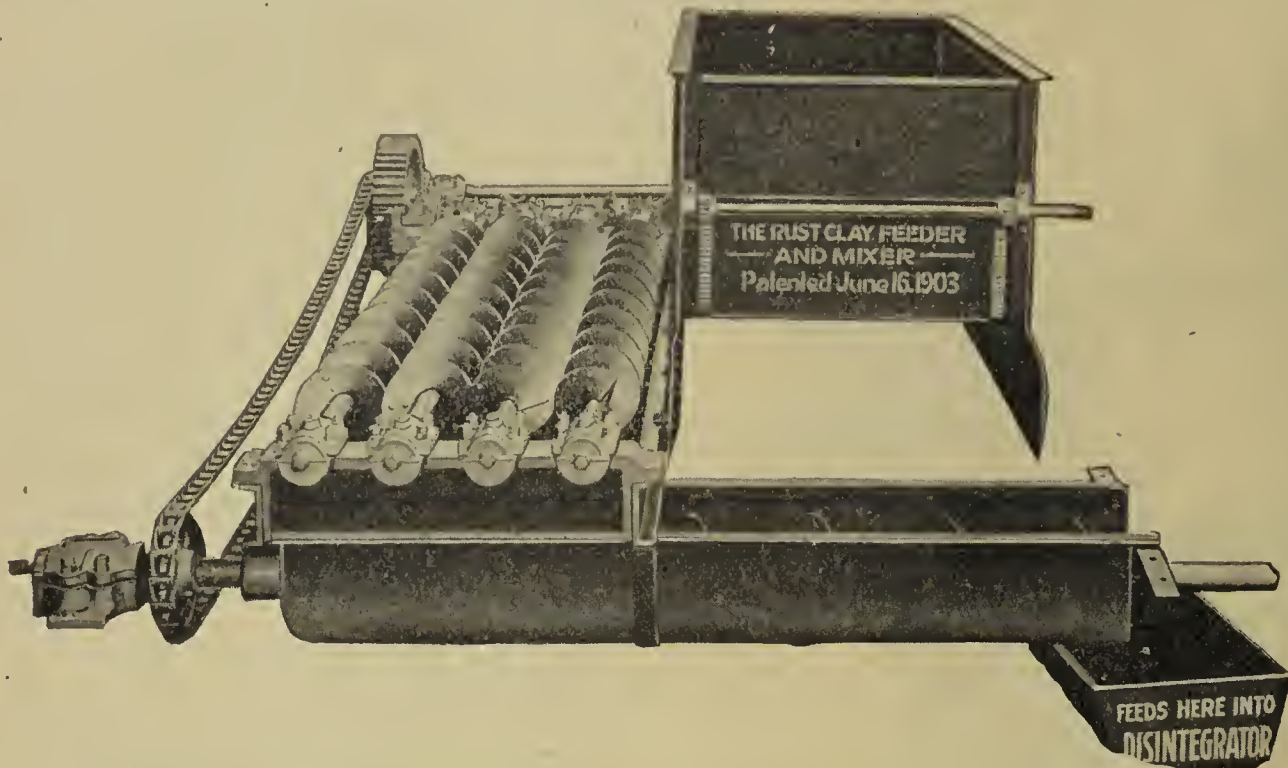
Marion Machine, Foundry and Supply Co.

All Canadian Orders will be shipped from Our Canadian Branch

P. O. Box 156, Marion, Indiana

You Are Losing Money

If You Are Without Our Clay Feeder



Type A, Extra Heavy Right and Left Side Delivery Rust Clay Feeder, Box Removed

THE REASONS WHY

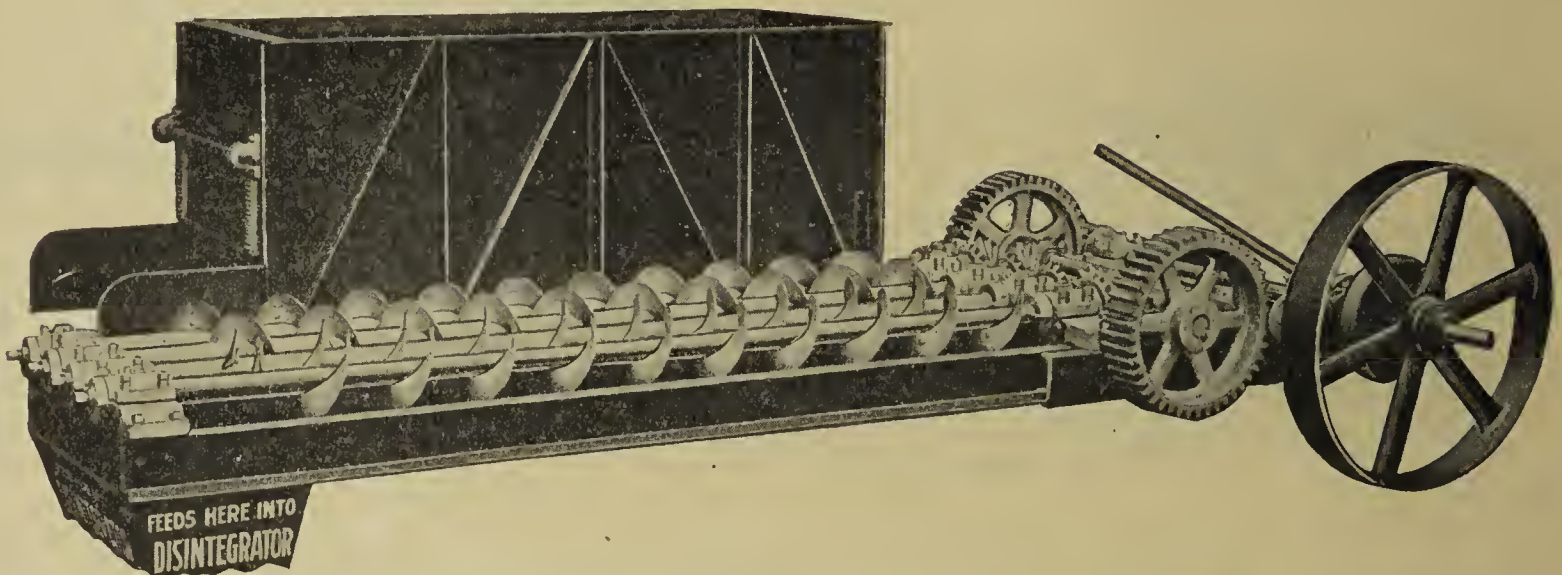
The principal reason is because it will save you the labor of one to two men, and pay for itself the first year from the wages thus earned.

That is enough reason. But there are others.

The quality of the work is another reason. It mixes the clay perfectly and tempers it for further use to which it is put.

The feed is so regular that it does not vary ten bricks per hour, and the machine has a capacity of from 10,000 to 100,000 bricks per day, the quantity being regulated at will by raising or lowering the end feed gate, or

by increasing or lessening the speed of the pulley. It requires only 2 H. P. to operate a full load, and this power is more than saved because of the steady and even feed.



Extra Heavy Right and Left Type A, Rust Clay Feeder and Mixer, Box Removed

The Rust Clay Feeder has been brought out in response to the demand for a better method of mixing and feeding clay in brick and tile factories and all clay-working plants. It has been in successful operation for seven years. The saving in labor, increase of production and improvement in product which it effects, makes it a necessity to the up-to-date clay-worker.

WRITE FOR OUR LATEST CATALOGUE

Marion Machine, Foundry and Supply Co.

P. O. Box 156, MARION, INDIANA

All Canadian Orders will be shipped from our Canadian Branch

Mention the fact that you saw this advertisement in THE CLAY-WORKER.

If You Are Without Our Clay Feeder

You Are Losing Money

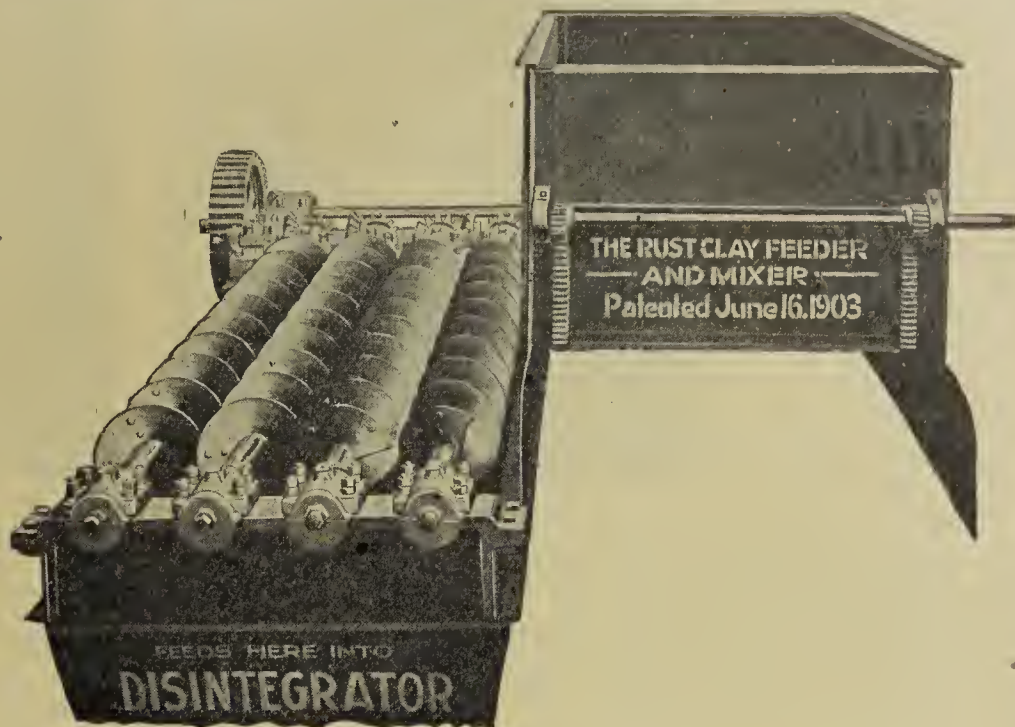
Operation and Construction

The operation of the machine is automatic. The construction of the hopper is such that the clay does not clog up, and feeds down on the spirals by its own weight. The machine requires no attention after the feed to the disintegrator has once been regulated. The spirals are nine inches in diameter. The diameter of the main driving pulley is forty inches. R. P. M. 70. The body is constructed of 6-inch channel irons, and the hopper of heavy sheet iron, reinforced with angle iron at top. The spirals are made in one solid piece, and rigidly fastened to the shaft by a patented process.

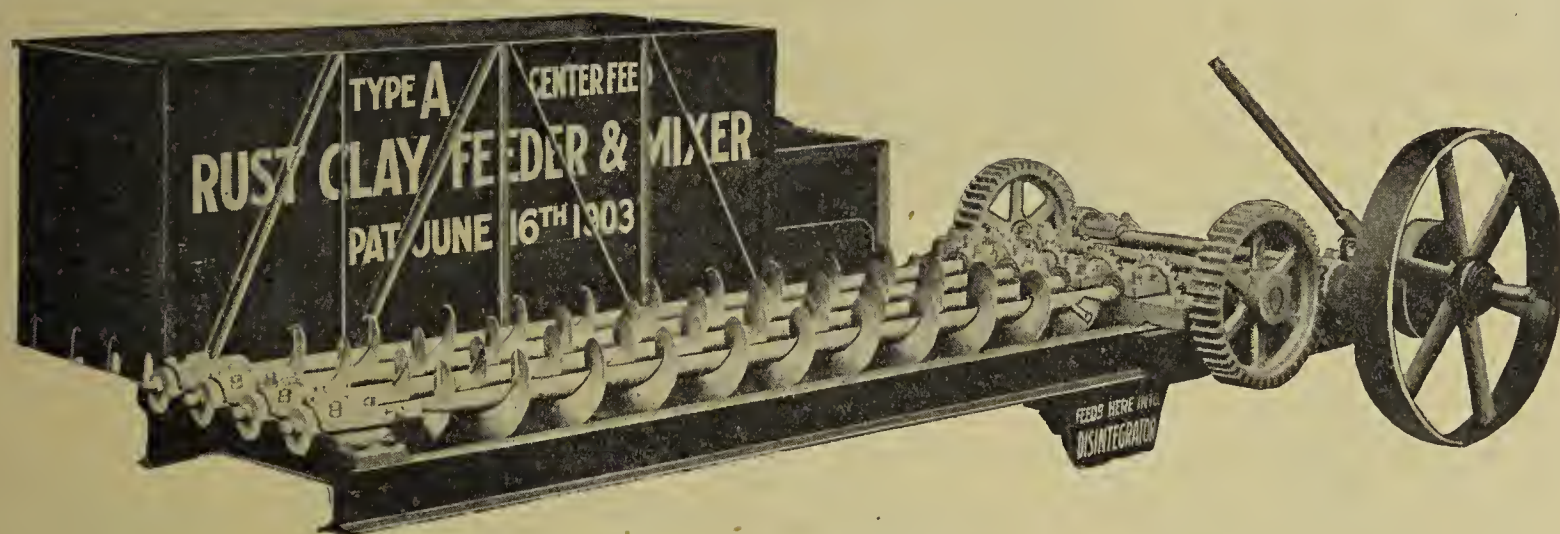
The Rust Clay Feeder dispenses with the men ordinarily used to feed the clay into the disintegrator. This saves the time of from one to two men, who will draw from \$1.50 to \$4.00 per day, according to the local rate and amount of work.

The average saving will be about \$2.25 per day. Counting 250 working days in the year, this means a saving of \$562.50 where one of these machines is used, a return of over 100% on the investment, not bringing into account the great value in tempering clay and the regular feeds on the machinery, thereby saving repair bills and the costly delays.

This machine is constructed to feed directly into the disintegrator, but where it is desired to convey the clay off to one side, we manufacture a cross spiral attachment, which is attached to the end of machine, and is operated by means of pulleys and belt.



Type A, Right and Left Extra Heavy Rust Clay Feeder and Mixer, with Box Removed



Standard Center Feed Rust Clay Feeder and Mixer, Box Removed

Every feeder and mixer has a capacity ranging from 10,000 to 100,000 brick per day of ten hours. The feed is easily regulated at will by either raising or lowering the end feed gate, or by increasing or decreasing the speed of the drive pulley, and after the speed has once been regulated to feed any given amount of clay, it will mix and feed in an even and steady stream, not varying ten bricks an hour.

Each machine is fitted with a friction clutch pulley, and is thoroughly tested before being crated for shipment. By means of a cord attached to the clutch lever on feeder, the machine can be controlled at will, even though the operator be 100 feet or more from the feeder. The feeder is built so strong that you can dump several car loads of clay on top of it, and it will operate automatically, needing no attention whatever.

Marion Machine, Foundry and Supply Co.

P. O. Box 156, MARION, INDIANA

All Canadian Orders will be shipped from our Canadian Branch

Mention the fact that you saw this advertisement in THE CLAY-WORKER.

Don't Blame the Coal-Man

THE OLD WAY



THE MARION WAY



The Coal-man is responsible only for price and quality of the coal you buy. In order to deliver every ounce of heat energy to the boiler, you must *clean the flues*. And cleaning flues does not mean in the old way, the ineffective, dirty way, at the expense of temper, time and labor. It means the right way, the simple, safe and economical way, which is **THE MARION WAY**.

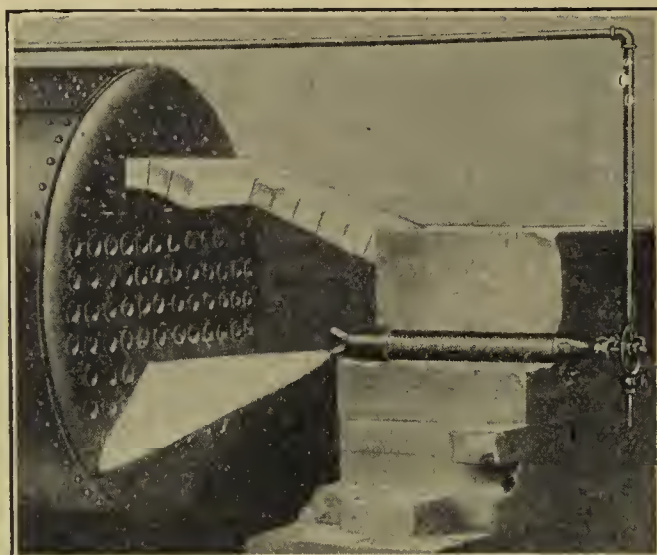
WHAT WE SAY

The **Marion Flue Blower** will remove every particle of soot from your boiler tubes without fuss or labor, and do it at a guaranteed saving of 10%.

You do not have to take anyone's word but your own, because we agree to send it to you on

30 Days' Free Trial

and if it fails to make good, simply send it back and we pay freight charges both ways.



WE HAVE LETTERS OF THIS KIND
BY THE HUNDREDS, AND YOU MAY INVESTIGATE
ANY THAT YOU CARE TO

WHAT USERS SAY

Enclosed find check for blower, and must say that it is giving us every satisfaction, and quite a saving in fuel.
Decatur Packing Co.,
Decatur, Ind.

The Flue Blower I bought of you has given good satisfaction. I think it saves over 10% in fuel.
A. Mericle,
Ft. Jennings, Ohio.

The Marion Flue Blower which we installed is giving very satisfactory results.
Highland Fire Clay Co.,
G. E. Thomas, Supt.,
St. Louis, Mo.

We have used two of the Marion Flue Blowers for six months, and find them to be all that is claimed for them, and find them to be a great saver of fuel.
Nord-Buffum Pearl Button Co.,
Louisiana, Missouri.

The Flue Blower installed on trial is satisfactory. Please ship us four more.
J. I. Case Plow Works,
W. M. LaVenture,
Mgr. Purchasing and Traffic.



This illustration shows the hand wheel control which automatically indicates the operation of the blower at all times.

Our booklet illustrates and tells all about the **MARION FLUE BLOWER**. Tells how the Blower is installed and operated, and how and why it does all and more than we claim for it. It also tells in plain language how long we guarantee it to withstand the terrific heat of the combustion chamber without any expense for repairs.

You will find this booklet full of interest. A postal starts it your way, and your way and the only way is the **MARION WAY**.

All Canadian orders shipped from our Canadian factory

Marion Machine, Foundry and Supply Company

P. O. Box 156

MARION, INDIANA

EDITORIAL NOTES AND CLIPPINGS—Continued.

pany fan and a Youngren kiln. I. C. Jones, who has been the manager of the plant for many years, expects to leave in a short time for a vacation in California.

The Lawhead Brick and Tile Works has been organized at Loogootee, Ind., with \$50,000 capital stock. E. W., Wm. W. and R. B. Lawhead are incorporators.

The plant of the Bellows Falls Brick Company at Brattleboro, Vt., has been purchased by Steadman & Robinson, of Green Ridge, N. Y., and will be operated by them.

Joseph Rich has purchased ten acres of ground near Orenco, Ore., on which he will erect a brick and tile plant, which he expects to have ready for operation early in the spring.

A. W. Dawson, president of the North Iowa Brick and Tile Company, Mason City, Iowa, and mayor of the city, died at his home in that city December 10 after an illness of but two days.

The new owners of the Apollo Fire Brick Company have changed the name of the concern to the National Refractories Company, Appollo, Pa. The plant is to be considerably enlarged, and work on same is to be started at once.

The Mason City Brick and Tile Company's plant at Mason City, Iowa, was badly damaged by fire December 29. Most of the damage done was to the buildings, and it is thought the machinery was not injured. The loss is estimated at \$10,000, partly covered by insurance.

L. D. Barnes, superintendent of the Ashaway (R. I.) Clay Company, writes that his company had an unusually good trade during all of 1910 and is looking forward to even a better year in 1911, and in order to meet the increased demand will enlarge the plant in the spring. They burn their brick in a 25-chamber Haigh continuous kiln.

The National Fireproofing Company sustained a loss of several thousand dollars when the roof and shed over the large new kilns at Port Murray, N. J., were destroyed by fire. The shed and roof were erected last spring and several carloads of yellow pine were used in the construction. The fire spread with remarkable rapidity owing to the dryness of the timber and in about fifteen minutes the shed was totally de-

stroyed. There was no insurance. The burned portion will be rebuilt at once of fireproof material.

In renewing their subscription for 1911 the Waco Brick Company, Waco, Texas, write that they could not possibly get along without THE CLAY-WORKER.

The Houston Brick and Tile Company, of Houston, Texas, has been incorporated with \$25,000 capital stock by C. A. Barbour, of Franklin, La.; S. Taliaferro and C. R. Minor, of Houston, Texas.

Newton Connell, an employe at the Dickey Brick and Tile Company's plant, at Rich Hill, Mo., was caught in the dry pan and so badly injured before the machinery could be stopped that he died in a short time.

James K. Coomes, manager of the Forest Park brickyard of the Springfield (Mass.) Brick Company, died at his home in Springfield January 3. He had been in the brick business nearly all his life. A wife and four children survive.

The Savage Mountain Fire Brick Company, of Frostburg, Md., reports a prosperous year and elected the following officers for the year 1911: Charles C. Gorsuch, president; John A. Caldwell, vice-president and treasurer; H. C. Gorsuch, secretary.

The Wabash Vitrified Brick Company, of Grayville, Ill., has been incorporated with \$100,000 capital stock. The officers are: D. K. Carter, president; George Martin, secretary, and Floyd Rotramel, treasurer. The company will erect a large paving brick plant near that city at a cost of \$50,000.

A new concern in the clay field is the Imperishable Silo Company, recently incorporated at Huntington, Ind., for the purpose of promoting the manufacture of a patented burned clay hollow block especially adapted to the erection of silos. E. H. Baker, of Morenci, Mich., is president; J. M. Triggs, vice-president; F. S. Bash, secretary and treasurer.

The brick plants at Mechanicsville, N. Y., are experiencing trouble from lack of water. The Duffney Brick Company was compelled to shut down on account of the pond from which they obtain their supply being frozen nearly to the bottom. The Champlain Brick Company's water supply is also low, but the company is able to secure enough to supply the battery of four boilers. A water famine is imminent unless it rains soon.

MARION STEAM SHOVELS ARE IDEAL FOR BRICKYARD REQUIREMENTS



Model 35—C. H. Klein Brick Co., Chaska, Minn.

OUR REVOLVING SHOVELS

swinging in a complete circle, will dig and deliver your material in any direction.

For moderate outputs, this is the most economical machine, as it can be operated by one man.

OUR STANDARD SHOVELS

are also in great favor—the larger models satisfactorily meeting requirements where a high cut is necessary.

The material and workmanship entering into the construction of our Excavating Machinery is the best the market affords, therefore it is **EFFICIENT, RELIABLE AND DURABLE.**

We also build

ELEVATOR AND DIPPER DREDGES—DRAG-LINE EXCAVATORS—BALLAST UNLOADERS.

THE MARION STEAM SHOVEL COMPANY, Dept. 3, MARION, OHIO

Chicago: 1442-3 Monadnock Block.

New York: 50 Church St.

San Francisco: 718 Monadnock Bldg.

Mention THE CLAY-WORKER.

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Second-hand grate bars, 36-inch. ADAMS BRICK CO.,
1 1 d Indianapolis, Ind.

WANTED—160 dryer cars for stiff-mud brick.
CALHOUN CLAY PRODUCTS CO.,
1 2 d St. Louis, Mo.

WANTED—Position as foreman or burner in dry press or stiff-mud plant by industrious and sober young man. Address OREGON,
1 1 cm Care Clay-Worker.

FOR SALE—One tile and brick machine, Freese & Co. make; has been used eighteen months; one 60 h. p. slide-valve Atlas engine. Will sell cheap.
PORTLAND DRAIN TILE CO.,
11 3 c Portland, Ind.

WANTED—Experienced dirt mover to take charge of large proposition; must understand handling steam shovel, hoisting engine, track building, etc. Permanent position. Address BOX 1, M.,
1 1 dm Care Clay-Worker.

FOR SALE—9x12 Ellison hoisting engine, with drum and cable; 35-foot belt elevator, with 12 cups on 14-inch rubber belt; 60-foot Link belt conveyor, and No. 6 Pulsometer pump.
MT. VERNON PRESS BRICK CO.,
1 1 c Mt. Vernon, Ill.

FOR SALE.

One burr mill and one small disintegrator; one 60 h.p. H. B. Smith stationary engine and one Williams patent crusher, No. 1.

ATLANTA TERRA COTTA CO.,
1 1 d East Point, Ga.

FOR SALE.

Soft-mud brick plant and ten to thirty acres excellent clay. Yard on belt line and located in city of 20,000, which has best of transportation facilities. Cash or terms.

HENDERSON BRICK CO.,
1 tf d Henderson, Ky.

WANTED

Well-known, responsible party wants for New York trade grey and buff speckled, flashed, iron-spot and rough-face brick. Can command large trade. Address, stating kind and quantity that can be supplied and lowest cash price,

X. Y. Z.,
1 1 d Care Clay-Worker.

FOR SALE—Frey-Sheckler Centennial brick machine. Has been used but short time.

LOUISVILLE FIRE BRICK WORKS,
1 1 c Highland Park, Ky.

FOR SALE—36 acres of brick clay adjoining Minneapolis, Minn., with trackage and river front.

O. A. ZIEROLD,
Century Bldg., Minneapolis, Minn.
1 1 dm

WANTED—Position as superintendent or manager of brick plant by a man of long experience, familiar with every detail of brickmaking. Best of references submitted. Address

BOX 1, AUTO,
1 1 d Care Clay-Worker.

WANTED—Position as manager or superintendent by a capable man, who has given special attention to burning. Is thoroughly experienced in the manufacture of paving, face, building brick, conduit and tile. Prefers location in West or Southwest. Address MICH.,
1 1 d Care Clay-Worker.

FOR SALE.

At the plant of the Ohio Terra Cotta Brick Company, at Fredericksburg, Ohio, one 12-foot pug mill, one 777 stiff-mud machine, one automatic cutting table, all Raymond make. Used to manufacture less than two million brick.

J. B. HAMMOND,
1 2 d Bolivar, Pa.

ATTENTION.

Letters addressed to this ad. put you in touch with a young clayworker experienced in brickyard management, designing, construction and engineering. Am seeking position with firm considering additions, with engineer designing plant, or as superintendent's assistant. Technical education. References. Address

BOX 1, OHIO,
1 1 d Care Clay-Worker.

BRICK MACHINERY FOR SALE.

190-ft. Jeffrey No. 110 chain pan conveyor; Renneburg 4-ft. 6-in. direct heat rotary dryer 40 ft. long; Richardson automatic scale, 400 lbs. capacity; Penfield 7-ft. and 9-ft. dry pans; No. 20 A plunger machine, sewer pipe press; Raymond "Columbia" steam press, No. 3 "Perfection" Carnell hand presses; 237 double six-deck brick cars, 33-in. gauge, 7 transfer cars, 4 turntables; 5,000 gal. steel pallets, rolled edges; 1 No. 51 two-way steel dump cars, 30-in. gauge; portable track; 100 light Colt's acetylene gas machine; 200 H. P. Fitchburg engine, 280 H. P. boilers, pumps, lubricators, pulleys, shafting, etc. Address

POWHATAN CLAY MFG. CO.,
12 2 d Richmond, Va.

WANTED—Position by a first-class burner on up or down-draft kiln. Thoroughly competent to take charge of burning brick of any description, also hollow ware. No. 1 reference. Address BOX 1, R. H.,
1 1 c Care Clay-Worker.

FOR SALE OR LEASE—Pressed and common brickyard, adjacent to live city; excellent railroad facilities; high prices; big permanent demand; winter dryers. Successfully operated for years. Ready to run with trifling outlay. To the right parties liberal arrangements will be made by present owner. Capacity from fifty to one hundred thousand daily. Address BOX 1, ALLIS,
1 3 cm Care Clay-Worker.

FOR SALE.

One Ideal soft-mud brick machine, 25,000 daily capacity, revolving pallet holder, mold sander and several molds and strike knife, pulleys, belting and shafting. Large engine, boiler and elevator; 30,000 wood pallets, 10½ inches by 2 feet 10½ inches. Everything to equip a first-class yard. The above machinery used one year and is as good as new. Can be had for less than half price. TIM MCCARTHY,
1 1 cm Bonne Terre, Mo.

REBUILT ENGINES AND BOILERS.**ENGINES—CORLISS.**

20x48 Wheelock, 18x36 Ohio Heavy Duty, 14x42 Hamilton, 14x36 Vilter, 12x36 Allis, etc.

ENGINES—AUTOMATIC.

15x14 Erie, 14¼x16 Buckeye, 11x16x12 Buffalo Compound, 13½x15 Taylor, 13x16 Erie, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 10¼x14 Buckeye, 10x14 Noyes, 9x12 Russell, 7x10 Atlas, etc.

ENGINES—THROTTLING.

16x22 H. S. & G., 14x18 Sinker-Davis, 14x14 Lewis Vertical, 12x16 Reed, 12x14 Gibbs, 12x12 Wells, 10x16 Bass, 10x12 Oil Well, 9x12 Ball, 9x10 Reed, 8¼x12 Leffel, 7x10 O. & S., 6x8 Industrial, etc.

BOILERS—STATIONARY.

72x18 high pressure, 72x18 standard, 72x16, 66x16, 60x16, 60x14, 54x16, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, 36x12, etc.

BOILERS—FIRE BOX.

100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10, and 8 H. P., etc.

BOILERS—VERTICAL.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 H. P., etc.

HEATERS.

All sizes, open and closed.

PUMPS.

All sizes, Single and Duplex.

MISCELLANEOUS.

Saw Mills, Lath Mills, Edgers, Cut-off Saws, Re-Saws, Blowers, Exhaust Fans, Tanks, etc. Write for list.

Also full assortment of new machinery. Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St., Cincinnati, Ohio.

FOR SALE—Eighty 20-inch chilled wheels, 3-inch face, 1-inch flange.
ROCHESTER BRICK & TILE MFG. CO.
12 2 c Rochester, N. Y.

FOR SALE—180 iron frame dryer cars, with steel decks, 25-inch track gauge. Will sell cheap.
HUMBOLDT BRICK MFG. CO.,
1 1 d Humboldt, Kas.

FOR SALE—Or Exchange: Big deposit of No. 1 shale suitable for making pavers. Tests very satisfactory. Location on railroad in northern Pennsylvania. Address BOX 1, H. O.,
1 1 cm Care Clay-Worker.

FOR SALE.
Good fire clay proposition; a going business. Splendid opportunity for experienced men with moderate capital. Principals only. Address
FIRE CLAY,
1 1 cm Care Clay-Worker.

WANTED—Superintendent for new-up-to-date shale dry-clay brick plant, equipped with Windgard kilns. Good position for practical, sober, intelligent man.
CENTRAL SHALE BRICK CO.,
602 Benoist Bldg., St. Louis, Mo.
1 1 d

TO LEASE OR FOR SALE.
Brick plant near Seattle; inexhaustible clay bed for face and building brick, drain and roofing tile. Capacity 40,000. Excellent opportunity for practical man. Located on salt water and railroad, with good market up and down the sound. Owner not a brickmaker.
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WANTED—By a ceramic school graduate, now holding important position with firm making high-grade face brick, position as superintendent of common or face brick plant. Am thoroughly conversant with entire manufacture of same. Can handle successfully men, machinery and kilns. Good habits. Excellent references, including present employer. Best of reasons for change. Address
BOX 1, HUSTLER,
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FOR SALE.
One Hercules horizontal brick machine.
One "Martin," style "A," brick machine.
One ten-foot pug mill.
One Horton mold sander.
One drag belt clay elevator.
One clay disintegrator, etc.
The above are all rebuilt and equally as good as new.
HENRY MARTIN BRICK MACHINE MFG. CO.,
1 1 L Lancaster, Pa.

WANTED—Experienced off-bearers. Give references.
HYDRAULIC PRESS BRICK CO.,
12 tf d Brazil, Ind.

FOR SALE.
One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CONTRACTING CO.,
1 tf d Zanesville, Ohio.

FOR SALE.
Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new.
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FOR SALE.
One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address
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POSITION WANTED—As superintendent or foreman by a practical man in all details of the manufacture of sewer pipe, fire and building brick. Twenty years of successful experience. In last position as superintendent seven years. All references. Address C. W. A.,
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ATTENTION.
Can furnish first-class man, who thoroughly understands the burning of brick and taking charge of a dry press brick plant. Has had plenty of practical experience.
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FOR SALE—One Leader Manufacturing Company brick machine, one Kells machine, one Big Wonder and one Quaker, and a disintegrator. All in good running order. Also three engines and three boilers. Each from 40 to 50 h.p., which I desire to sell outright. For full information, address
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Location near city of 30,000, connected with five railroads and on a macadam road. Only brick plant in county and supplies 80 per cent. of the brick used in this section at \$6.50 per thousand F. O. B. cars.
Fine bed of clay, Chambers machinery; new plant, been in operation only three years. Established trade and good quality product. Good proposition for any one wishing to engage in brick business. Address
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FOR SALE—One American Blower Company 100-inch $\frac{3}{4}$ housed fan, used less than one week.
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FOR SALE—Well-equipped open yard brick plant. Railroad sidetrack and also wagon trade. Supplying Athens, population 18,000. Excellent clay. Big bargain.
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FOR SALE—One Hercules soft-mud brick machine; little used and in perfect order. Price \$250.00. We use stiff-mud machinery only.
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1 1 d Ashaway, R. I.

WANTED—A superintendent for a brick plant manufacturing common building brick. Must be experienced and competent. Give references and state salary.
H. WEIL & BROS.,
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WANTED—A superintendent for an architectural terra cotta plant. Good position for a first-class, experienced man. State education, experience, age, whether married, salary desired, present position and references. Address
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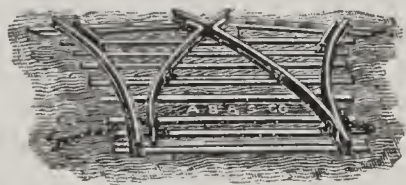
CASH FOR YOUR PLANT OR BUSINESS.
No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,
FRANK P. CLEVELAND,
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To get into business for yourself is offered by a brick manufacturer, who, on account of ill health, wants to pass the actual management to a younger man.
Yard manufactures $\frac{3}{4}$ million a season, is within 15 miles of a town of 30,000. Yard has supplied this town for the past ten years, and has a ready sale for all it can make. Is in daily operation.
The right man, with experience, hustle and a little money, can secure an interest and feather his nest for the future. If you're the man with the qualifications, address
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(Continued on next page.)

FOR SALE OR LEASE—A big deposit of white clay recently discovered within 300 yards of railroad. Adjoining other successful clay properties. For further information address, SO. MOUNTAIN MINING & IRON CO., 12 3 cm Pine Grove Furnace, Pa.



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Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices. THE ATLAS CAR & MFG. CO., Cleveland, Ohio.

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Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

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Burns 99 Percent Hard Bricks
Old Kilns Remodeled

Plans and Yard Rights Cheap

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They Never Fade

Twenty-Five
Long Years

of time and weather
have tried out Ricketson's
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For Mortar, Brick,
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Proved to be absolutely
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Ricketson's Mineral Paint Works
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WANTED—Position as superintendent of stiff-mud brick plant. Prefer Western location. Am 40 years old, have family and positively do not drink. Understand every detail of the work; 25 years experience. Address

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One three-quarter housed, eight-foot wheel, 56 inches in width, extra heavy exhaust fan with water-cooled bearing next to fan, both bearings ring oiling, with wheel overhung; guaranteed to be in as good shape as when new. Was used only eight months. Capable of handling 70,000 cubic feet of air per minute at 160 r. p. m. Absolutely free from all rust. Price. \$150.00 f. o. b., Adel, Iowa. Fan cost \$375.00 when new. Of L. E. Rodgers manufacture.

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WORKS,

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FOR SALE—Complete set of brickyard machinery, consisting of one 4-mold Simpson dry press machine; one Steadman pulverizer, engine, boiler, shafting and pulleys.

GILLICK BROS.,
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ATTENTION.

Sale to Begin at 1 O'Clock.

The undersigned will offer at public auction on Saturday, February 18, the brick yard works at Muncie, Ind. This property has a capacity of six million brick per year, 50 per cent. of which is consumed in Muncie alone. Owner is non-resident, and is not a brick man. Property will be sold part cash and part time. For terms in detail write to JOHN POOL, owner, or Fred A. Phillips, auctioneer, Rensselaer, Ind.

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The fastest growing portion of the country is the Southeast. In the states of that section are abundant supplies of the Best Clays for Potteries, Tile and Brick, etc., the Cheapest power and a Market which is Always Growing Better. We will assist you in finding a Location along the Southern Railway, Mobile & Ohio Railroad, Georgia Southern & Florida Railway and Virginia & Southwestern Railway if you will write us the kind you wish.

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THE BRICKMAKERS' ADVISOR,

Julius J. Koch,

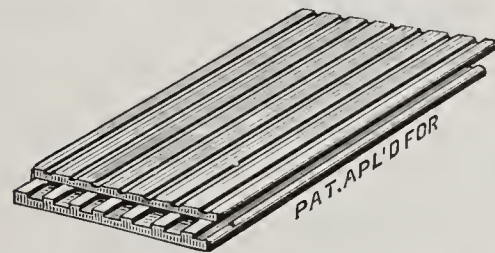
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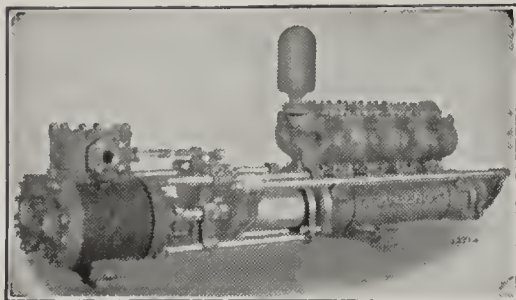


Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

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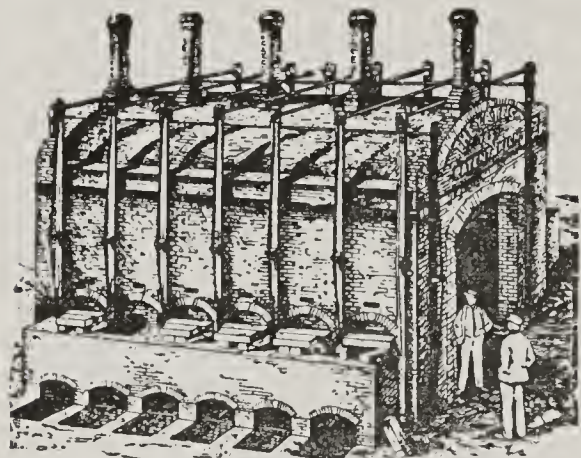
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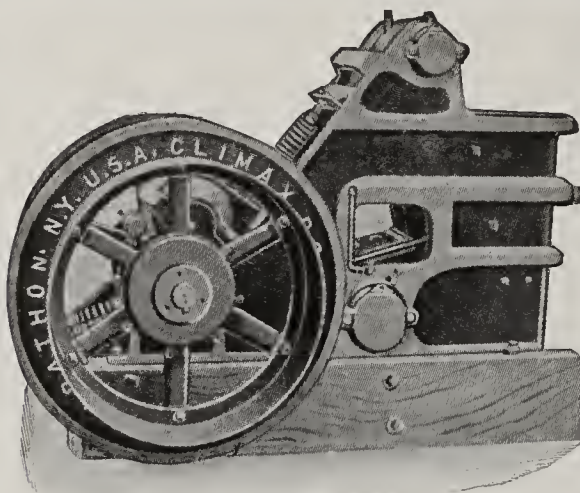
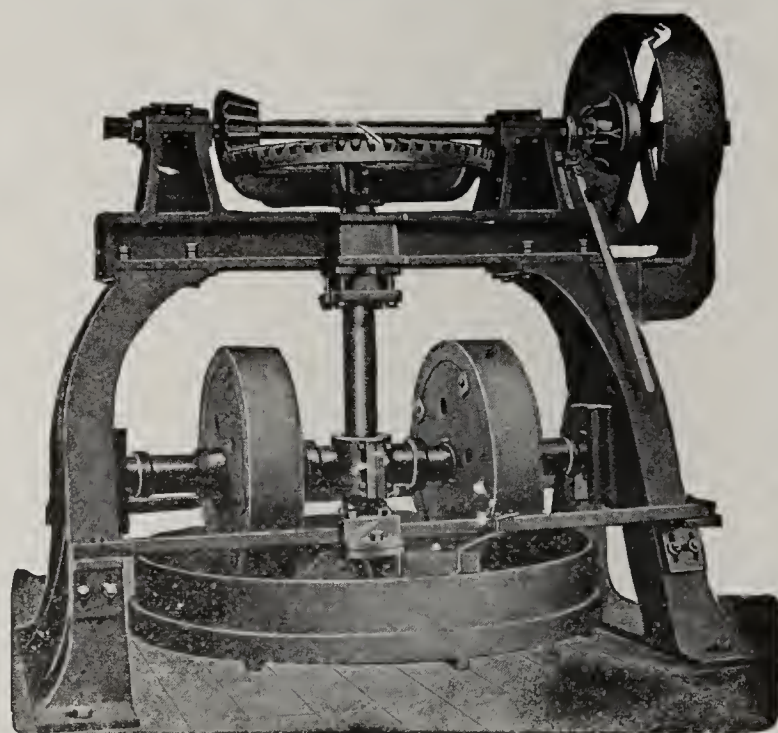
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are time savers and therefore money savers in crushing shale, fire clay, ganister, brickbats or any hard material.

One of these machines will save its cost in a very short time in any brick, tile or pottery plant.

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Down-Draft Kilns designed for all purposes.

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A Superior Kiln for Common Brick that is
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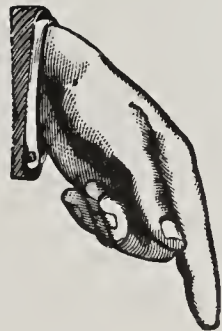
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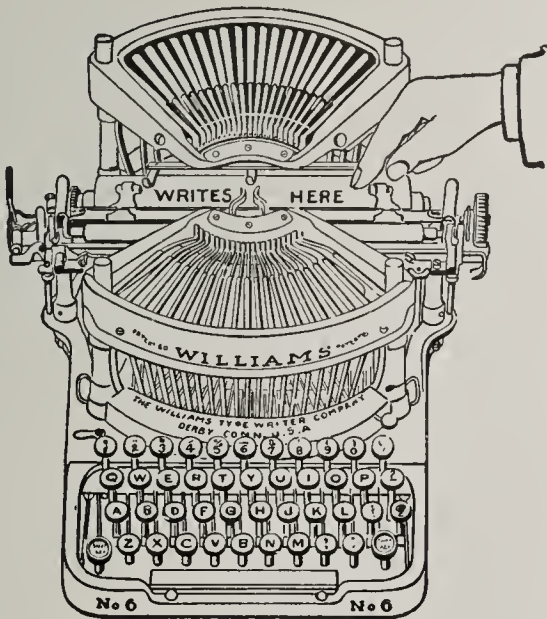


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The highest grade of
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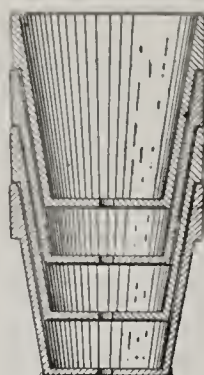
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County and State Rights For Sale.

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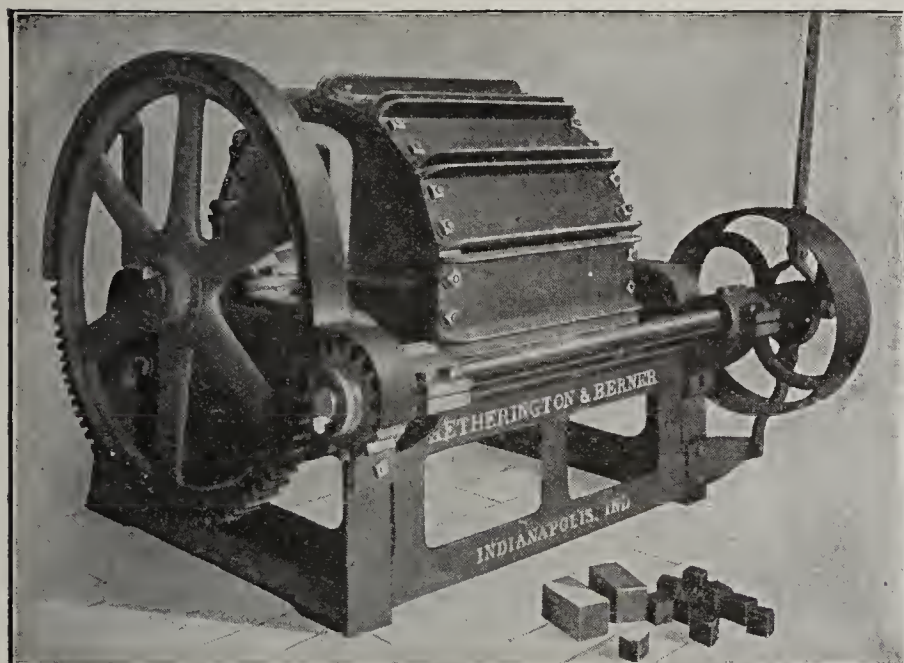
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Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

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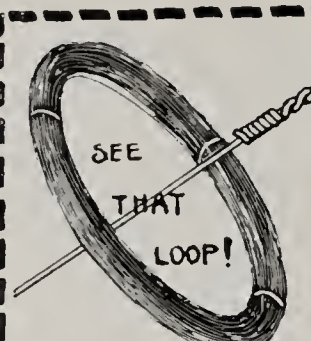
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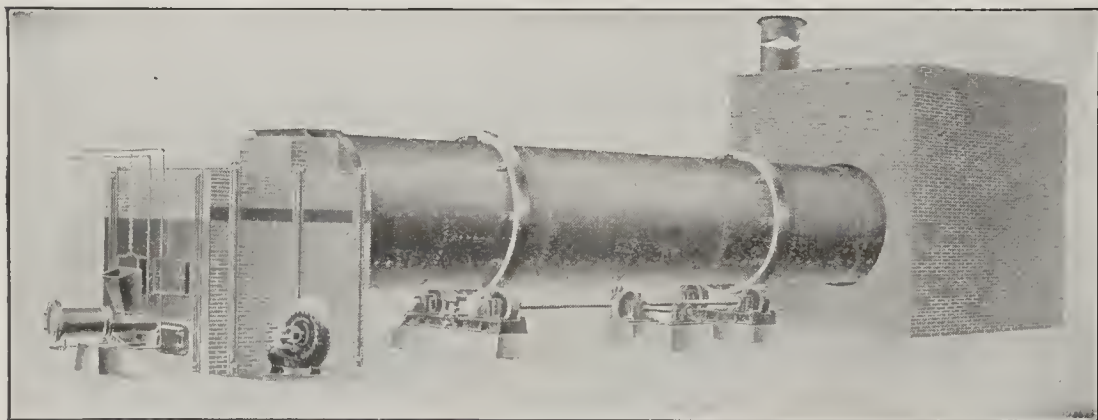
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FOR SCREEN OR CUTTING TABLE

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OUR PRICES WILL INTEREST YOU

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If you have a dryer that is not giving you complete satisfaction, and wish it remodeled to produce the required results address

EDWIN A. KING,
Dryer and Kiln Specialist,
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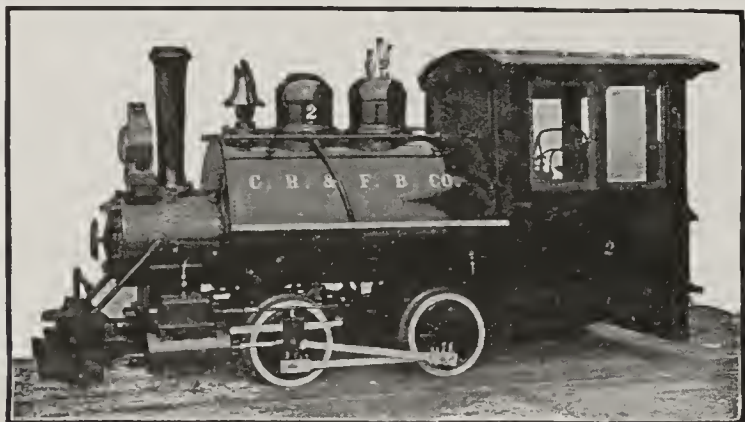


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Economical, Efficient,
Great Capacity.

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For CLAY HAULAGE

Small Size Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Write for particulars

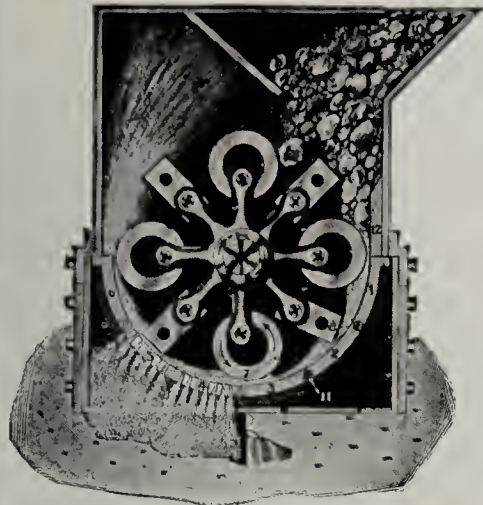
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HOW TO REDUCE THE POWER COST BY 10%

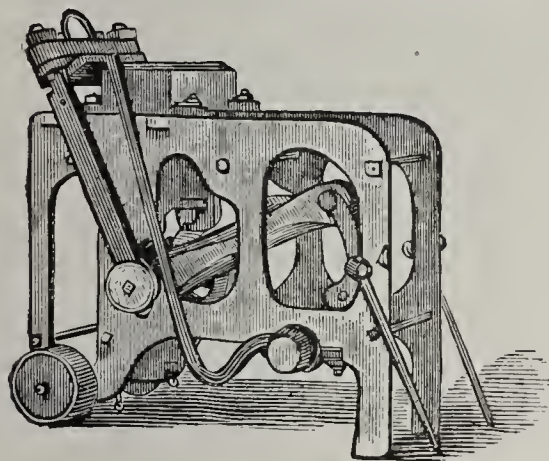
You undoubtedly know that 20 to 40% of the fuel burned under the boilers is wasted up the chimney. Why not install a Green Fuel Economizer and cut down this waste and save from 8 to 15% of your fuel bill?

Over 1,000 Industrial Plants in the UNITED STATES are now using Economizers. Write for our Booklet "C.-W. 106" and find out the reason, or tell us the amount of coal burned in 24 hours. and we will figure out exactly what the economizer will save for you.

The Green Fuel Economizer Co.
MATTEAWAN, N. Y.

New York City, Boston, Chicago, Atlanta, San Francisco,
Los Angeles, Seattle, Salt Lake City, Montreal.

Engineers; Builders of Green's Fuel Economizer, Fans, Blowers and Exhausters, Steam Air Heating Coils, Waste Heat Air Heaters, Mechanical Draft, Heating and Ventilating and Drying Apparatus, Draft Dampers and Engines.

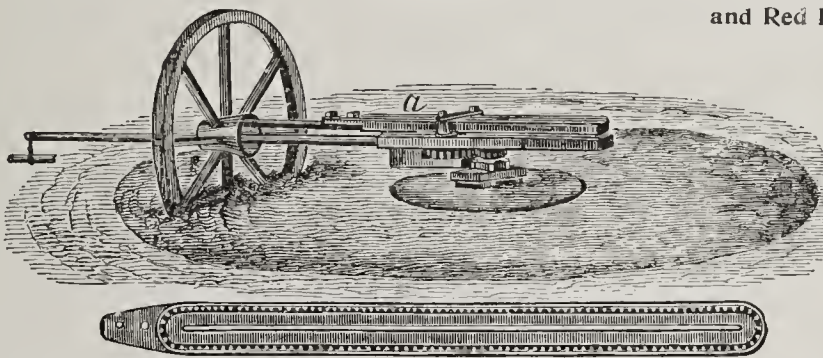


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Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



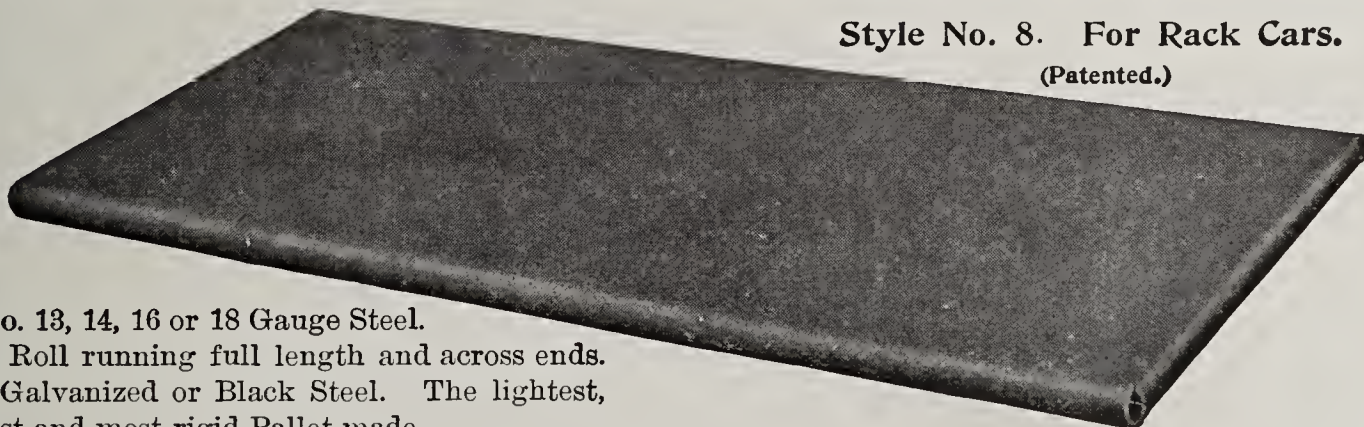
These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

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"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

NO DRYING SCREENING or "RAINY DAYS"

For the man that owns

A DIESENER.

The Diesener Clay Cleanser and Homogenizer is the only machine in existence which removes objectionable matter from clay in its original wet condition through 1-16 in. slot.

**You Have to See It.
It's Too Marvelous to Believe.**

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Send samples of clay prepaid to W. A. JONES
FOUNDRY AND MACHINE CO., Chicago, Ill.

IT DOES NOT PAY

To operate kilns that are designed in a slipshod, old-fashioned manner when the plans and specifications of a money-maker—

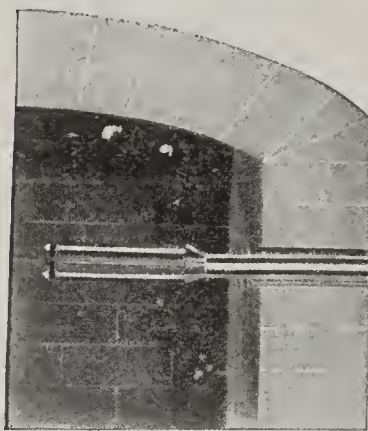
The Improved Flue System Kiln

can be had at a very reasonable figure.

Particulars cheerfully furnished.

GEO. E. SNOWDEN & CO.,
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PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

**The Brown
Instrument
Company,**
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The Latest Fountain Pen. Guaranteed by Makers. No Filler. No Lost Time. No Spoiled Fingers. Perfect. Simple.

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Gen. Lew Wallace, the author of "Ben Hur," writes: "I have tried every kind in the market, and unhesitatingly give the preference to the "Post."

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The New Way.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:

- "Directions for laying Brick Street Pavements."
- "Proper Construction of Brick Street Pavements."
- "An Object Lesson in Brick Pavements."
- "The Permanent Roadway."

Address

WILL P. BLAIR, Corresponding Secretary,
522 Board of Trade Bldg., Indianapolis, Ind.

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Do you know, dear reader, that when you buy magazines from month to month you are paying from one-fourth to one-half more than you need to? See our money-saving club offers on pages 214 and 215.

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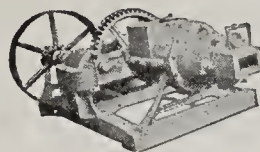
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THE HENRY MARTIN BRICK MACHINE MFG. CO.

LANCASTER,
PENNA.



No. 2 Brick Machine



Trucks



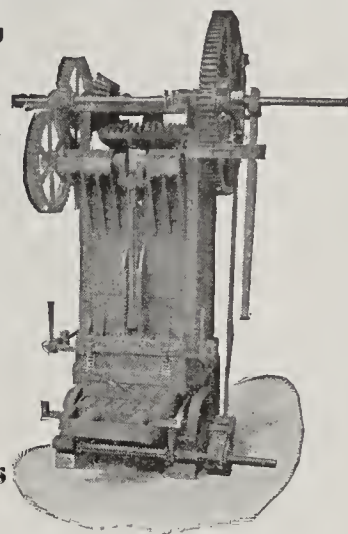
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Rock Crushers,
Elevators and
Dry Pans.



Clay Working
Engineers
and Designers
of Complete
Modern Clay-
Working Outfits and
Crushing Machinery.

Plans and specifications
Gladly Mailed With

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Brick Machines for
Soft Mud Steam Power
30,000 Capacity
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ESTABLISHED IN 1860.

JACOB BUHRER'S TECHNICAL BUREAU CONSTANCE, GERMANY.

Constructor of Brick, Tile and Lime Works for Coal or Gas Firing, and Kilns with or without Dryer.

Buhrer's Shortened Kilns are the most suitable for burning ordinary and enameled goods, lime and cement.

In the Buhrer Chamber Dryer bricks and tiles made by the plastic process from clays of normal character may be dried, the former in one to one day and a half, and the latter in 4 to 5 days. In the Buhrer Tunnel Dryer green bricks may be very well dried in 24 hours with the waste heat of the kiln only.

The Buhrer Fan increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

Buhrer changes existing kilns in accordance with his system for quick burning.

Clay Testing is done in a thorough way. Write for illustrated pamphlet.

ABOUT 1,000 KILNS HAVE BEEN CONSTRUCTED ALREADY.

"PERFECT SATISFACTION."

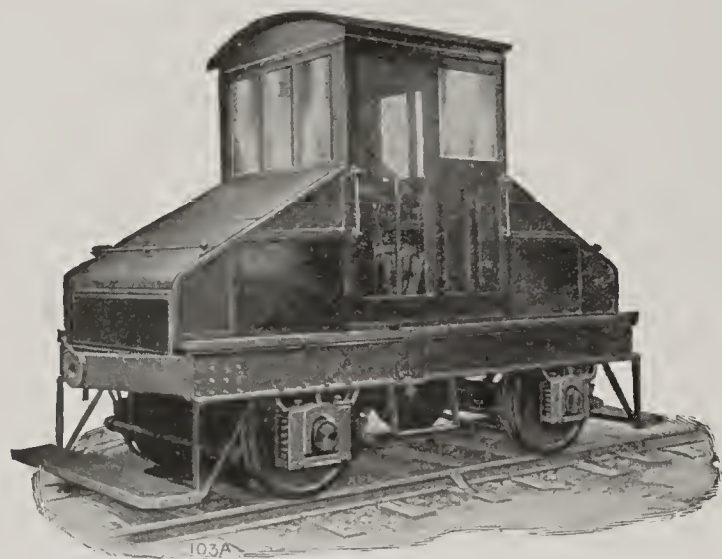
Oppeln, Silesia, August 31, 1907.

Dear Sir—The Town Brickworks, now erected on your system, continue to give perfect satisfaction. This year we are doing much more business than last year. The applying of your system to our works is of high value to us. The expenses incurred by the alteration have been repaid in two years by economy in coal.

With kind regards, Very truly yours,
(Signed) G. SCHLEGEL,
Manager of the Town Brickworks.

Mr. Jacob Buhrer, Constance.

Milwaukee Locomotives (Gasoline Driven) for CLAY HAULAGE.



Type "C" Milwaukee Locomotive.

Milwaukee Locomotives are built for all gauges of track and in sizes from 2½ to 30 tons. They are always ready for instant use, are very efficient and economical to operate. Reduce haulage costs to the minimum, as their operation is much cheaper than animal haulage.

Write for Publication No. 1003.

Milwaukee Locomotive Mfg. Co.

New York. Milwaukee, U. S. A. Chicago.

FEEDING BOILERS WITH A Morehead Return Steam Trap

☐ HAVE YOU ever investigated the possibilities of a MOREHEAD STEAM TRAP INSTALLATION for draining steam lines and feeding boilers?

☐ Unless you have, you are not making the most of this big factor for success in the operation of your steam plant.

☐ In every part of the country will be found a MOREHEAD INSTALLATION convenient for your inspection. In most cases you will find that the MOREHEAD TRAP has replaced the STEAM PUMP for feeding the boilers.

☐ In every case you will find more economical operation, better steam plant conditions and complete satisfaction.

☐ You may have the privilege of proving to your own satisfaction the truth of our claims at our expense.

☐ Write for trial offer proposition and ask for "Trap Book."

MOREHEAD MFG. CO.
DETROIT, MICHIGAN

☐ The illustration is that of a Morehead Return Steam Trap and Boiler Feed Installation at the plant of Sankey Bros. Manufacturers of Brick, Pittsburgh, Pa.

ECONOMY

True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

CASH

To insure insertion in current issue, copy should be furnished early in the month.

Address

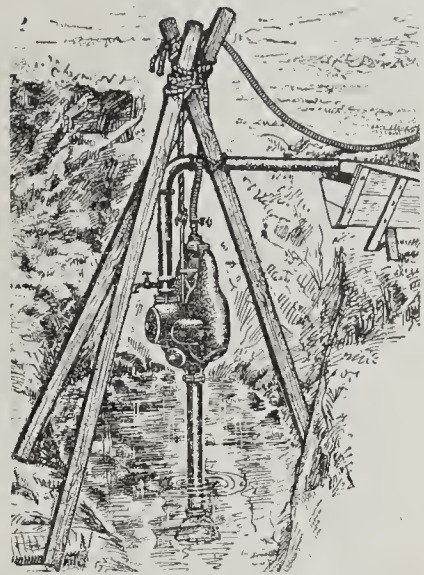
THE CLAY-WORKER,
Indianapolis.

JUST THINK!

A continuous kiln that will save one-half your fuel and cheaper in construction than round or rectangular down draft kilns. Can be handled to produce the same results as round down draft kilns and use coal, wood, gas or oil for fuel. This kiln is in compartments, and the chambers can be made to hold from Fifteen to Fifty Thousand each of common brick. Is especially suited for burning paving brick and can be built any capacity, to suit any location. Say a plant that wants to make Fifty Thousand brick per day, the kiln will cost Eleven to Thirteen Thousand Dollars. Let me figure on your work.

GEORGE W. OGAN,
108 Logan Ave., DANVILLE, ILL.

Pulsometer Steam Pump



DRAINING CLAY PITS.

For this **rough-service** you need a pump that is simplicity itself—one that will handle any kind of dirty, muddy, gritty liquids without suffering the least injury, in short a

PULSOMETER STEAM PUMP.

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all.

Operates as well suspended as stationary.

Simple to Install.

Simple to Operate.

Our catalog is yours. A postal will bring it.

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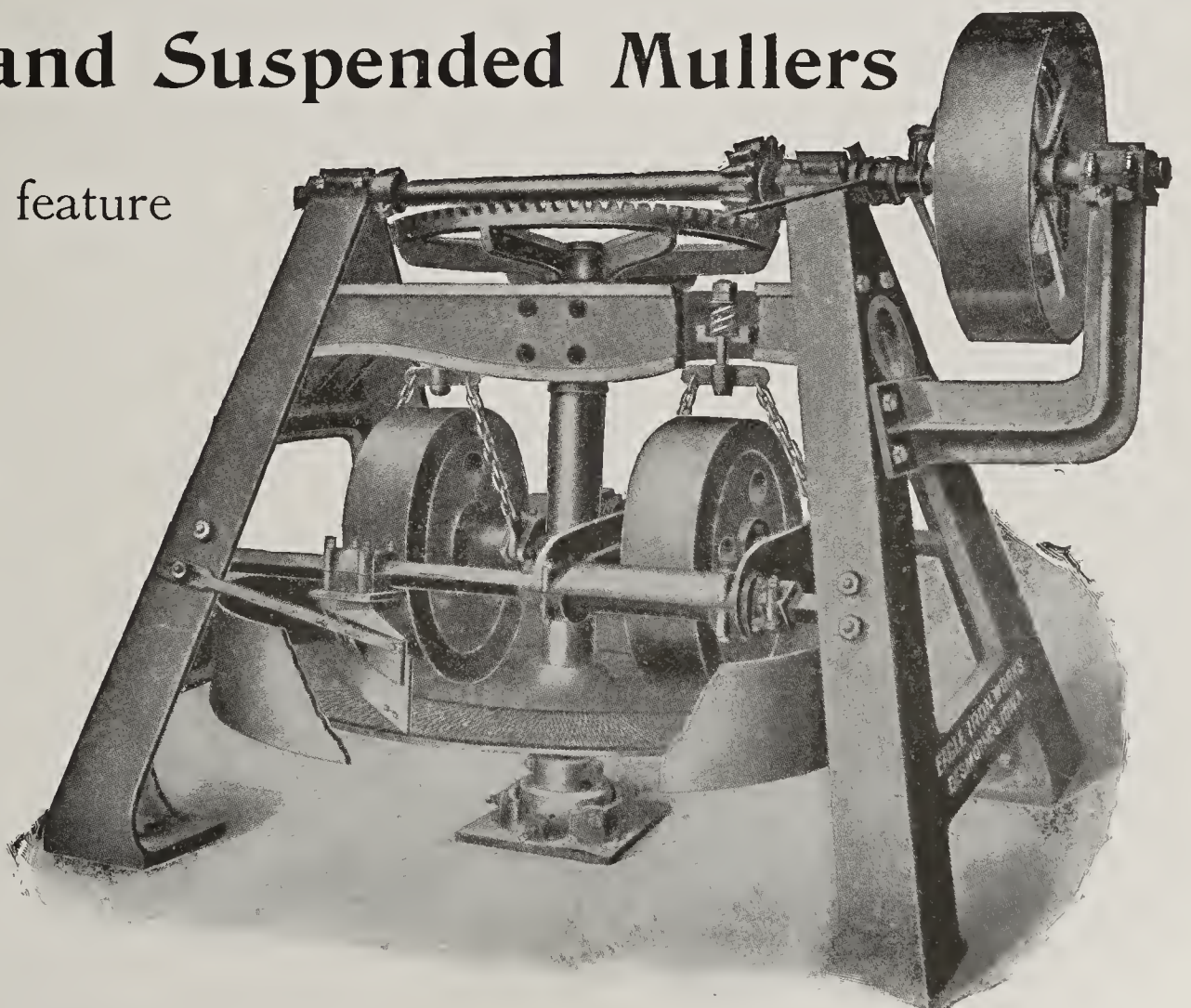
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Other valuable
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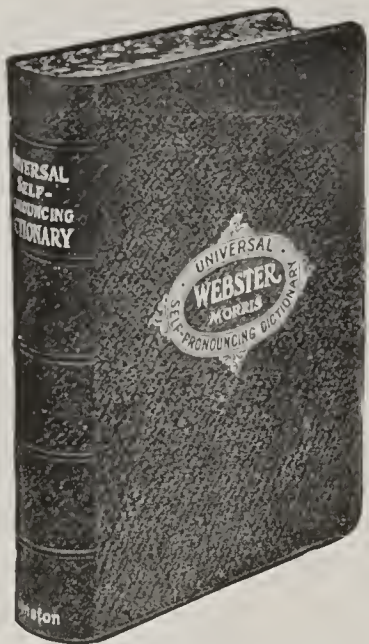
EAGLE IRON WORKS, Des Moines, Ia.

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FREE

This superb self-pronouncing Dictionary, in substantial cloth binding with The Clay-Worker for 1910, for \$2.00. Nothing nearly so valuable has ever been offered before. The flexible morocco binding, an elegant volume, will be sent for \$2.75, charges prepaid, together with The Clay-Worker for twelve months. **ORDER NOW.**

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=THE NEW UNIVERSAL= —SELF-PRONOUNCING— DICTIONARY

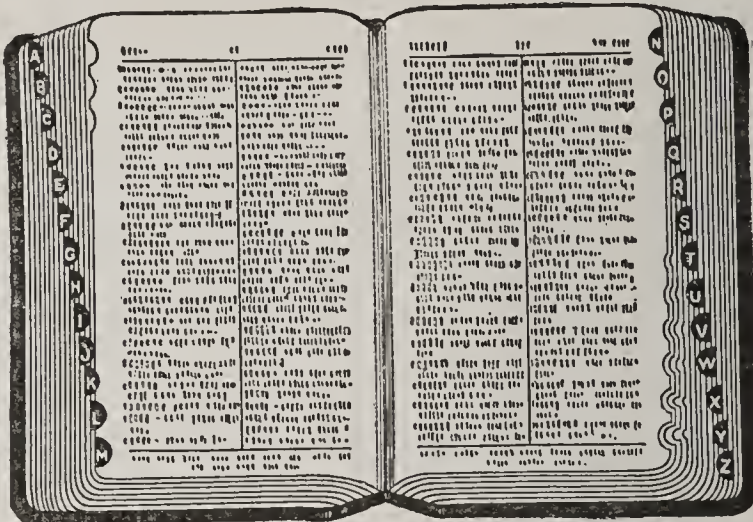
Based upon the Solid Foundation laid by
NOAH WEBSTER

and other Lexicographers, thoroughly modernized by
CHARLES MORRIS

In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

In the Home and School Its simple arrangement and clear definitions admirably fit it for this purpose. The bold type and the vast amount of general information it contains, commends it to Teacher, Parent and Child.

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from New
Type-Set
Plates



This cut shows Patent Thumb Index and how Dictionary appears when open. It lies perfectly flat. Size when open 8 x 11½ ins. Size when closed 5½ x 8½ ins. Contains over 1000 pages.

In Convenience of Size
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Among the noteworthy improvements are the following:

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Words Divided into Syllables. Each index word is divided into syllables in the manner employed by the best writers.

The Proper Use of Capital and Small Letters is clearly indicated. Proper nouns begin with capital letters, common nouns begin with small letters.

The Pronunciation of Each Word is shown by a clear and properly accented system of phonetic spelling.

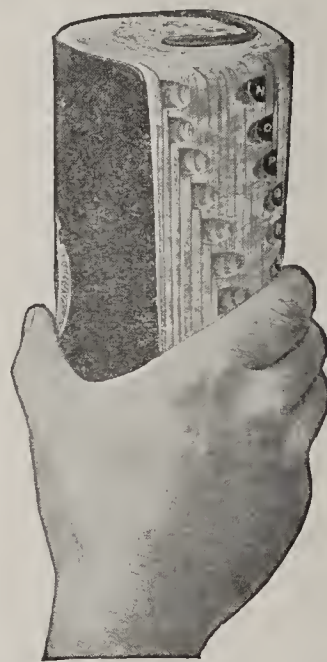
The Synonyms and Antonyms are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.

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SIZE 5½ x 8½ INCHES



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Needed Every Day at the Plant, the Office, the Home.

Remit by check or in any way most convenient to yourself.

T. A. Randall & Co. (Inc.), Publishers, Indianapolis, Ind.

The 25th Annual Convention OF THE National Brick Manufacturers' Association

The National Paving Brick Mfrs.' Association
The Building Brick Association of America and
The National Clay Machinery Association

WILL BE HELD AT

LOUISVILLE, KY., MONDAY TO SATURDAY,
FEBRUARY 6th to 11th, 1911.

Special Railroad Rates

Have been granted by the Southeastern Passenger Association, which controls the territory South of the Ohio and East of the Mississippi River

Tickets Good Returning Until February 15.

The Sessions of the National Paving Brick Manufacturers' Association will begin Monday, the 6th.
The Sessions of the National Clay Machinery Association will begin Monday, the 6th.
The Sessions of the N. B. M. A. will be held Wednesday, Thursday and Friday, the 8th, 9th and 10th.
The Sessions of the B. B. A. will be held Monday, Tuesday and Thursday, the 6th, 7th and 9th.



FULL VERBATIM REPORT of the Convention, which bids fair to be the most successful in the history of the N. B. M. A., will be given in the February CLAY-WORKER, including all papers, discussions and portraits of prominent members. Next to attending the Convention the best thing a brickmaker can do is to read THE CLAY-WORKER's report. It is so full and accurate that those who attend the Convention would not be without it, and those who don't go can't afford to miss it. The concensus of opinion among progressive brick-makers is that the Convention Number of THE CLAY-WORKER is the most valuable publication of the year. If you are not already a regular subscriber don't neglect to send in

your order in time to get the February or Convention number.

THE CLAY-WORKER is now in its 28th Year and is recognized the world over as the best clayworkers' magazine published in the English language. It has more readers at home and abroad than all its followers combined. Take THE CLAY-WORKER and you get the best value for your money. \$2.00 a year. Every issue is worth that sum.

1911 FEBRUARY 1911						
Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6 = 7 = 8 = 9 = 10 = 11					
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

Advertising Matter to Insure Insertion
Must be Received by the First of the Month.

T. A. Randall & Co., Inc.

PUBLISHERS,

INDIANAPOLIS, IND., U. S. A.

The Clay-Worker is Unequaled as an Advertising Medium.

Kentucky's Famous Mammoth Cave

A visit to this World's Wonder is a rare treat to those who appreciate the marvelous. No word picture or photograph can convey an adequate idea of the magnificent avenues, the fairy grottoes, the titanic halls and lofty, star-bedecked domes, the great subterranean rivers and colossal caverns, which know neither winter's cold nor summer's heat.



MARTHA WASHINGTON STATUE

The Twenty-Fifth Annual Convention of the N. B. M. A. will afford an opportunity for a side-trip *de lux* to this most gigantic cavern of the world. Here is the paradise of the naturalist, in which are remarkable eyeless fish, insects and crustaceans.

Representatives of the Louisville and Nashville Railroad will accompany the party and see that every comfort and convenience is provided. Every delegate and visitor, men, women and children, should plan to make this side-trip.

Representatives of the Passenger Department of the Louisville & Nashville R. R. will be in attendance at the convention to arrange for other side-trips to points south, for which special round-trip rates will be made, depending on the number participating, and special service of Pullman sleepers, etc., will be provided, thus affording a rare opportunity to visit New Orleans and Gulf Coast points.

Beautifully illustrated booklets of the Mammoth Cave, and another of the charming Gulf Coast resorts, will be mailed free to those desiring them. Address

W. A. RUSSELL, General Passenger Agent

LOUISVILLE, KY.

Louisville & Nashville R. R.

The attractive way to Louisville
for the

Nat'l Brick Manufacturers' Association

February 6-11, 1911

Five trains daily from Cincinnati
Two trains daily from St. Louis

Two trains daily from
New Orleans, Memphis, Mobile,
Birmingham, Knoxville, Atlanta

Before completing arrangements for your trip
consult nearest Louisville & Nashville agent or

Address

W. A. Russell, General Passenger Agent
Louisville, Ky.

THE THEW SHOVEL FOR BRICKYARDS

Valuable Information for Brickmakers.

GRAND FORKS, N. D., October 15, 1910.

Cost of Operating No. 0 Thew Steam Shovel for 78 Days.

Wages of engineer for 84 days at \$3.45 per day	\$289.80
Wages of fireman for 79 days at 2.00 per day	158.00
Wages of laborer for 79 days at 2.00 per day	158.00
Oil consumed for 78 days at .06 per day	4.68
Waste consumed for 78 days at .01 1/2 per day	1.17
Packing consumed for 78 days at .06 per day	4.68
Repairs for 78 days at .27 3-10 per day	21.35
Steam coal, 50,150 lbs. } 78 days at 1.81 (643 lbs. per day)	141.67
at \$5.65 per ton, }	
Water, 49,100 gals at 17c. per M .10 per day	7.80

Cost per day \$9.76 8-10

Cost for 78 days \$787.15

Average number of brick per day, 144 M. Cost per M for putting clay on cars, 7c.

Average number yards clay put on cars per day, 320. Cost per yard, 3c.

Engineer's time allowed from the day he started to get the shovel ready until he put it away for the winter.

Fireman's time allowed from the day shovel started to dig clay until close of season.

Laborer on ground was allowed time same as fireman.

If we were only making 40 M to 60 M brick per day, the fireman could be dispensed with, but the shovel supplies clay for three machines averaging 48 M brick per day for each machine, and the clay bank being only four to five feet deep it requires the three men, but not hard work for any of them.

Our coal is weighed every day by the steam shovel fireman and the daily record is on file in our office. The water is measured by an individual meter so that this item is absolutely correct.

You will note that the cost per yard is about 3c. against 4.26c. for last year. The difference in cost this year is due to the shovel digging clay for three machines instead of two last year, so that we practically supplied one machine for nothing.

The cost of putting clay on the cars at the yard where we have not got a shovel was nine cents per yard. We are always glad to recommend your shovel to any one who inquires about it, and we consider it one of the best investments we have ever made.

THE RED RIVER VALLEY BRICK CORP.

By Louis Campbell.



THEW SHOVEL AT WORK IN CLAY BANK.

The above result was secured under unfavorable conditions as to cost of fuel and labor.

Are you interested? Write for information.

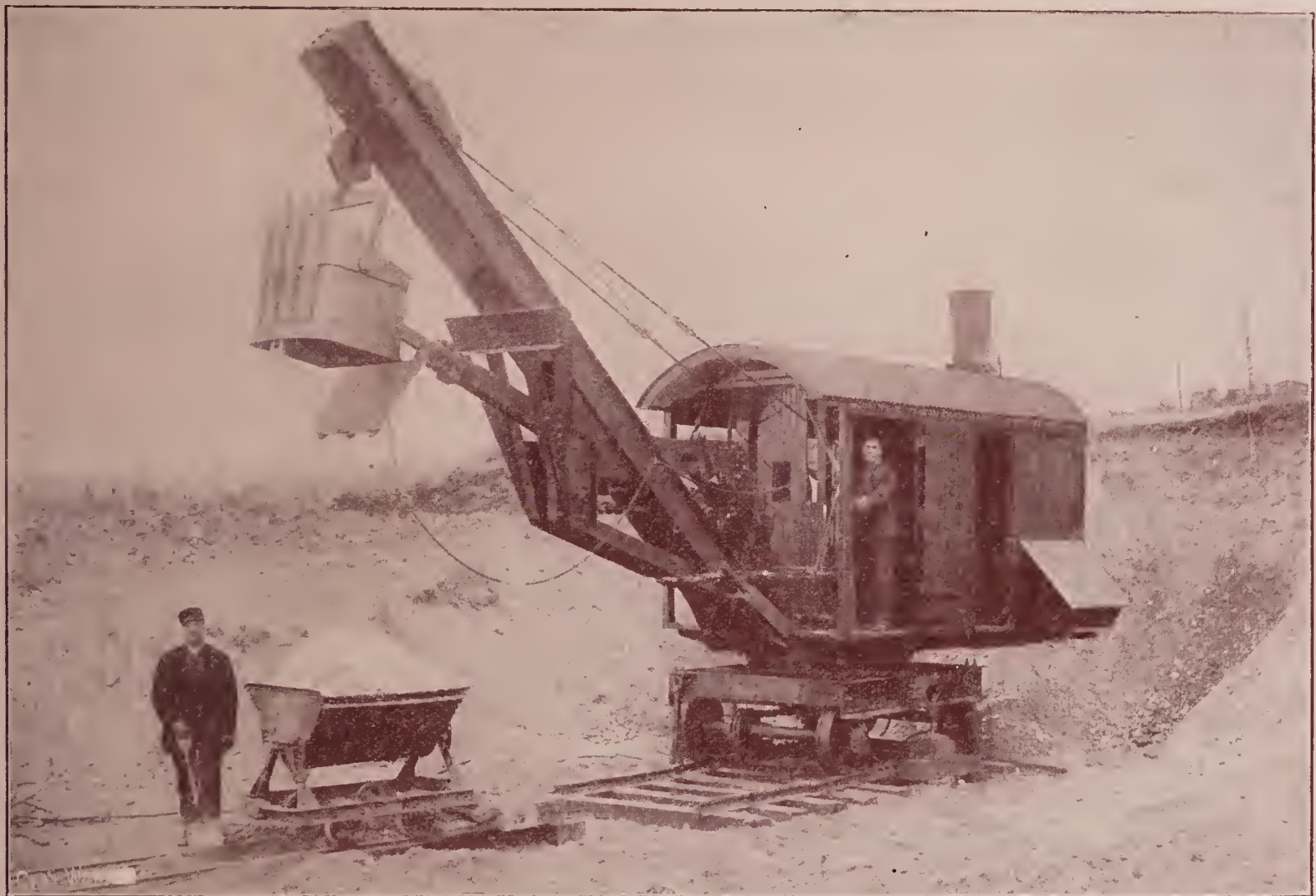
THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

Handle Your Clay With One Man and a THEW SHOVEL

For ten years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



A Typical Thew Shovel

ONE MAN OUTPUTS

Our 13 Ton Shovel with $\frac{5}{8}$ yard dipper will handle any ordinary clay for outputs up to 100 M brick.

Our 20 Ton Shovel with $\frac{7}{8}$ yard dipper will handle any ordinary clay for outputs up to 150 M brick.

Our 30 Ton Shovel with 1 yard or $1\frac{1}{4}$ yard dipper will handle any clay for outputs up to 200 M brick.

Our 40 Ton Shovel with $1\frac{1}{4}$ yard or $1\frac{1}{2}$ yard dipper will handle any clay for outputs up to 250 M brick.

Any of the above machines will handle double the output specified with a full working crew of engineer, fireman and two laborers on the ground.

WE BUILD

SPECIAL SHOVELS FOR SHALE

Our 35 Ton Shovel with $\frac{3}{4}$ yard dipper is suitable for all ordinary shales up to 125 M brick per day.

Our 50 Ton Shovel with $1\frac{1}{4}$ yard dipper will handle any shale you may encounter.

We can give you high lift booms if desired.

We equip with electric motors if you wish.

Write for information.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

Notice to Brickmakers

We have been manufacturing Brick Machinery for over TWENTY YEARS. Our earlier machines were among the most successful made at that time, while we have continually devoted every energy to the improvement of our machines suggested by their operation in the wide variety of clays in the hundreds of plants in which they are operated, especially in the South. We know what it takes to make brick successfully from these clays.

We have turned failure to success in scores of plants equipped with machinery not suited to their conditions, they at first not realizing the force of our organization and experience in Southern requirements.

We have devoted our energies more to improvements and in manufacturing than to selling.

We have a large, well equipped plant. Many of our workmen have been with us almost from the start. We also operate a Demonstrating Plant adjoining our works. Both are operated by electric power.

In buying Steele Machinery you don't pay for any failures or for heavy selling expenses.

The letter below explains how our machinery is sold:

Easton, Md., Nov. 2, 1910.

J. C. Steele & Sons,
Statesville, N. C.

We have been using your machinery for two full years and take pleasure in saying that the results obtained are beyond what we had expected, as we have had so much trouble in the past with other makes of machinery that we did not expect such results as yours has given us. Our total repair bill for the two years has been just twenty-five cents, which was for a section of sprocket chain. We do not see how the cutter could be improved upon. The cut is true and gives a good square brick. We have had no trouble whatever with it, and it is exactly what its name would imply—an "Automatic Brick Cutter." Your machinery was recommended to us by a firm using same, they knowing what trouble we have had in the past with various other equipments. We sent for your representative and his liberal and broad guarantee resulted in the installation; of which, we are ever congratulating ourselves. We have nothing but praise for Steele machinery.

JOSEPH H. WHITE & SON.

J. C. STEELE & SONS,

Send for catalog.

STATESVILLE, N. C.

The Steele Brick Drying System

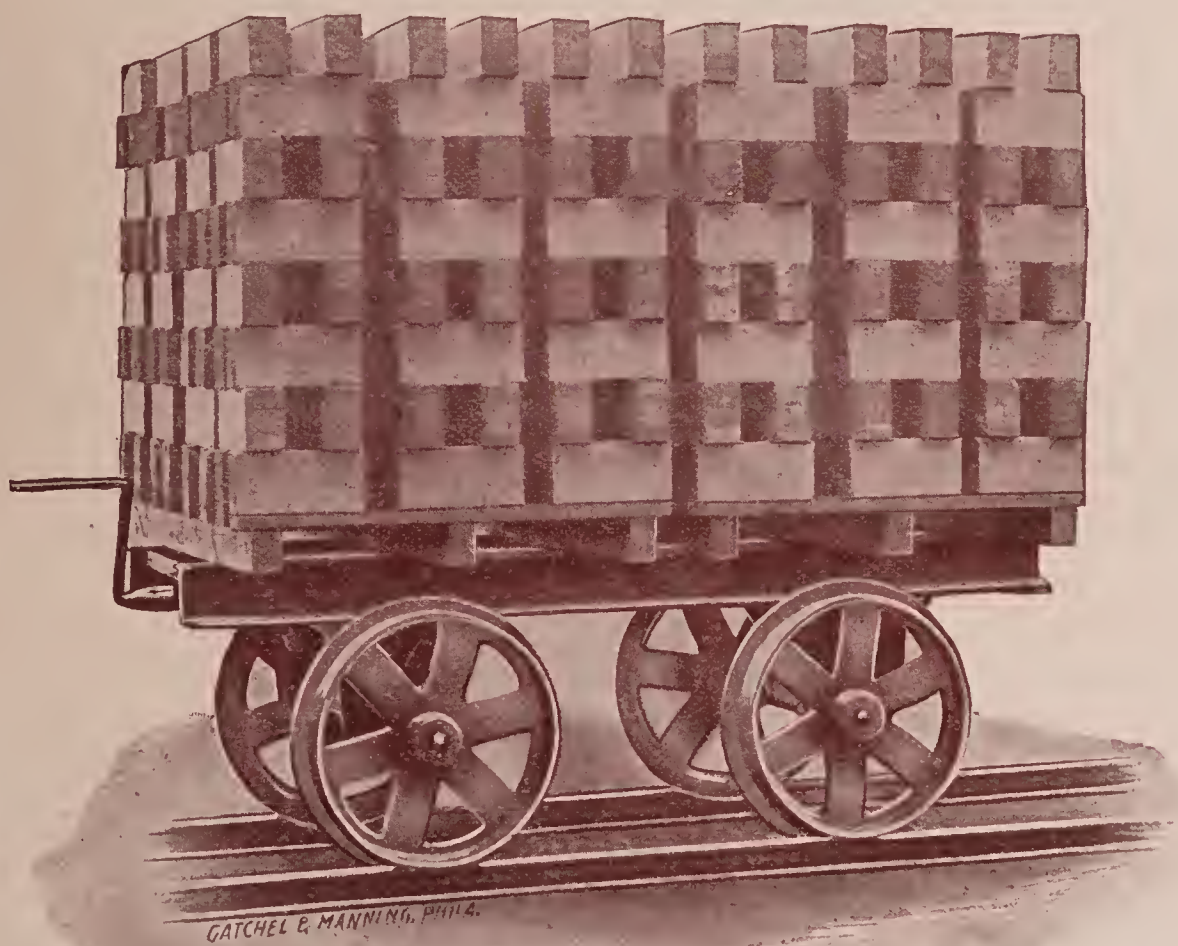


Good ventilation
is the secret of
success in
drying brick.

We furnish a
good, honest
equipment at a
reasonable price.

THE STEELE TURNTABLE PALLET SUPPORT.

Easily turned with a load, which can't be said of any other turntable we have seen.



THE STEELE LIFT CAR ELEVATED, CARRYING LOAD.

Note how simple and flexible. No clap-trap and superfluous parts. High-grade workmanship. The above cut shows how brick are hacked.

Messrs. J. C. Steele & Sons,
Statesville, N. C.

Dear Sirs:

We have used several kinds of lift-cars for transferring
our brick, and find yours to be the best that we have ever
seen.

Yours truly,

BENNETTSVILLE BRICK CO.

Marlboro, S. C., July 22d, 1910.

J. C. STEELE & SONS :: Statesville, N. C.

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ENGRAVERS ELECTROTYPERS



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HYDRAULIC-PRESS BRICK COMPANY

Central National Bank Bldg.

ST. LOUIS

We manufacture all kinds of Brick
known to Modern Brickmaking

IN COLORS

Red, Gray, Buff, Mottled, Pink,
Brown, Flashed and Iron Spot, in
standard Roman *and* Norman sizes

IMPERVIOUS BRICK

Light Gray, Buff, Dark Iron Spots
Also Gray and Buff Iron Spot

ENAMELED BRICK

We fully guarantee our enamel
product. We manufacture all the
desirable colors. American, Eng-
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together with special shapes

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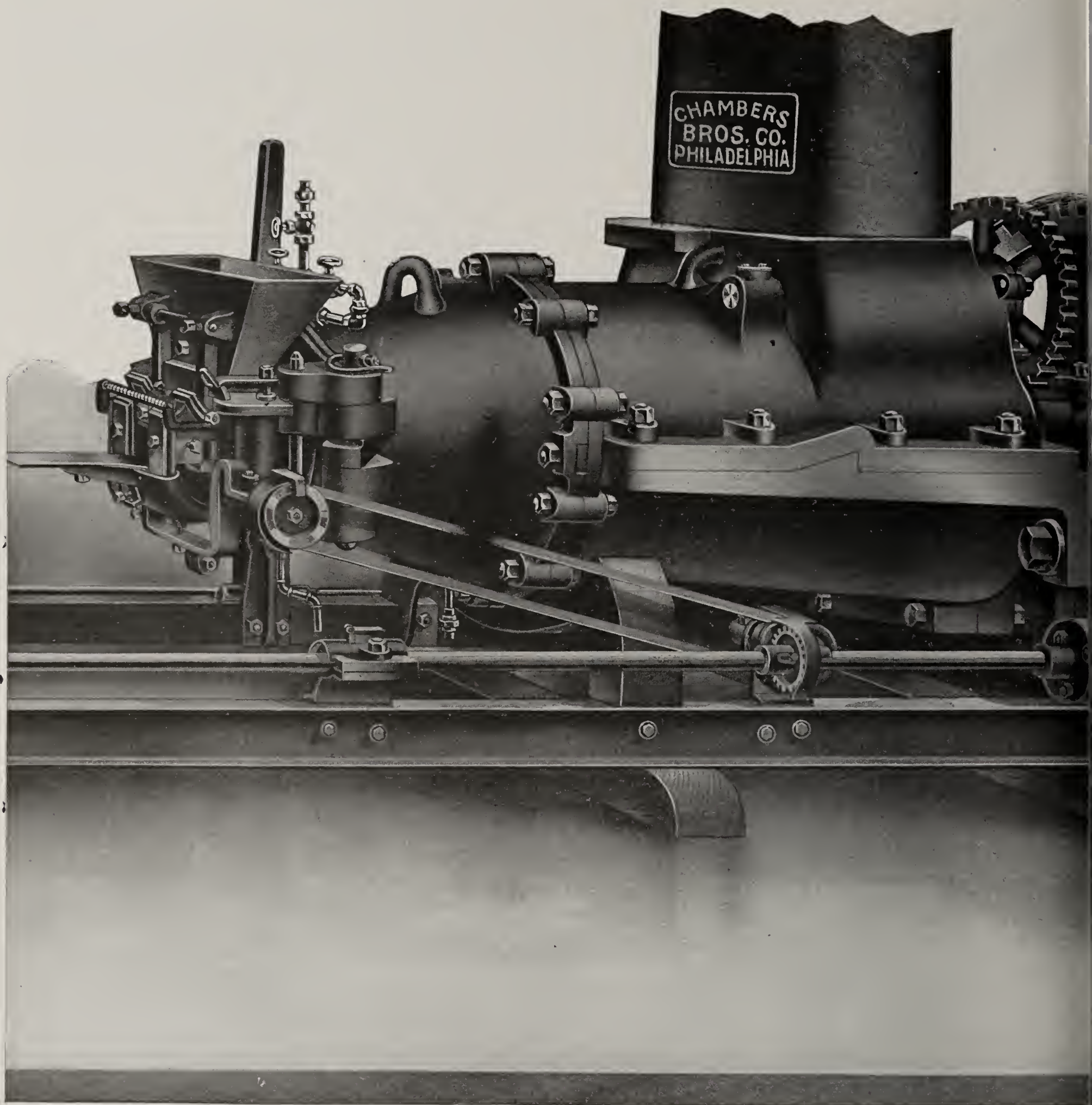
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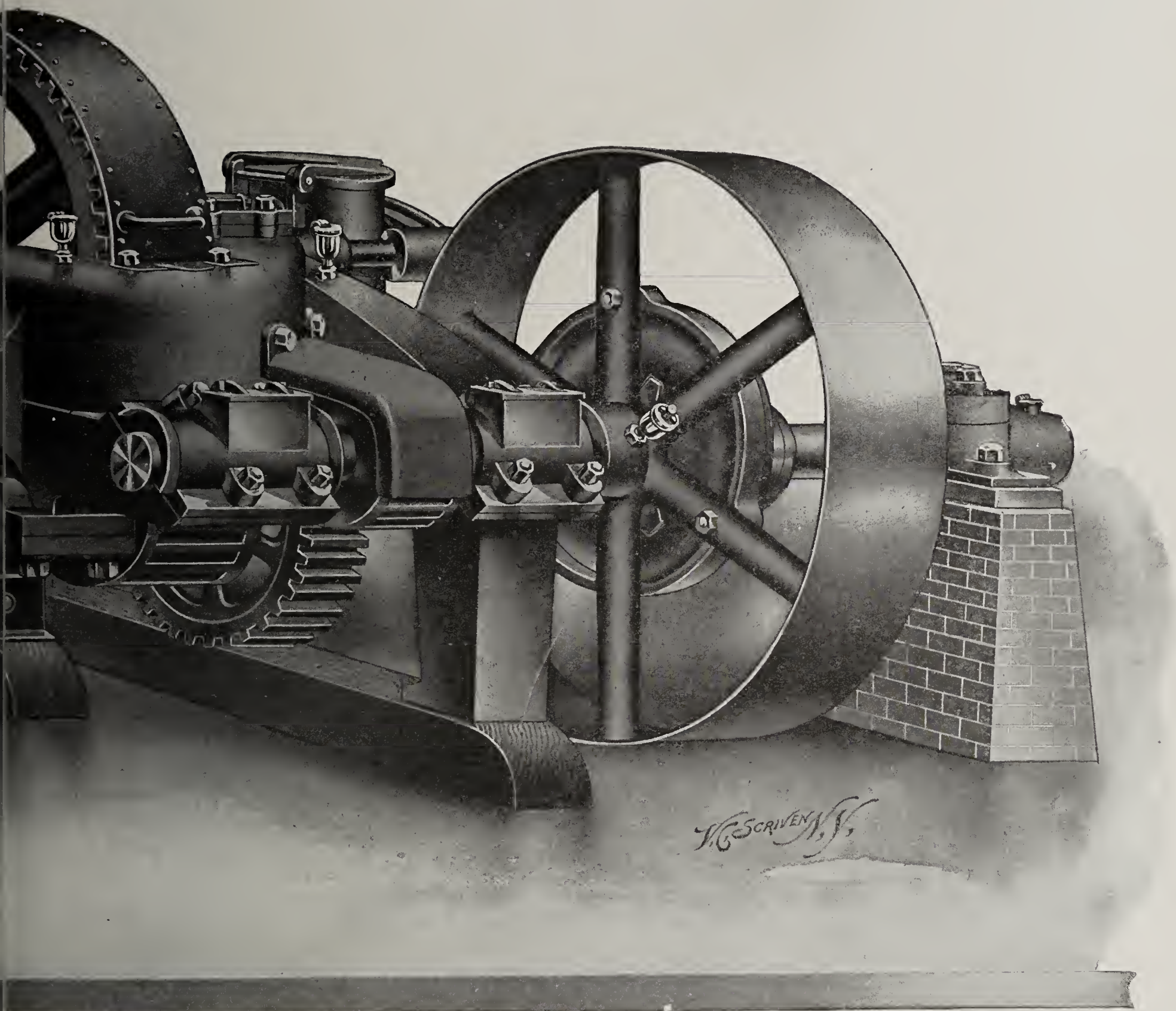
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SEVERAL SIZES

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Philadelphia, Pennsylvania.

Chambers Brothers
Company.

Mention THE CLAY-WORKER.



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BUILT BY

Chambers Brothers
Company,

524 West Jackson Boulevard,
Chicago, Illinois.

See ad on page 3.

A Dryer Opportunity

YOU CANNOT AFFORD TO LET PASS BY

DRY YOUR BRICK PERFECTLY

with the Van Duzer Exhaust and Live Steam Condenser System Dryer; it is a Q. D. P. for drying *brick perfectly*, no blowers, air circulation perfect-conducted under the heating pipes. The rarified air passes through the brick to condenser openings in the ceiling the moisture condensed. Same air is returned under the pipes dry and hot. No machinery, no expensive car outfit, *a simple truck*, double or single pallet rest, *one man can truck 50,000 brick* from Machine to Dryer in 10 hours.

We build Brick Dryers any time, any place, size and prices to suit your plant. We use the very best materials only, and install our dryers at our own expense. You pay for what you contract for, when you have it on hand. Our headers, and arrangement for expansion and contraction of the heating pipes, is absolutely perfect. You avoid trouble with leaking pipes with our system. With our patent Steam Distributor you have perfect control of exhaust and live steam, at all times. With our system, your men are never required to work in a hot atmosphere, all heat being cut off while filling or removing brick from a room. If you are using other than steam power we build a Rarified Air Furnace Dryer on same principle of drying, but heating direct from furnace, and drying brick perfectly in 12 to 24 hours. We guarantee either system to do perfect work, and we install them ready for operation.



Three Room Dryer at Plant of Weldon (N. C.) Brick & Land Improvement Co.

We refer to J. T. Gooch, Prest. Weldon Brick & Land Improvement Co., Weldon, N. C.; Smith-Courtney Co., Richmond, Va.; A. M. Storer, Oxford, Miss. (Brick yard at Louisville, Miss.)

We also install the Moorehead Return Steam Trap, returning all condensation from exhaust steam and live steam to the boiler **steam hot**.
—Saves money by saving fuel.

L. C. VAN DUZER,

Dec. 12, 1907, LOUISVILLE, MISS.

Dear Sir—I am very glad to hear from you, and I am pleased to say that the Brick Dryer you installed for us last year is doing first-class work in every respect. I have never had any cracked or broken brick from the drying process, and I am free to say that I consider it the best process on the market. I will give you a record of the time it took me to make, dry and burn the last kiln of 400,000 brick. It was just 16 days from the morning I put the first clay in the Machine, until the **FIRST LOT OF BRICK WAS DELIVERED FROM THE KILN**, and the **MONEY PUT IN THE BANK**. If you hear of any work that will heat it let me know, and I assure you there was not a **SMALL WHEELBARROW LOAD OF BATS** when the Kiln was all delivered. I consider it quick work, "only 16 days from Clay Bank to Money Bank."

Wishing you success, I am yours,

A. M. STORER.

L. C. VAN DUZER,

HIGH-POINT, N. C., July 6, 1909.

Dear Sir—I assure you that the Brick Dryer you installed for this Company is giving perfect satisfaction. We are using the exhaust steam in the day time, and live steam at night, and there is **TIME AND MONEY SAVED FROM THE MACHINE TO THE CAR**. I burn the brick in from 30 to 36 hours less time, and of course **SAVE** about 30 per cent in fuel. I realize the advantage of the Dryer, and wishing you success, I am yours, N. E. WELBORN, Manager High-Point Brick Co.

TO WHOM IT MAY CONCERN:

WELDON, N. C., May 12, 1908

The Brick Dryer L. C. Van Duzer installed for us is giving perfect satisfaction in every respect. We are making a better brick than in the 27 years time we have been in the business. Have no hats, where, without the Dryer, we lost at least 20 per cent of the output in hats. The fact is, I would not do business without his Dryer System. J. T. GOOCH, Manager Weldon Brick & Land Improvement Co.

Address **CLAY DRY KILN COMPANY** MEZEROTT BLDG., ROOM 41
WASHINGTON, D. C.

Mention THE CLAY-WORKER.

Something About Brick Dry Kilns

The "Van Duzer Exhaust and Live Steam Condenser System Dryer" will Save You TROUBLE, TIME and MONEY



End View of Fuel and Air Furnace

products.
and fuel.

Bricks have been dried perfectly in 12 hours at a cost not exceeding 11c per 1,000—for labor

We have been years gaining the knowledge that assures our success. We have never failed to dry brick perfectly. The more trouble a manufacturer has drying his clay products the greater is our opportunity to give him perfect results with our "Rarified Air Condenser System."

We will build a Dryer any size, any time, anywhere, and at a price to suit your plant. Some of the advantages of our system are:

No change in your machinery required.

No change in your Car or Truck system, if you want to utilize the system you have.

If you have boiler power to run your machinery successfully, it will be all right to run the dryer also. We never have asked for additional boilers. We build dryers utilizing all the exhaust steam when you are manufacturing your brick, and live steam at all other times. If you are not using steam power, we can build for you our "Rarified Air Furnace Dryer," adapted for using any kind of fuel—wood, coal or oil—and **GUARANTEE** to dry your products in 12 to 14 hours at less cost than any other system "On Earth."

BRICK DRYER.—The furnace extends across the end of the dryer, and is connected to the air conduits and pipes, which are inside of the air conduits. The air passes around the furnace into large air conduits, which carry the rarified air through the drying room. This air passes out through the openings in the conduits and then through the bricks, moving towards the ends of the rooms. The perfect circulation of the rarified air is a superior advantage in drying clay

EXTRACTS FROM LETTERS BY SATISFIED OWNERS

"We are making a better brick than in the 27 years' time we have been in the business. Have no bats, where without the Dryer we lost at least 20 per cent. of the output in bats. The fact is I would not do business without your Dryer."

"It was just 16 days from the morning I put the first clay in the machines until the first lot of brick was delivered from the kiln. Not a small wheelbarrow of bats."

CORRESPONDENCE SOLICITED

CLAY DRY KILN COMPANY

Room 41 Mezerott Building

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Special Stitched Canvas Belting

Manufactured by us especially for

**MOTOR, ELEVATOR, CUTTING
TABLE AND MAIN DRIVES**

CHILEAN, GRIFFIN AND FULLER MILLS

**BUCKET
ELEVATORS
AND
CONVEYORS**



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CRUSHED STONE
AND SAND=LIME
CONVEYING**

Proven absolutely the best for driving

**PUG-MILLS—WET AND DRY PANS
PULVERIZERS—DISINTEGRATORS**

And all machinery used in the manufacture of
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ESTIMATES CHEERFULLY FURNISHED.

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REALIZING *that*

All Good Things Are Imitated

*unscrupulous dealers are selling belts
claiming to be* **"SAWYER"**

"Made in the Sawyer Factory"

"Made for Us by Sawyer" *or*

"Just as Good as Sawyer"

This tendency toward

**IMITATION IS VERY
FLATTERING**

to us, in a way, in that

**IT GIVES US MORE
ADVERTISING**

We regret, however, that many have bought belts on the assumption that they were SAWYER, to find, after they opened them, that there was no indication of their ever having come from our factory.



A SAWYER BELT IS STENCILED

SAWYER

Every Fifty Feet.

Sawyer Belting Co., Cleveland, O.

	DRYING		BURNING	
BURNS COMMON BUILDING BRICK PAVING BRICK FIRE BRICK FIRE FLASHED FACE BRICK PRESSED BRICK	The Boss System of Burning Brick Originators of the idea of applying air under pressure to brick kilns. ✍ Brick kilns equipped with the Boss System are not subject to the whims of the elements — the heat wave cannot be interrupted, disturbed or destroyed. Don't burn brick with all coal force, but use the original BOSS SYSTEM of burning, which will enable you to make use of the natural forces and save one-half of your fuel bill. John C. Boss Company ELKHART, INDIANA Write for Catalogue MONGER BUILDING			BURNS DRAIN TILE SEWER PIPE TERRA COTTA HOLLOW BRICK AND ALL CLAY WARES
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Fits Any Type of Machine



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BRICK MOULD, sides $1\frac{3}{16}$ inch thick, partitions and bottoms $\frac{5}{8}$ inch thick; bound with heavy steel, held in position with screws and rivets. Made of selected cherry, maple or walnut. Price each - - - - - \$2.00

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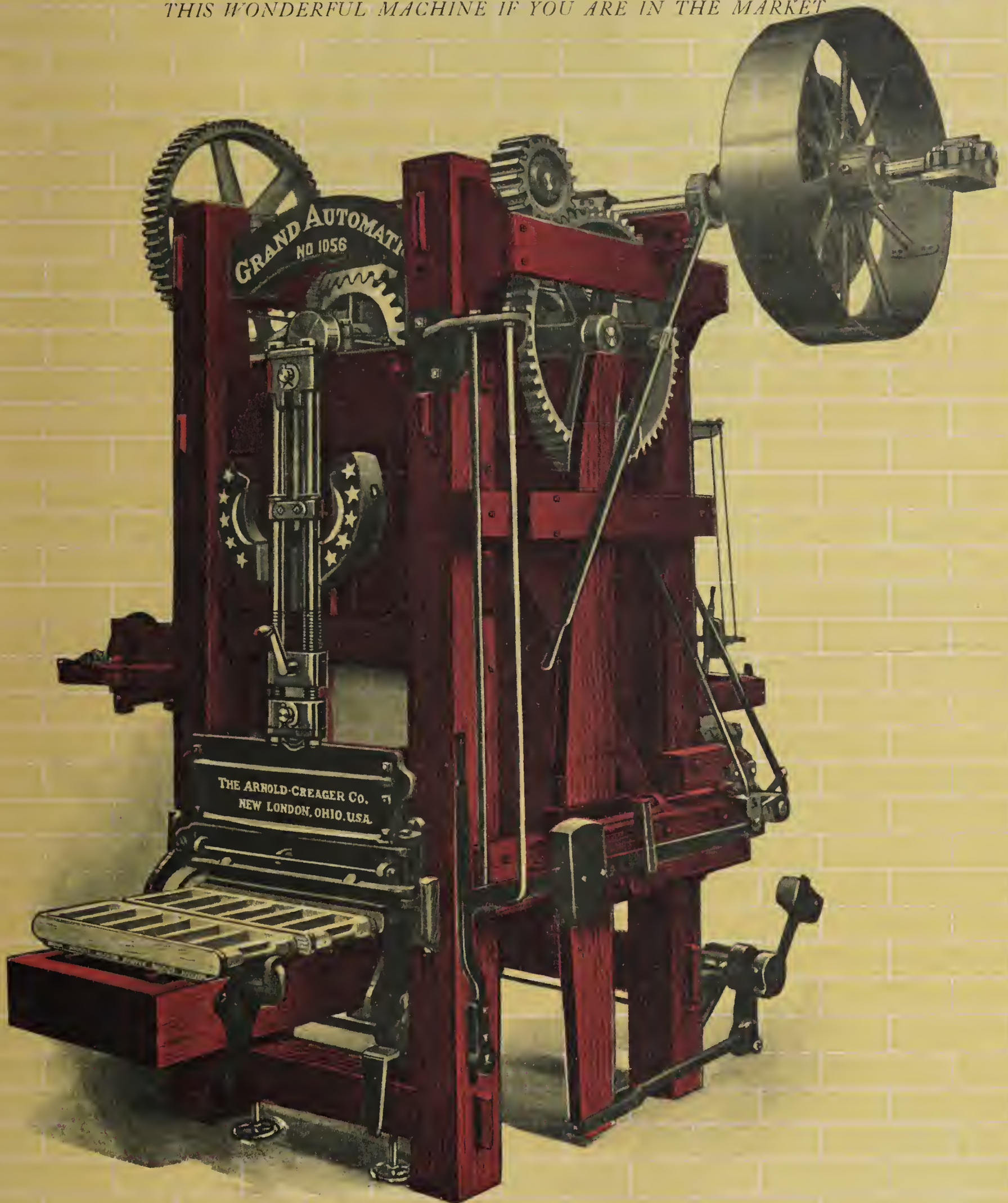
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*YOU WILL MAKE A SERIOUS MISTAKE IF YOU DO NOT INVESTIGATE
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Send for detailed description and price on this wonderful machine—better yet, let us send a salesman to explain it, without expense or obligation on your part.

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FOR BRICK OR TILE MACHINERY**



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MR. FRANK McCLELLAN is in full charge of our road selling force and will arrange to have one of our representatives call on you without expense or obligation on your part, if you are in the market for brick or tile machinery of any sort. All we seek is an opportunity to prove beyond question that we have the equipment you need at prices below your expectation. Your own interest demands a thorough investigation of our complete line before you place an order of any kind.

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We are publishing the most interesting catalogue of clay working machinery and supplies ever attempted and every illustration in it is a life-like reproduction in natural colors. It will be a valuable reference book and a copy should be in the files of every yard owner. Free distribution will be made about February 1st, and if you do not receive a copy, it will be because your name is not on our mailing list. To be assured of a copy and to avoid any delay send your name to us at once.

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Everything for the Brick and Tile Plant

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“POST” SELF FILLING CLEANING FOUNTAIN PEN.



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Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



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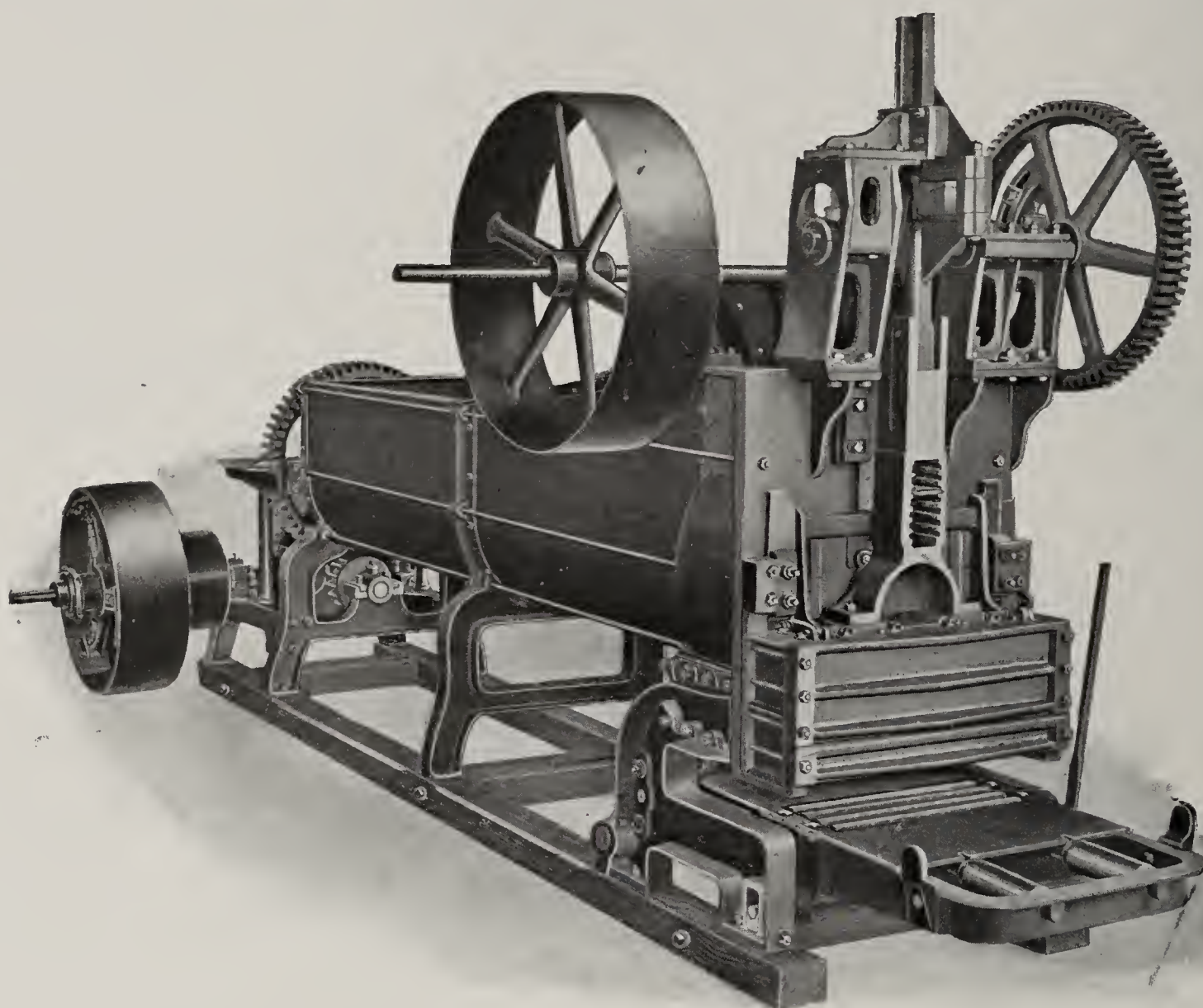
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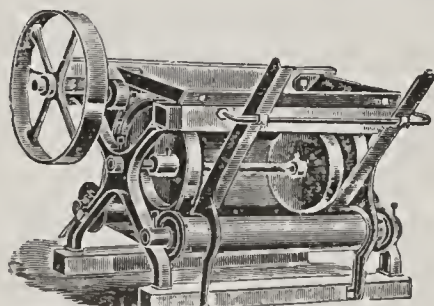
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THE ONLY MACHINE HAVING CAST STEEL GEAR
THE BEST CONSTRUCTED MACHINE MADE

A machine well built, of the best material, by skilled workmen. You cannot make a mistake in purchasing this machine. It cannot be equaled for quality and quantity of brick made. It will run steadily every day, making a given number of brick with little or no cost of maintenance.



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Brickyard Accessories

DISINTEGRATORS having
Chilled Rolls, Steel Cutting Bars,
Steel Shafts, Ring-Oil Journals,
up-to-date in every way.

GRANULATORS or Feeders,
two styles.

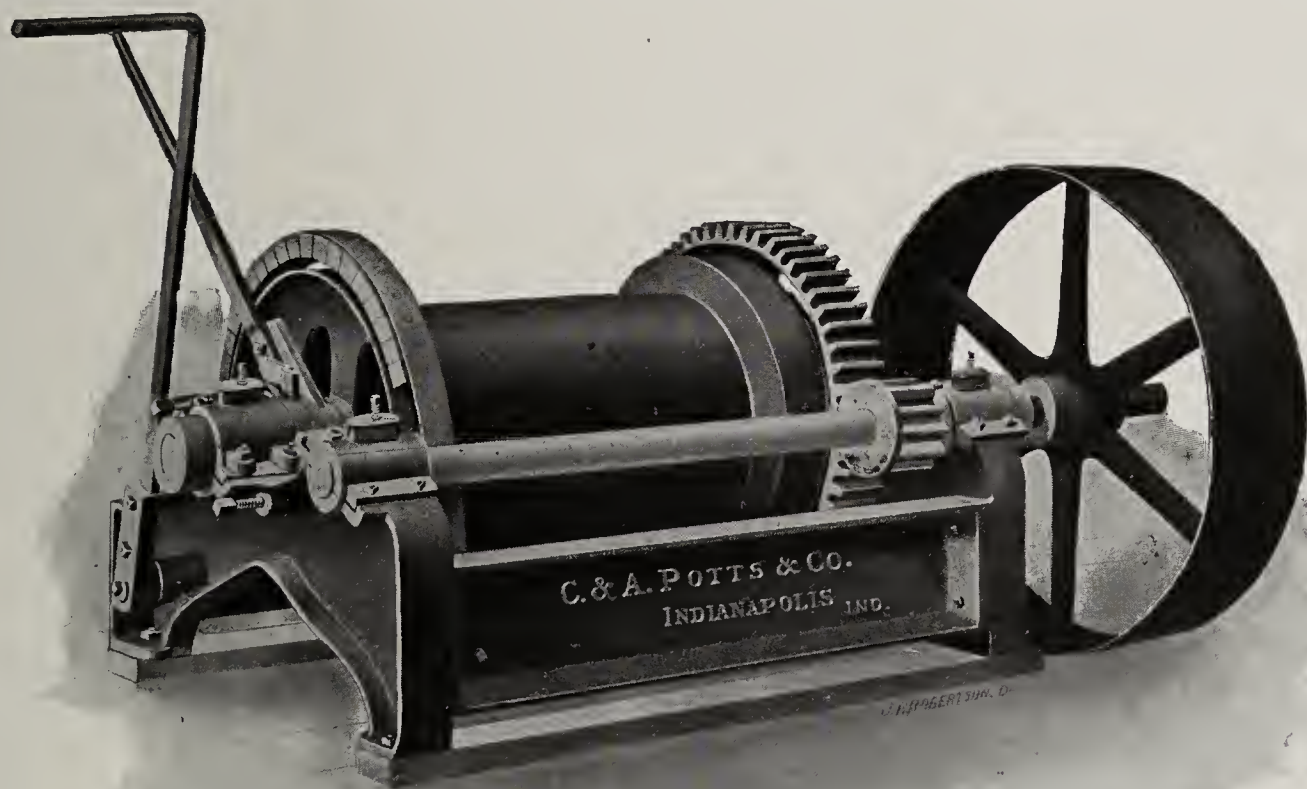
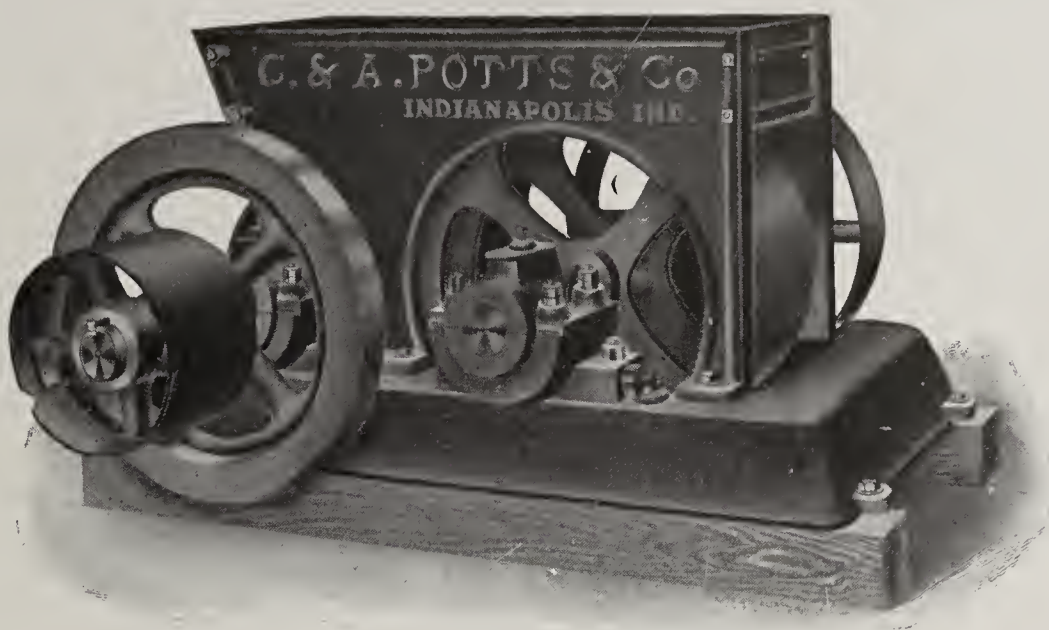
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Self-contained, either spur or bevel gear, to suit any location. Try one.*



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This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

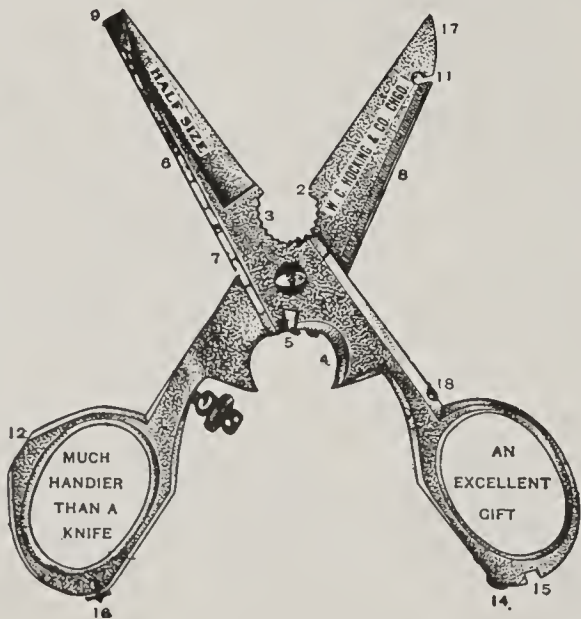
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every **new subscription** to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

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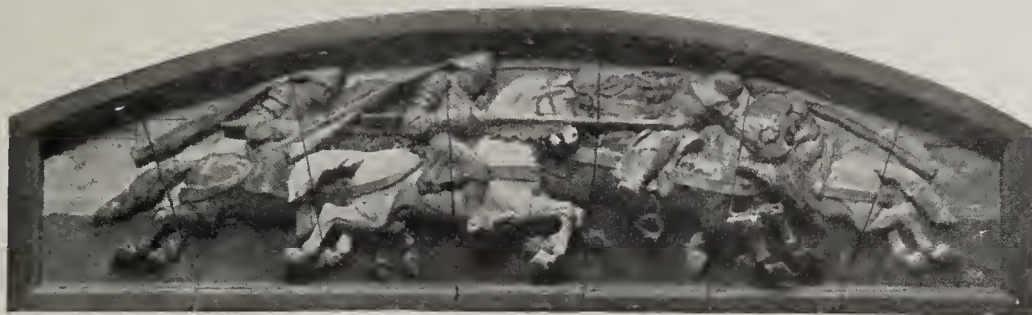
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Rookwood Faience is especially adapted
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Brickwork either interior or exterior.
The variety of color is very great.



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(Patented.)



Dries a larger variety of clays and a greater number of clay products, and produces a much larger percentage of uniformly dried ware than any other type of progressive dryer. It is the most economical dryer to install, because—



There is no expense for its up-keep.

The fuel consumption is less per ton of dried ware than in any other.

Only the minimum amount of labor is required to operate it.

Conditions always under full control of the operator.



The above points of merit should commend this dryer to the consideration of prospective users as well as of those who now use other types of dryers, and who will be studying their best interests by changing to the

JUSTICE RADIATED HEAT DRYER.

A full description of this dryer is given in our Bulletin, which we will take pleasure in sending upon request.

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Periodic and Continuous Kilns, Supplies, Etc.

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Machines
from
10,000
to
50,000
Daily
Capacity?
DISINTE-
GRATORS,
PUGMILLS,
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SANDERS,
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CLAY CARS,
DUMP CARTS,
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AND ALL KINDS
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CASTINGS?



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THE WELLINGTON MACHINE CO.

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The new year is a fitting time to first offer our new and original design of a

TILE AND BRICK MACHINE COMBINED.

Unhampered by prejudice in favor of any existing styles, yet alive to the ideas which actual experience has proven best, our engineers have, by careful study and tests, perfected the compact, simple, strong efficient tile mill and brick machine here shown.



Exterior View No. 2 Brick and Tile Machine.

We also carry Cutting Tables, for tile and brick, hand and automatic. Our 1911 catalogue—same color cover as these pages—sent on application, with complete description of our wire-cut machines.

The Wellington Machine Co.

Wellington, Ohio

THE NO. 2 TILE AND BRICK MACHINE

Capacity 30,000 to 50,000 Daily.



Interior View No. 2 Brick and Tile Machine.

Double pugshafts of 3½ inch square steel.
Steel pinions.

48 inch friction clutch pulley with 12 inch face.

Length of pugmill, 7 ft. 1½ in.

Length of machine over all, 19 ft. 7¼ in.

Rigidly mounted on steel "I" beams.

With or without Smooth Roll Crusher Combined.

The Wellington Machine Co., Wellington, Ohio

JAMES W. HENSLEY,

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IMPROVED BRICK MACHINERY AND CLAYWORKING DEVICES.

Brick Machines, Pug Mills,
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Tile Machines, Disintegrators,
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Clay Elevators, Winding Drums,
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ALL KINDS OF

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Everything to Equip Yards
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THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



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Yard Superintendents,
Factory Foremen,
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ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
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A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

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THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

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Arranged to Suit All Locations

These Kilns can be seen burning Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 Brick per day.

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Cheapness in construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

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WE make practical tests of the materials and determine their fitness for wares.

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WE design plants for economical operation—driers, kilns, furnaces, clay handling and preparing rigs—in fact, anything for clayworking except standard machinery equipment.

WE assist our clients in selecting the proper equipment.

WE remodel old plants, bring them up to economical operation, and correct the faults of manufacture.

**We Are Engineers, Not Manufacturers,
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May we talk to you through our pamphlet

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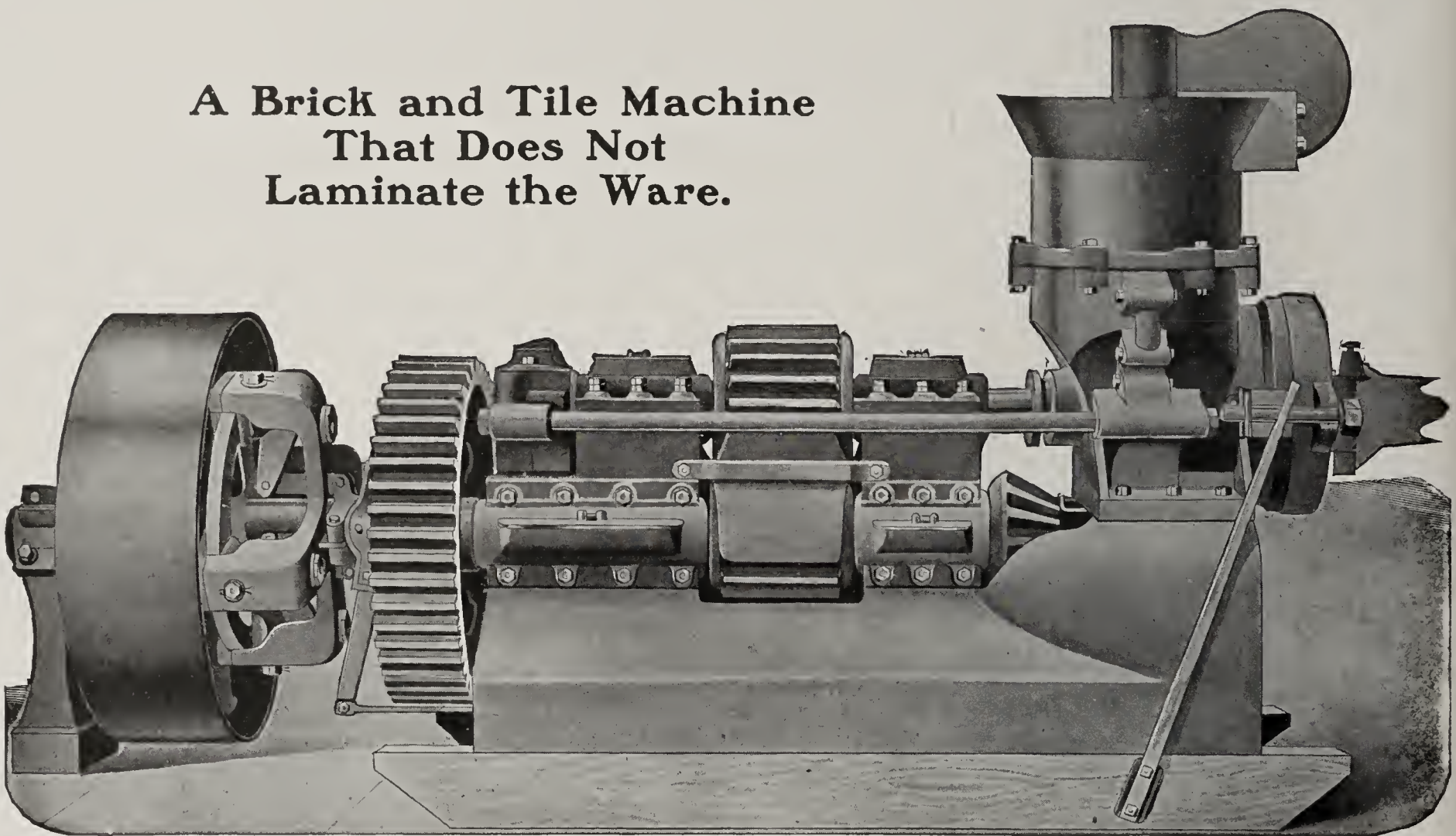
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A Machine of Large Capacity. Unequaled in
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That Does Not
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We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

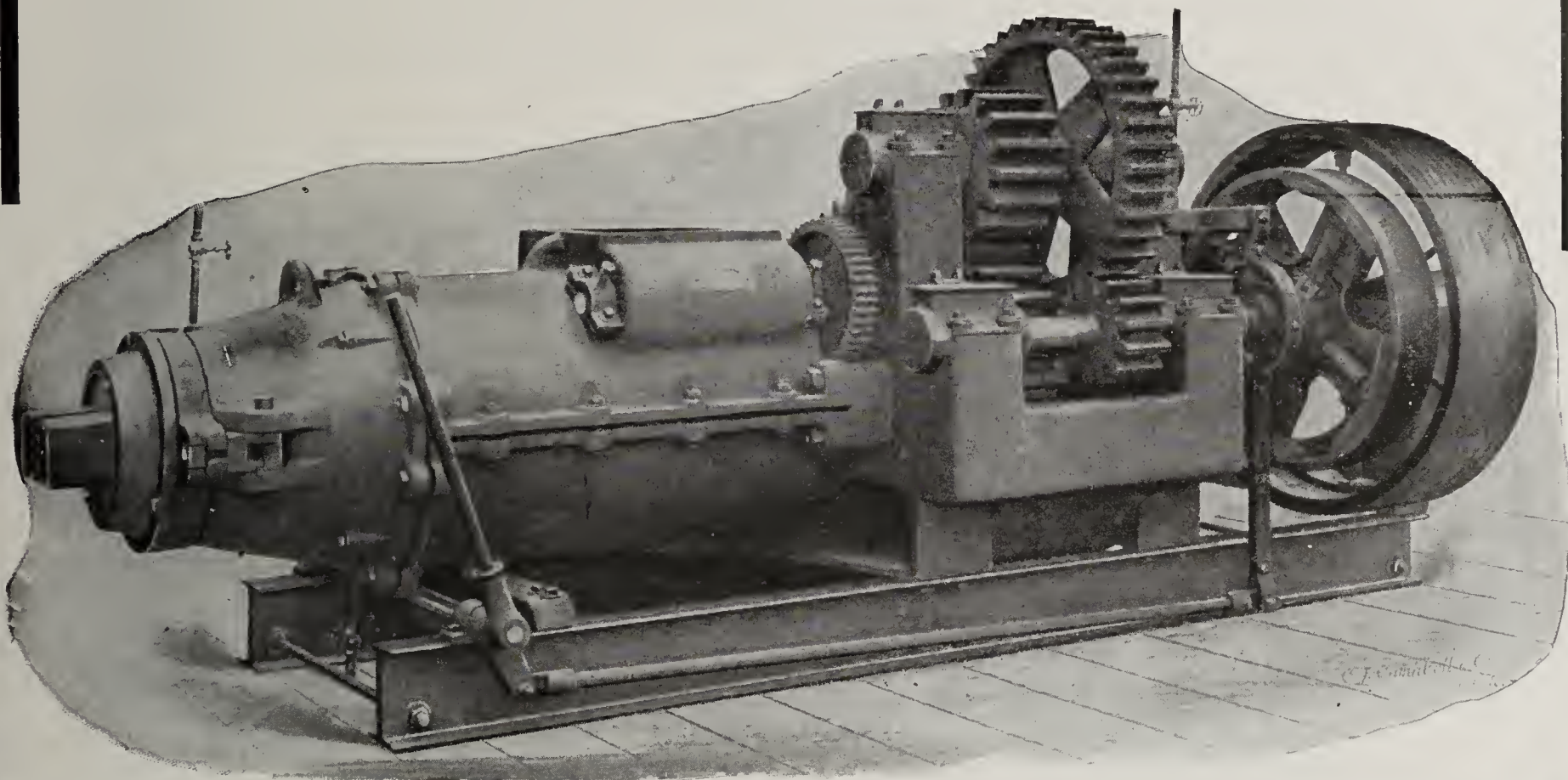
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Brewer Horizontal Brick Machines are built in three sizes, ranging in capacity from 2,000 to 5,000 bricks per hour, in weight from 5,000 to 14,000 pounds. In many cases the machine rated at 2,000 brick per hour is making 3,500 and the 5,000 machine 7,500. The rated capacity is low, the weights are high in proportion.



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The knives are forged from hard, high-carbon steel; each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The backthrust bearings are self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

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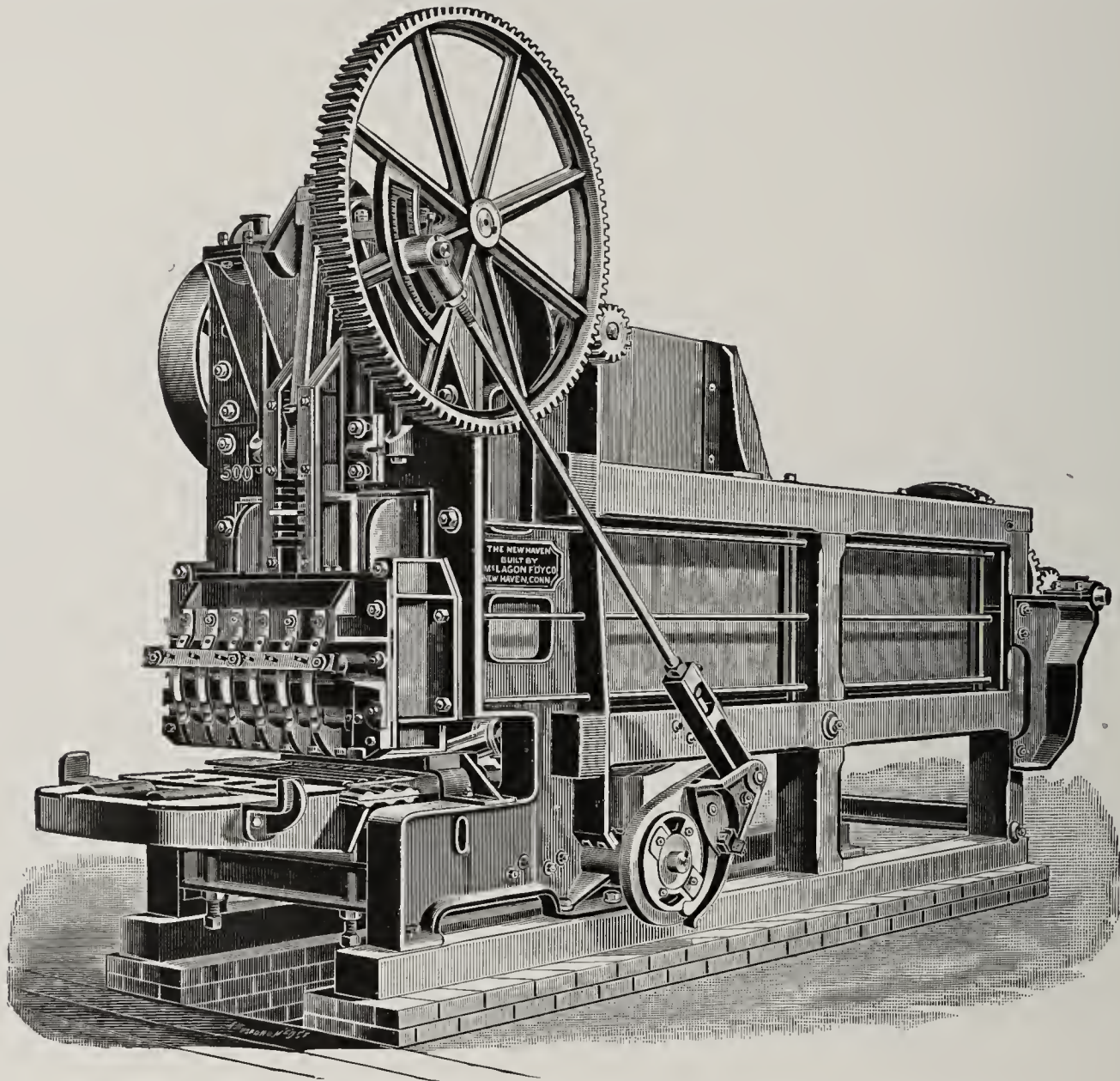
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Soft Clay Brick Machines

Are the only kind we build, and its our aim to build them well. They are the reliable kind, with great strength placed just where it is most required.

Stout shafts, long bearings, large oil holes, strong gears, steel liners and other details in proportion. They are the kind

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Came into existence some twenty-two years ago, and they came to stay. They have staid so well and are so well liked at home that three-fourths of all the brick made in New England are the product of **"New Haven" Machines.** They excel everything and

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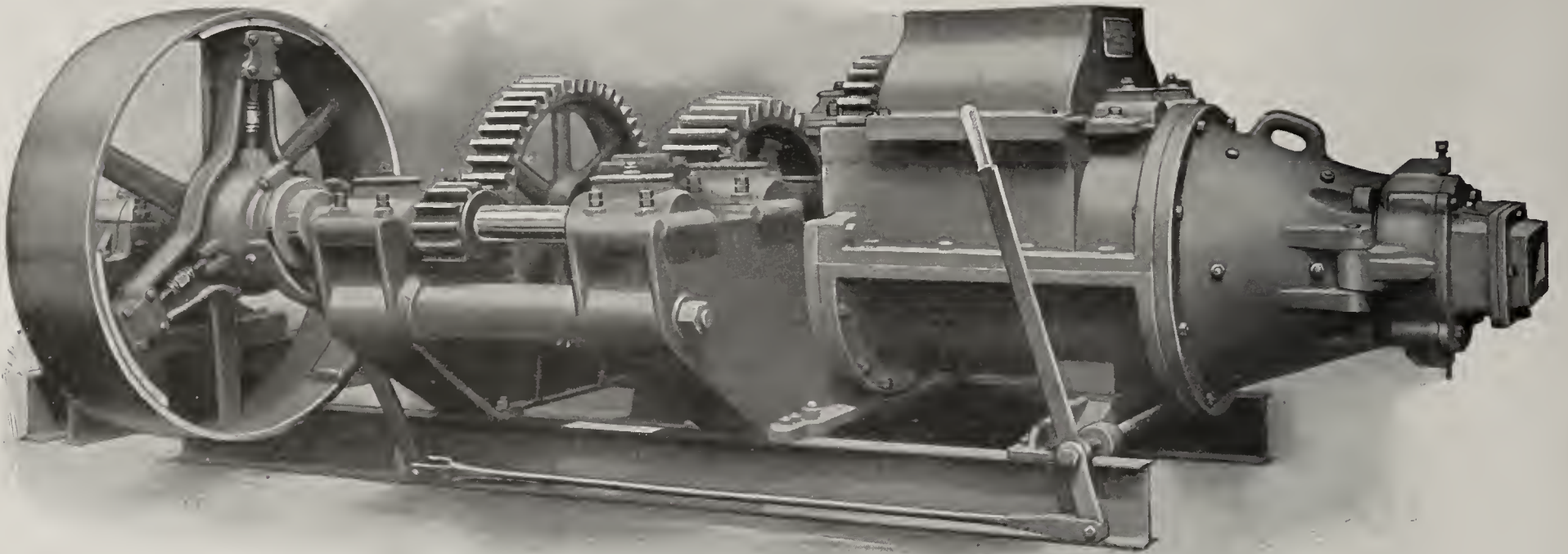
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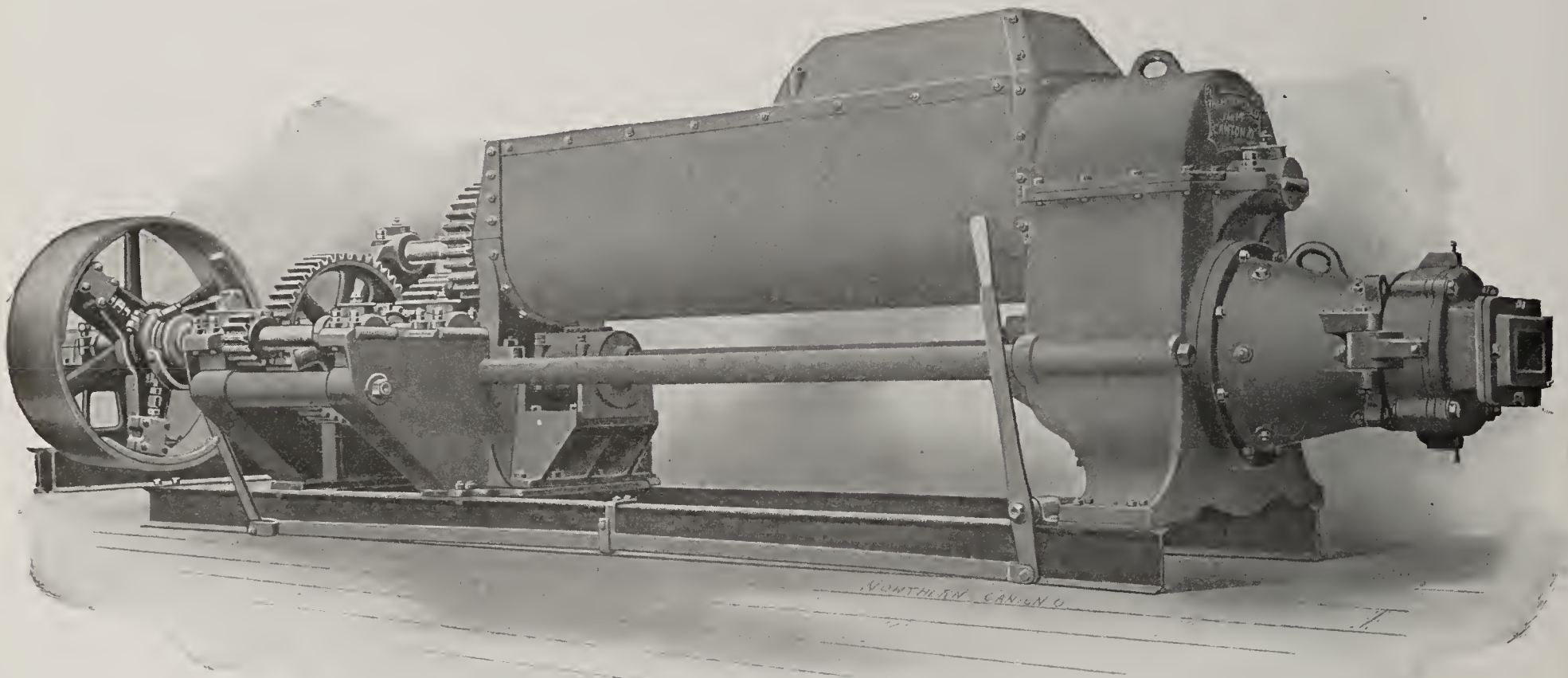
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Auger Brick Machines for 20,000 to 125,000 daily Capacity.



Combined Machine, from 20,000 to 125,000 daily capacity.

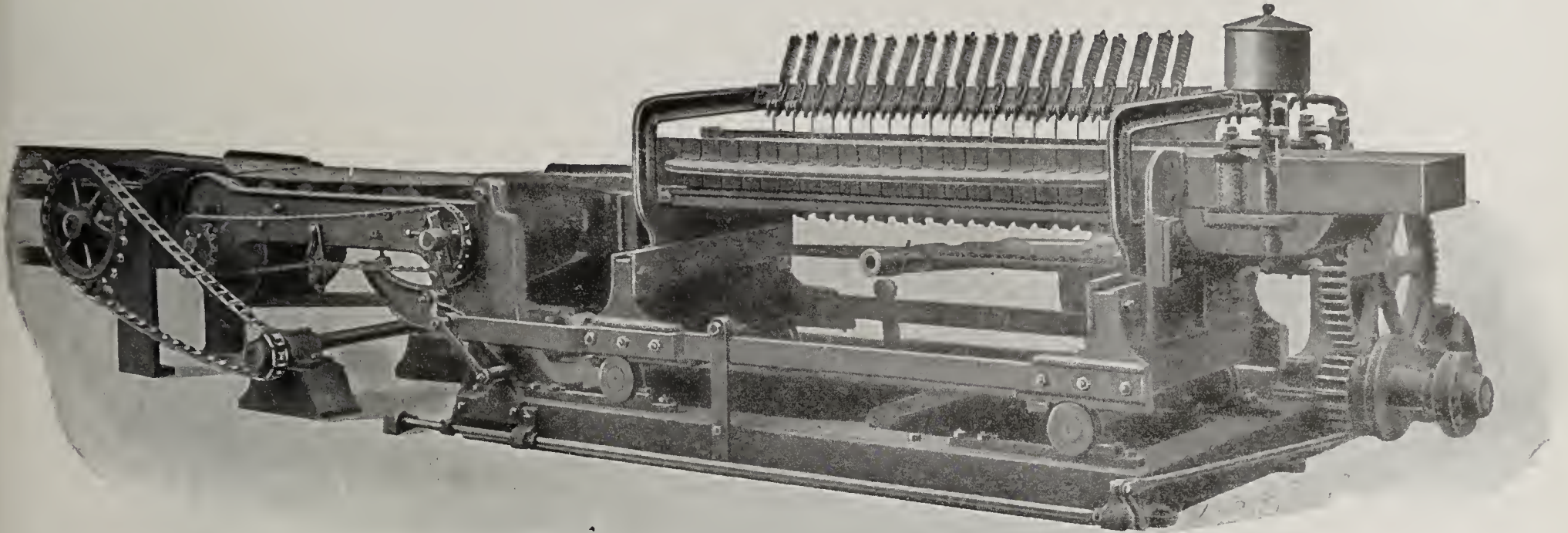
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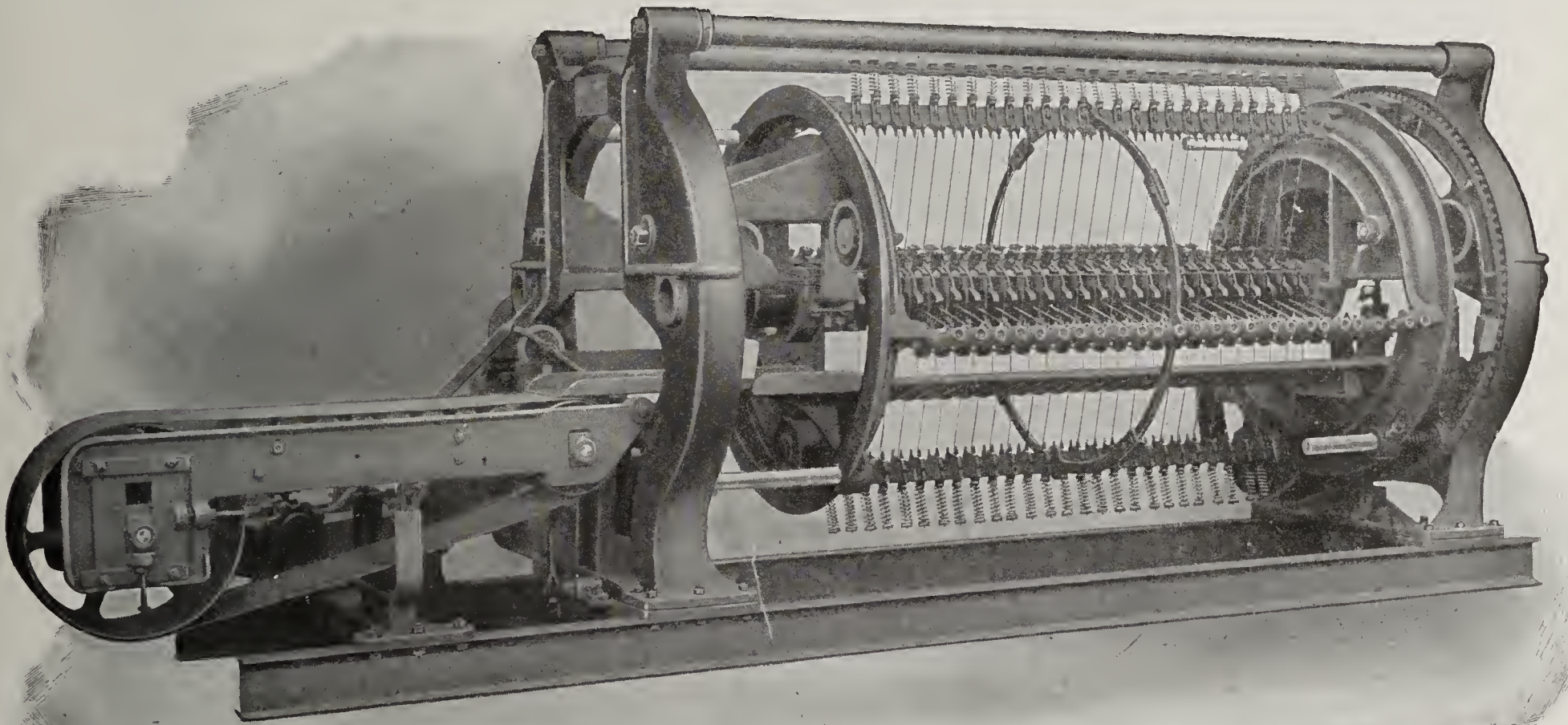
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The simplest in construction of side-cut automatic tables. Used by some of the largest brick manufacturers in this country.



A Rotary Automatic which cuts brick 30 inches from the die. No long column of clay to make trouble. No wearing parts underneath to clog with dirt. No friction or other troublesome devices.

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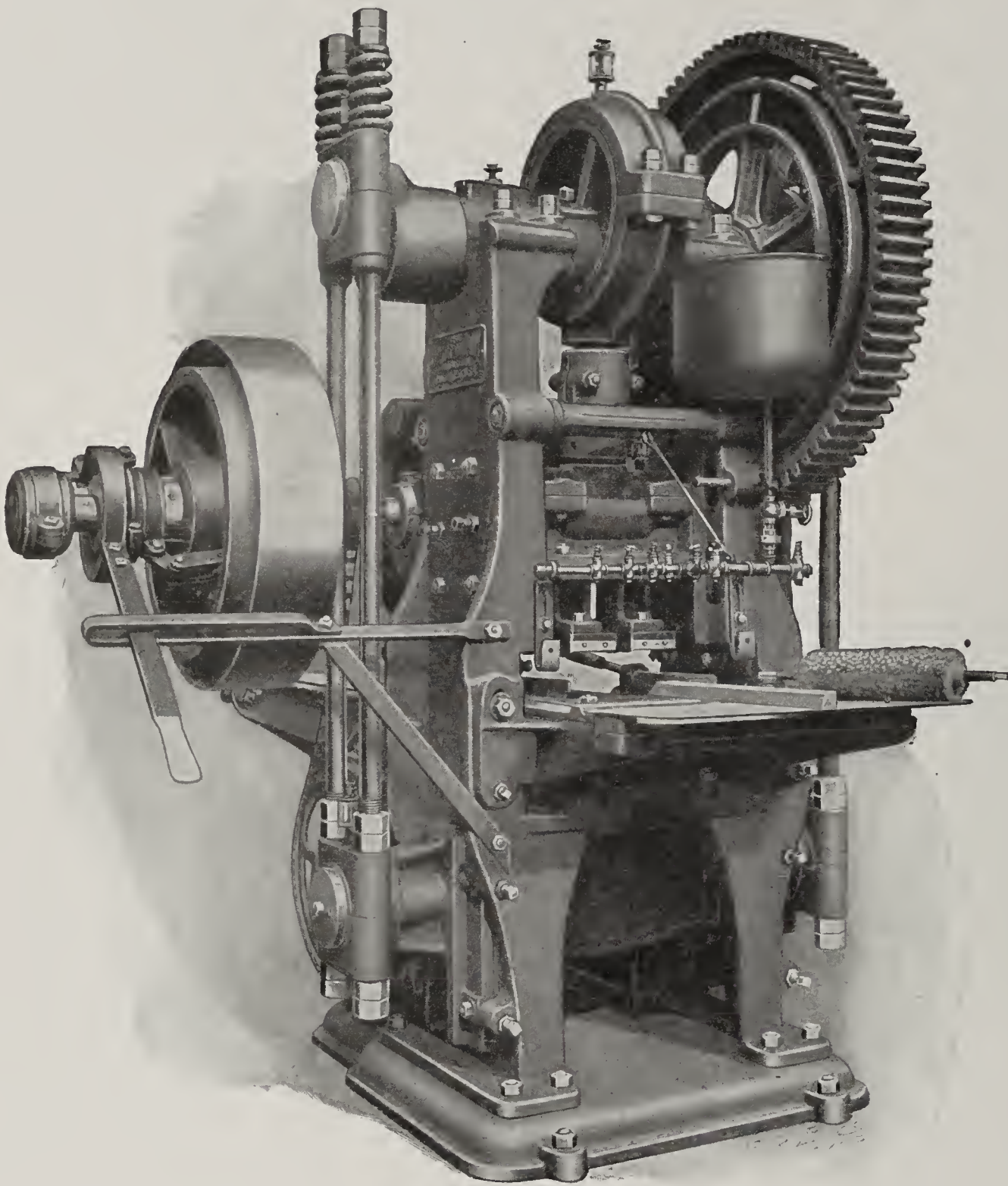
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Follow the experienced manufacturers of clay products,—
They use "Bonnot" Equipment.



Capacity 20,000
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in 10 hours.

Generally
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to be the best
repress built.

Continuous
motion.

No links
or toggles.

Wearing parts
out of the dirt.

The "Canton" Repress.

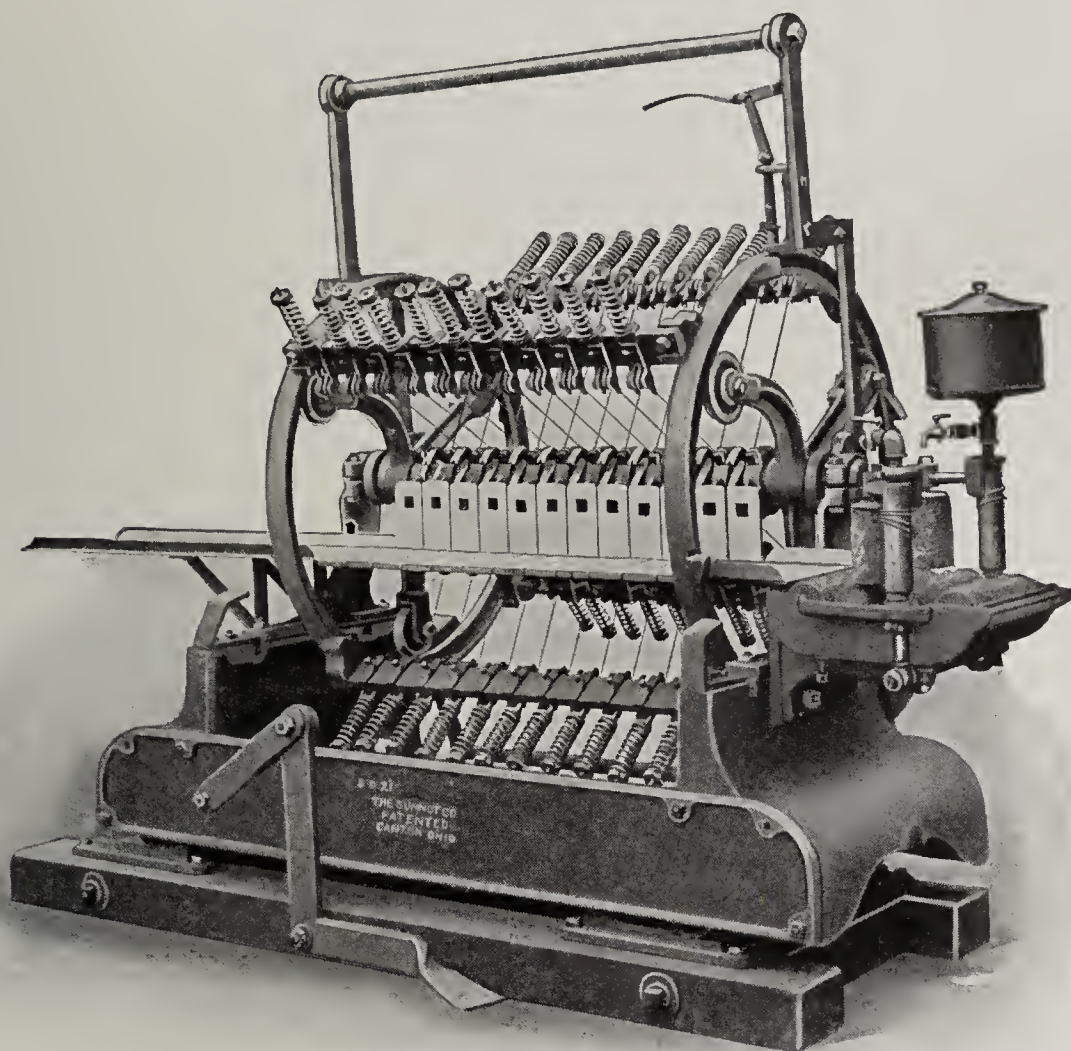
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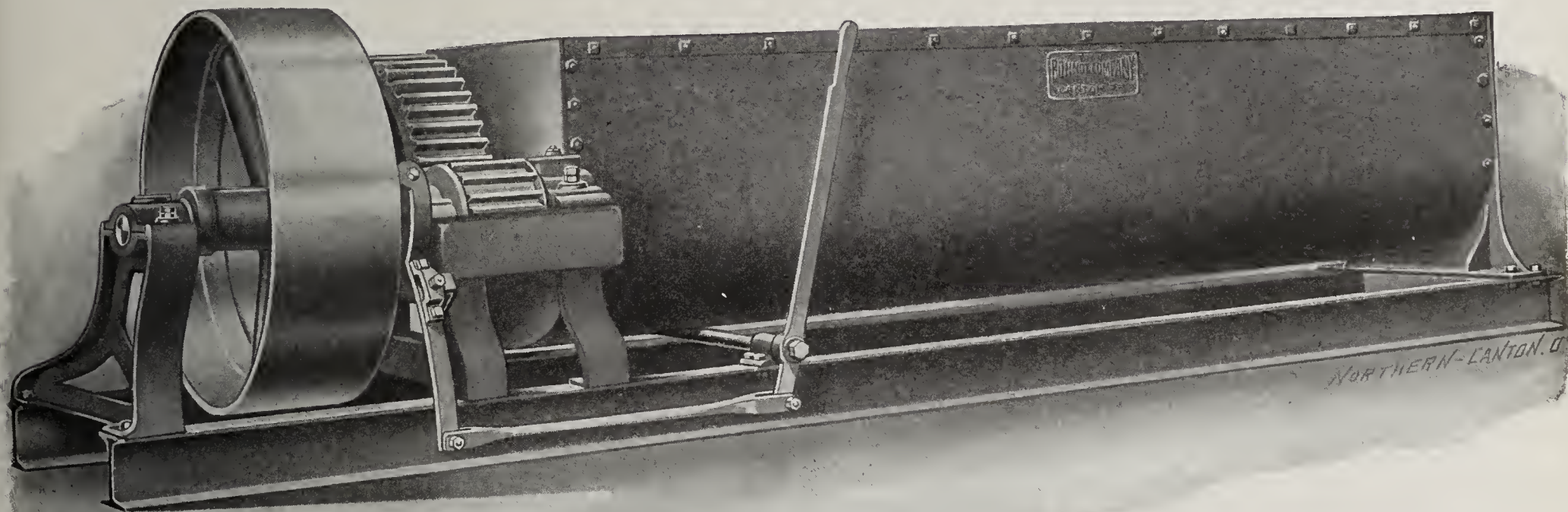
Bonnot Machinery Gives Satisfaction



If you want to make fine face, wire cut brick, this cutter will do it with the best results.

For capacities up to 25,000 per day. Made also for end cut brick.

Hand Revolving Cutter.



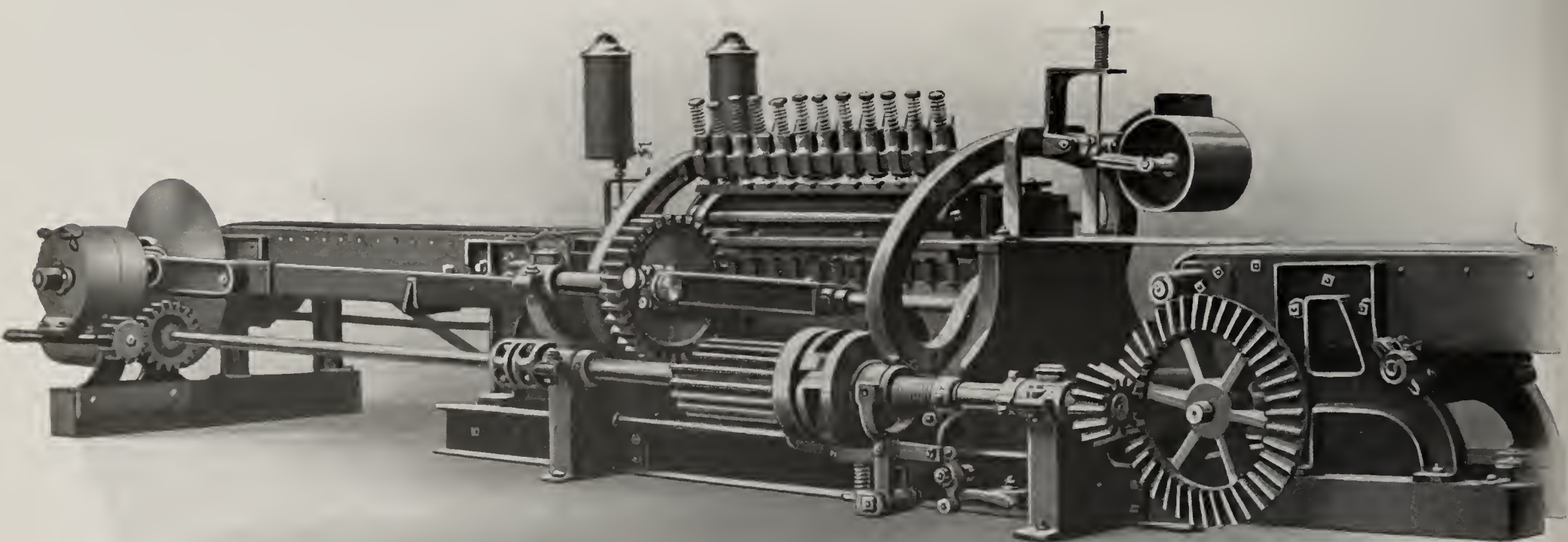
Pug Mills, all iron and steel, in various sizes and lengths. Constructed for heavy service.

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Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

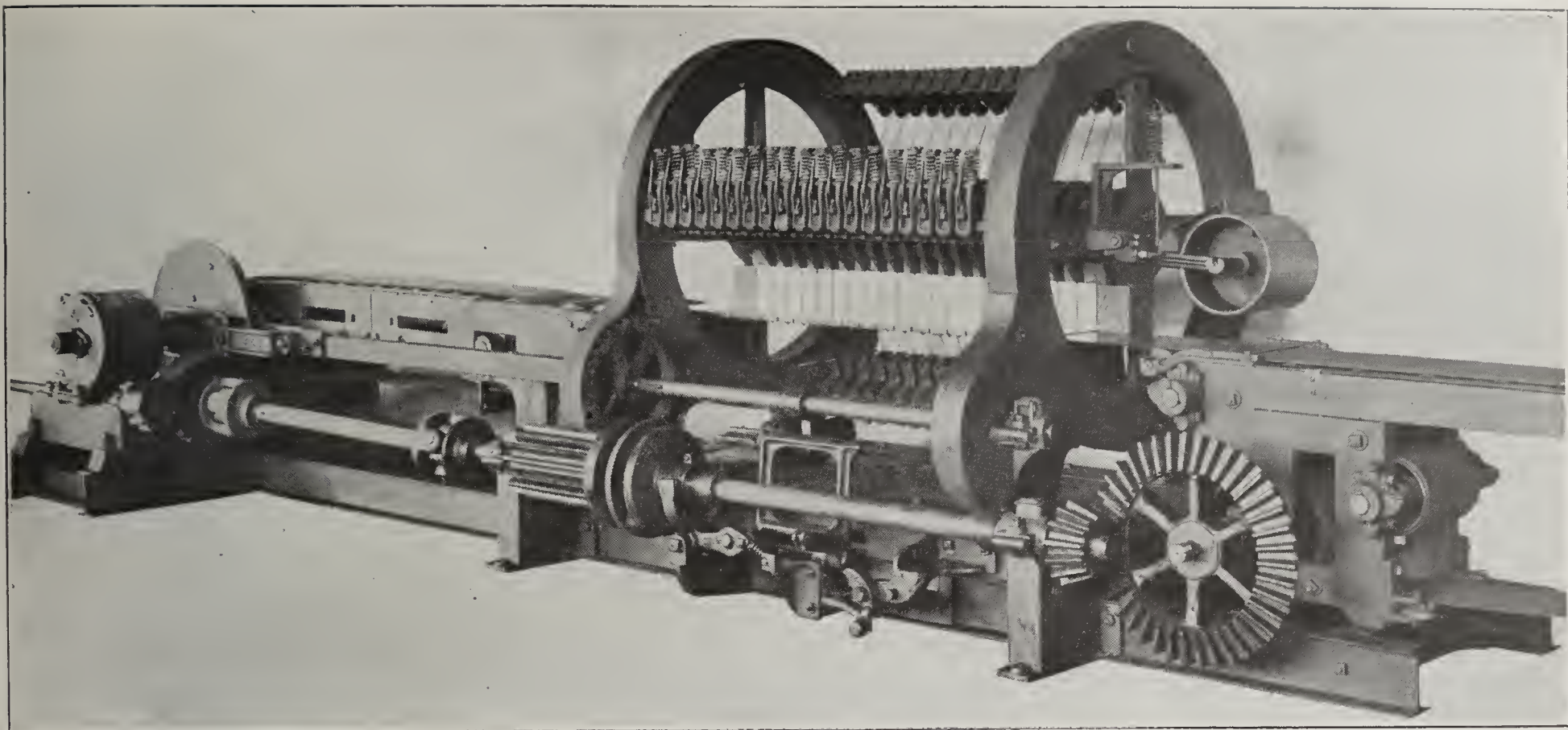
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

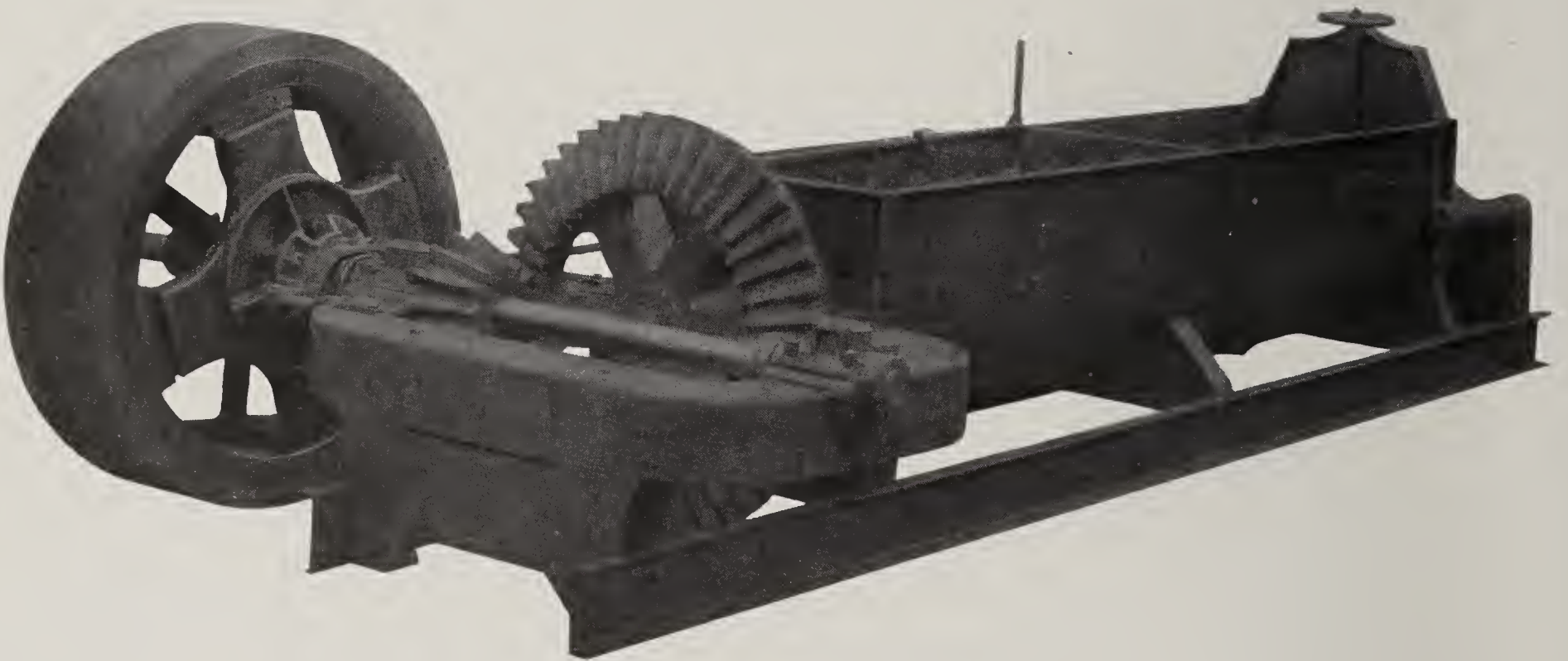
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We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

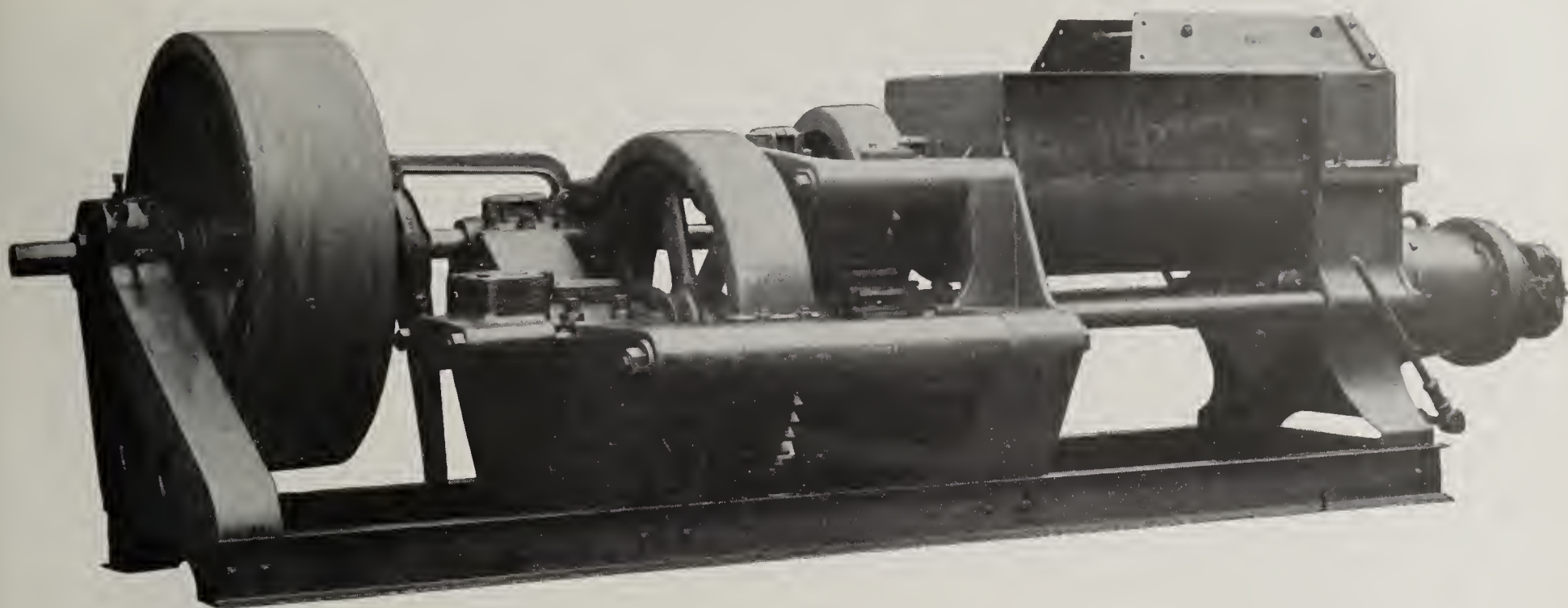


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY. Galion, Ohio

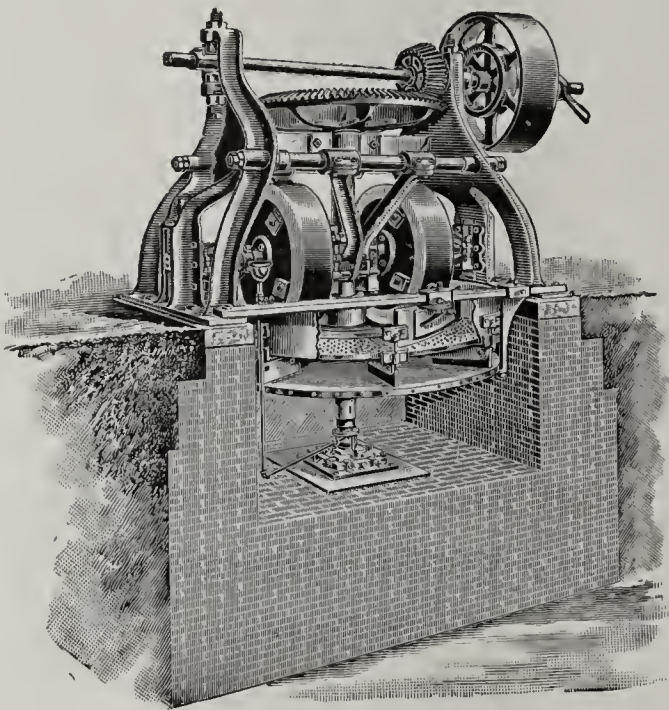
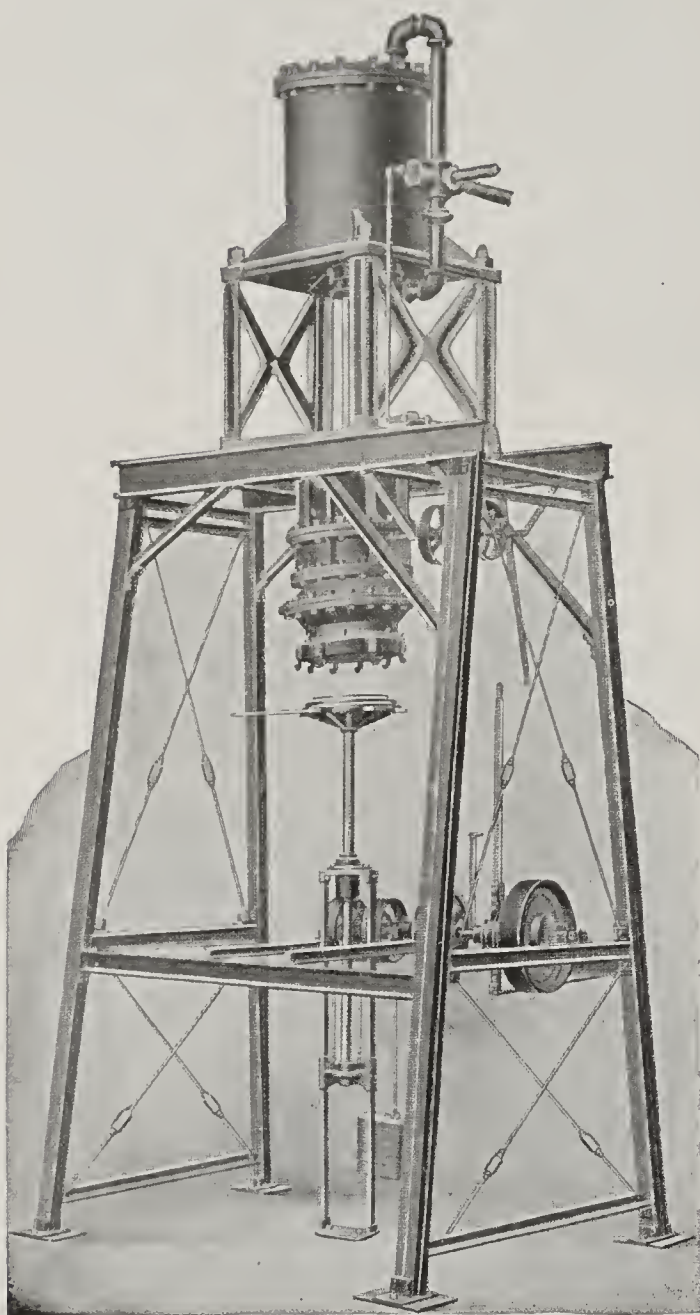
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IS THE WISH OF

The Stevenson
Company
of Wellsville, Ohio

And we cannot wish you any more bountiful returns of the year than can be had through the use of

These
Greedy
Clay
Eaters



A Few Foundation Stones on Which Above Assertion and the Reputation of the Machines Rest—REPEAT ORDERS and MERIT

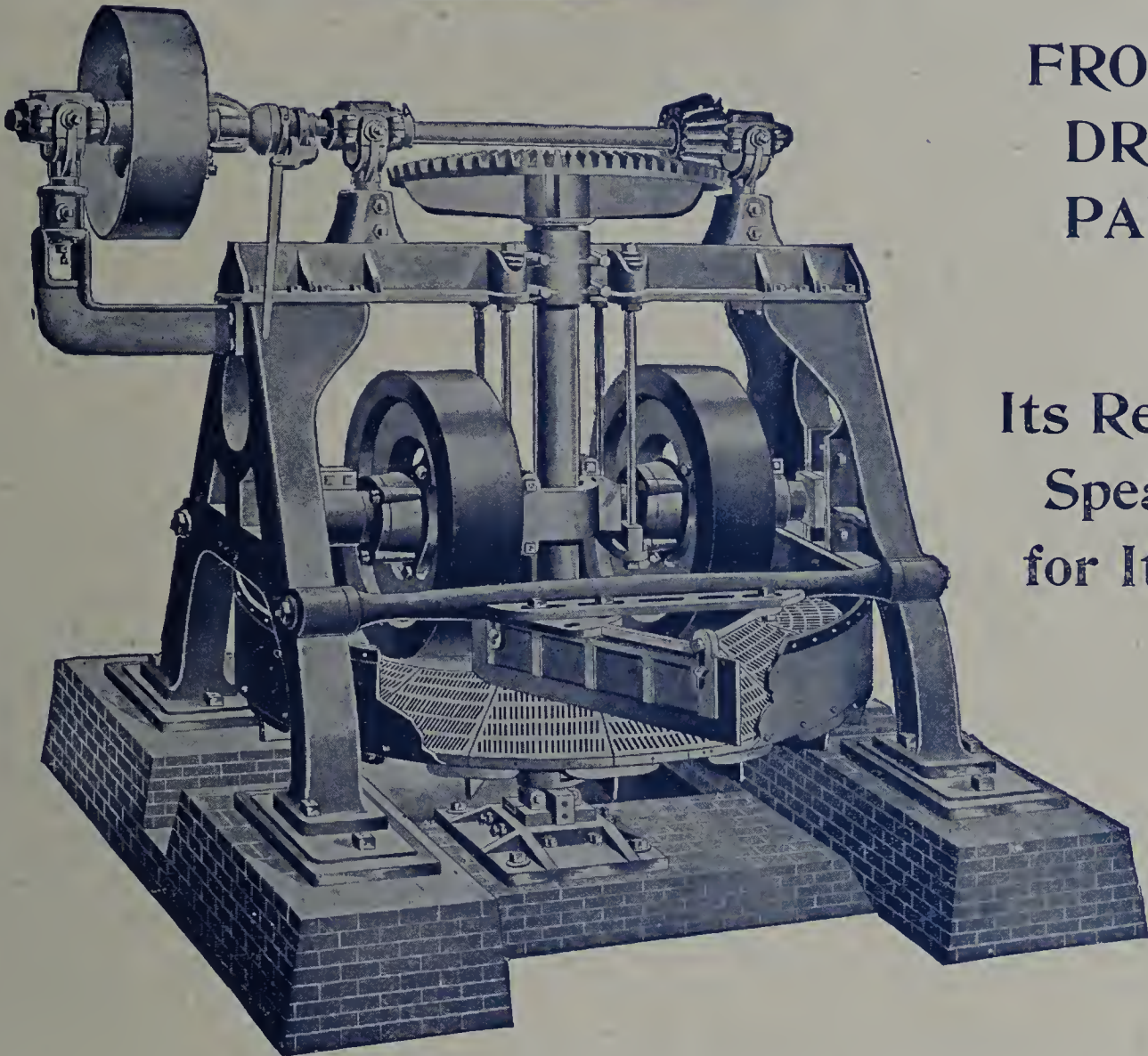
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East Ohio Sewer Pipe Co. 1 Press, etc. } in 4 Pans, etc. } 1902 2 Pans in 1904 1 Rock Breaker } in 1 Pan, etc., etc. } 1910	Stratton Fire Clay Co. 6 Pans, etc. } in 2 Presses } 1903 4 Pans } in 2 Presses } 1905	American Sewer Pipe Co. Pans and wholesale renew- als galore from organization to date	H. A. Robinson Co. 4 Rock Breakers 10 Dry Pans 10 Wet Pans 5 Presses, and greatest outfit in world in 1910	Robinson Clay Prod. Co. 4 Pans in 1903 14 Pans } 5 Presses } in 1906 2 Set Dies } 16 Pans } in 1 Press } 1910 and train load beside	
UP-TO-DATE A dozen or more valuable improvements on Pan and Press—all money-saving and money- making—in the past year or two	ENDURING Pan Record:— 16 years on hard shale, and good for many years more. Press Record:— 30 years, and still running	SPEEDY Pan's Record:— 108,000 brick in a single day for one pan. Press Record:— 720 24-inch in 5 hours 9,400 4-inch in 10 hours	BEST EVER Users say: —"Best machinery on market." —"Give little or no trouble." —"Your Press is a dandy." —"Best Press in Canada." —"Your Pans are first-class."		

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Has stood for all
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Power Plant
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Its Record
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ACME PRESSED BRICK COMPANY,
Manufacturers of
Ornamental, Front and Common Brick,
Dry Press Process.

A. W. Hope, Secretary.

The Frost Manufacturing Company,
Galesburg, Ill.

Millsap, Texas, October 25, 1910.

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Last year we had occasion to purchase two new pans and without the least hesitation we purchased the FROST.

We are now running four of your pans every day, and they are doing the same good work that they have always done for us, except the two new ones are much stronger and able to crush more shale per day than the two old ones did that we discarded after we had operated them constantly for twenty years.

We trust that you will continue to make the same high-grade pan that you have shipped us, and if you do, cannot see why your dry pan business should not be a great success.

Yours truly,
ACME PRESSED BRICK COMPANY.
By W. R. Bennett, Vice-Pres.

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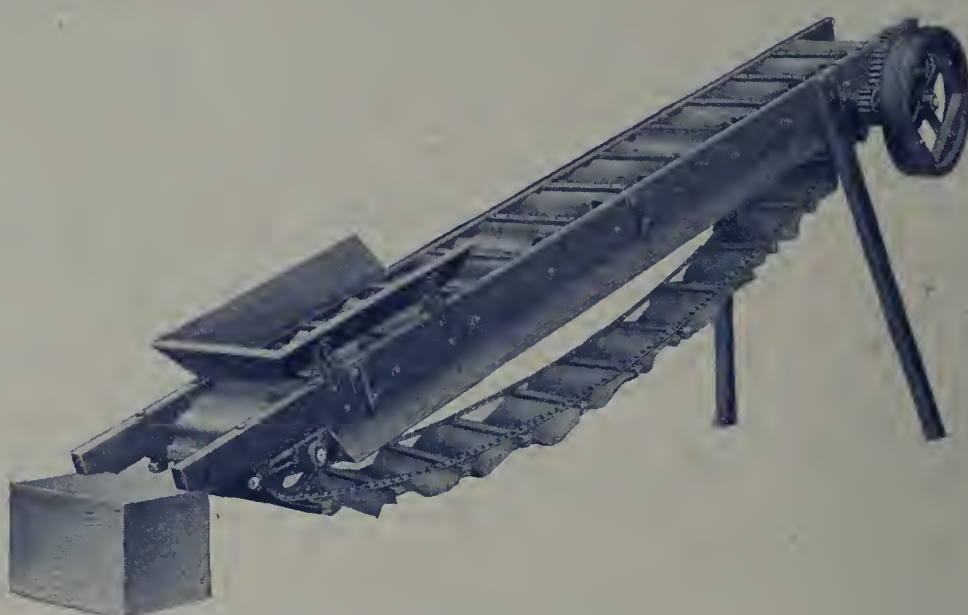
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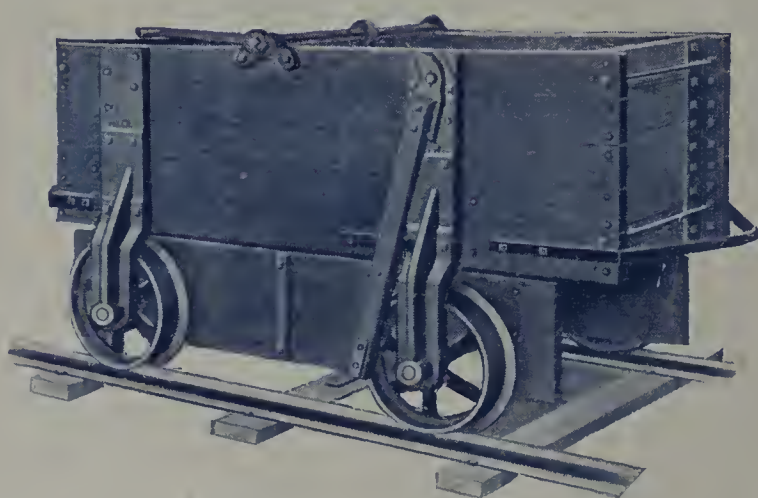
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Sprocket Chain Clay Conveyors.



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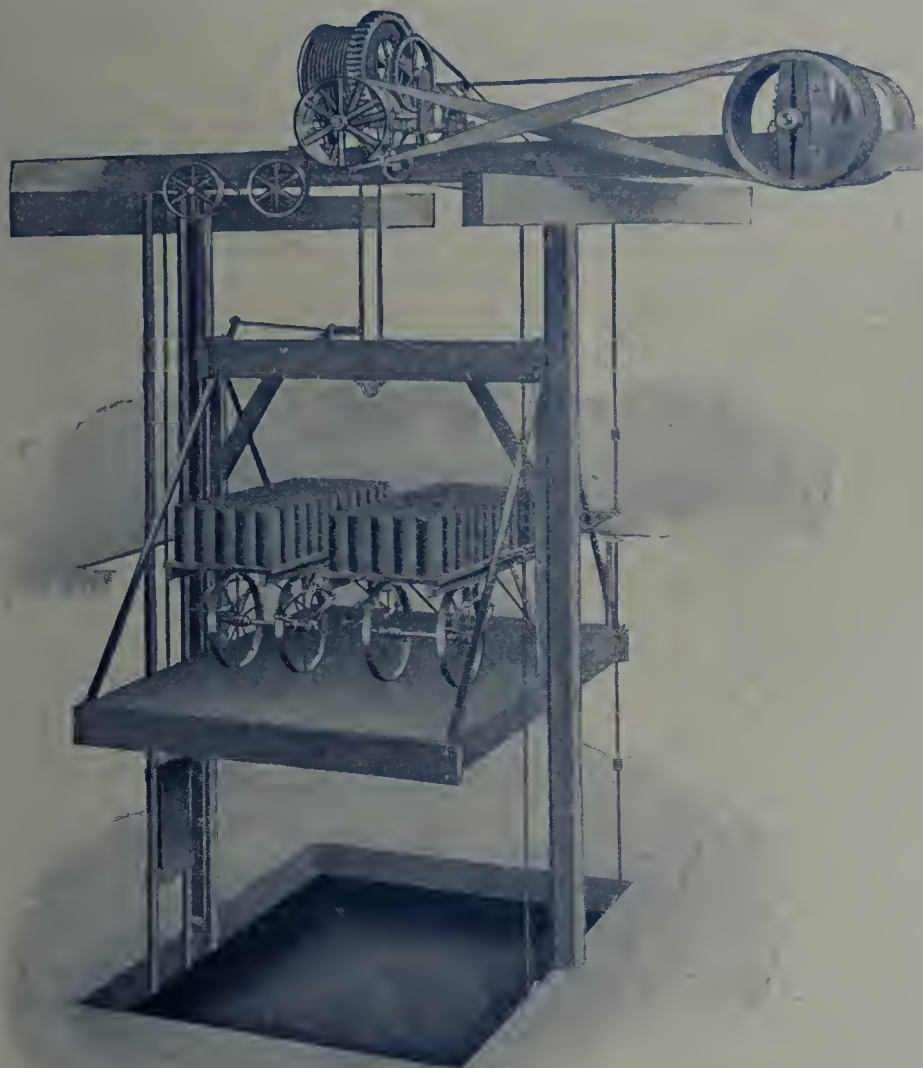


Side Dump Clay Car.

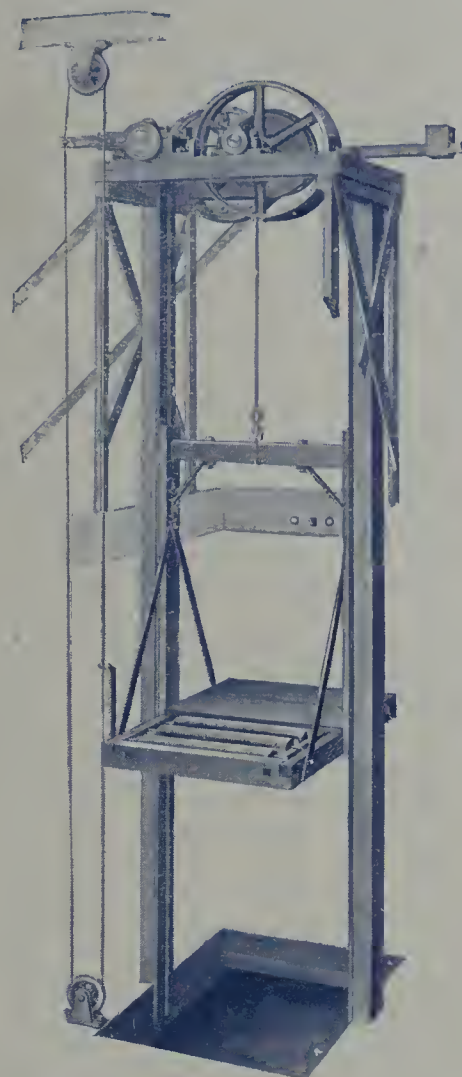
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

Mention THE CLAY-WORKER.



Platform Elevator.

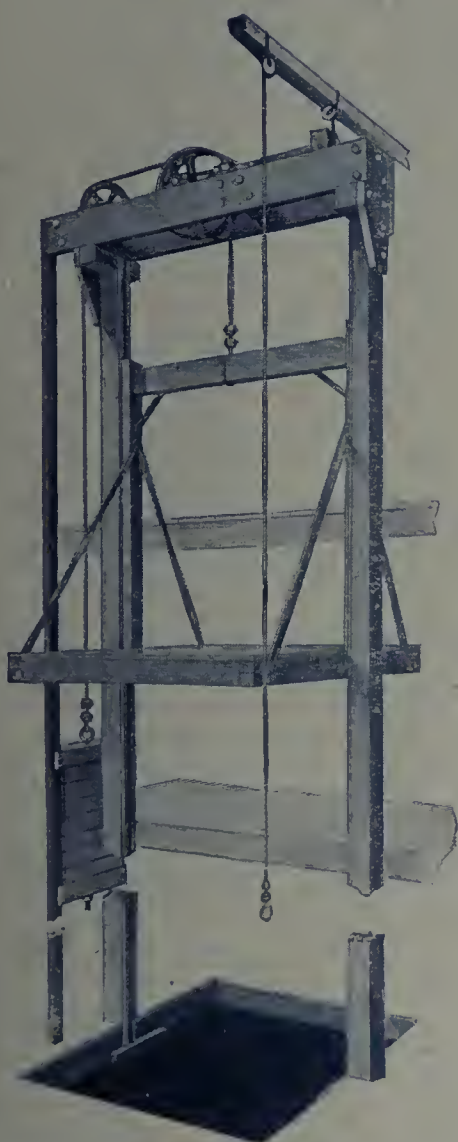


Friction Drive Elevator.

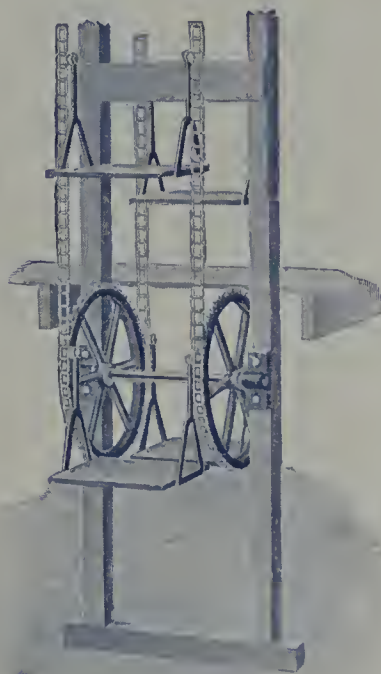
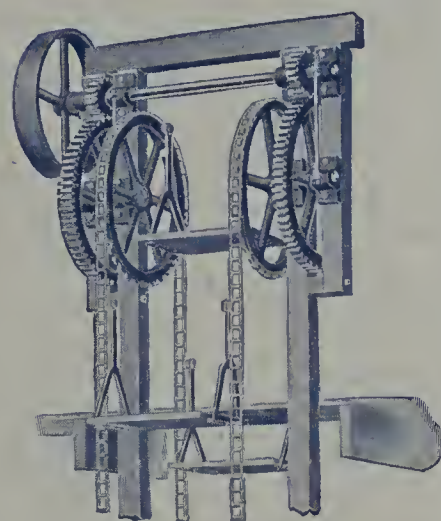
The J. D. Fate Co.

Plymouth,
Richland Co., Ohio.

A. E. Davidson, Eastern Representative,
Room 6060, No. 1 Madison Ave., New York



Gravity Elevator.



Small Tile Elevator.

If there is an atom of doubt in your mind that the

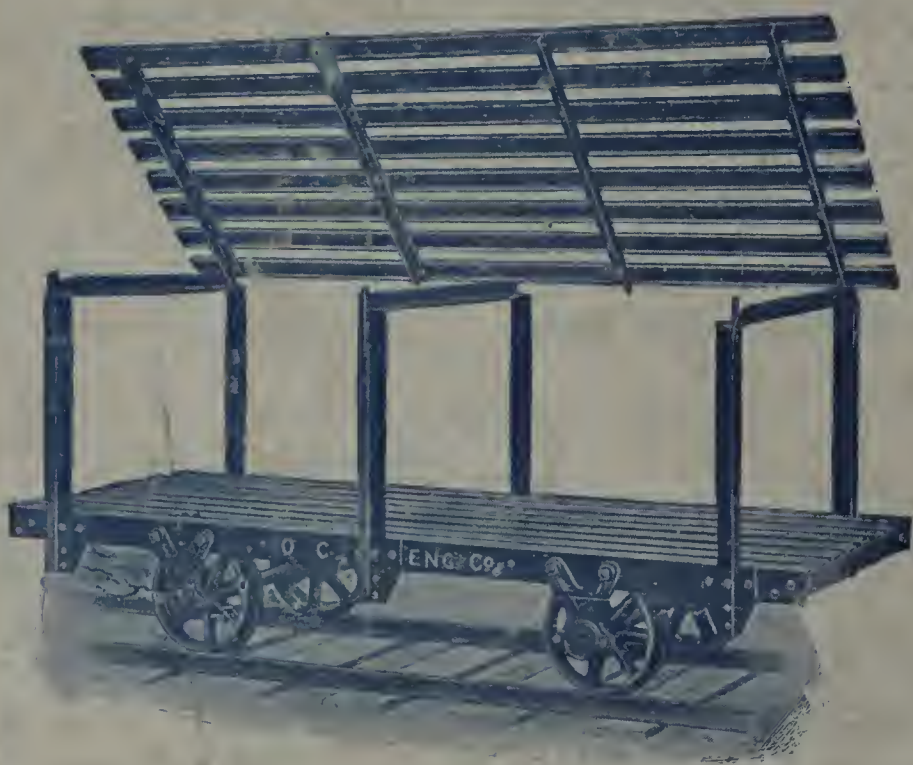
PERFECT CLAY SCREEN

will fill all requirements, dispel it; we take the chances. We are looking for what you may call trouble. That is properly screening clay. It is not trouble for us, it is our business.

Do not be backward about asking us.

We will be Dee-Lighted to serve you.

DUNLAP MFG. CO.,
BLOOMINGTON, ILL.



No. 167. Double Deck Car.

OUR LEADER.

A very desirable car for use in Brick or Tile plants. Made with or without steel decks, also with three decks.

We are prepared to build special cars for your particular need.

Also Transfers, Clay Cars,
Represses, Screens and
Kiln Bands.

The Ohio Ceramic Engineering Co.,

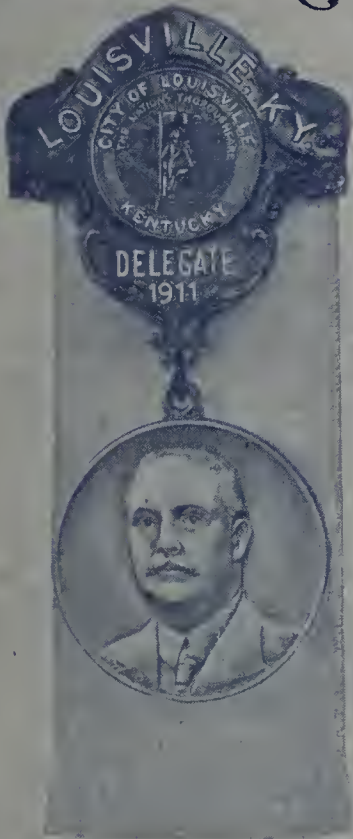
1015 First Nat'l Bank Bldg., Chicago, Ill.

Cleveland, Ohio.

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F E B R U A R Y - 1 9 1 1

THE CLAY-WORKER

Official Report Silver Anniversary



Louisville
Ky.

February
1911

N·B·M·A· Convention

Published Monthly by
T.A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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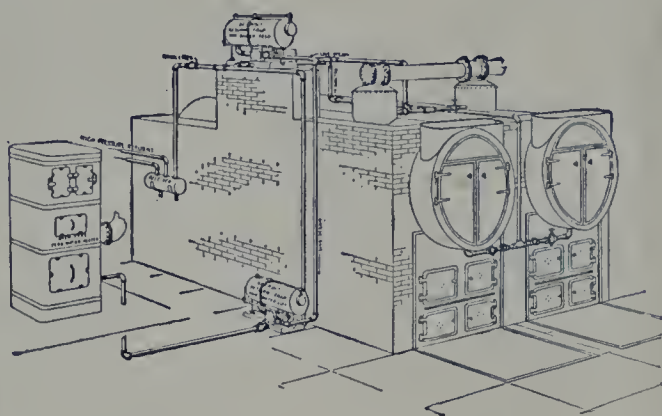
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"Detroit" Return Traps

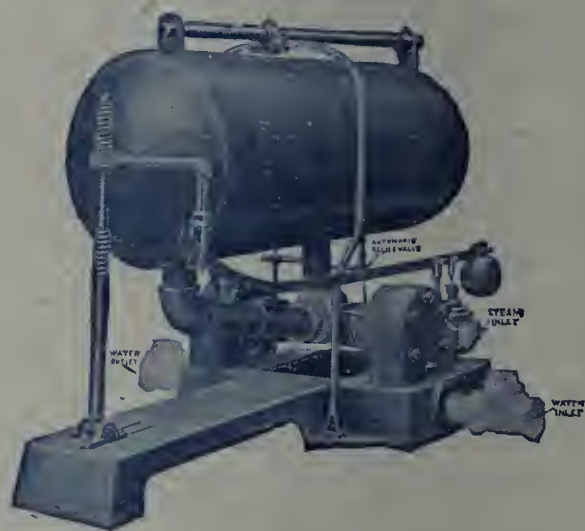
Will Keep the Steam Dryers Free of Condensation

Will Automatically Return the Hot Condensation to Boilers Without Pumping

The economy lies in the difference in fuel required to evaporate cool feed water and the small amount to revaporize the pure hot



condensation back into steam. Then, too, the troublesome uneconomical pump is done away with, and the trap uses but about ten per cent. of the steam required to drive a pump.

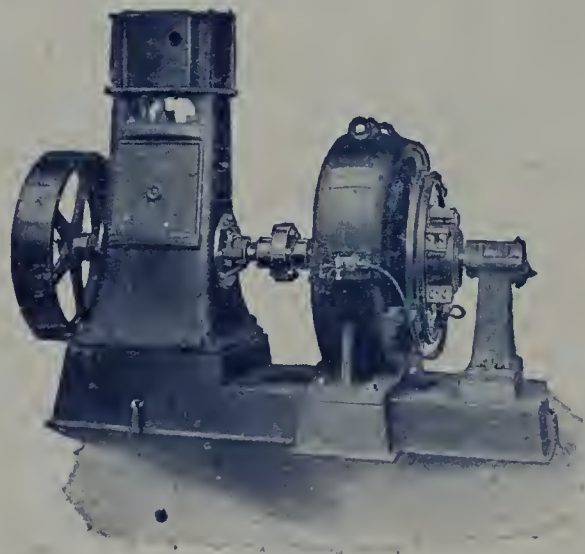


Tell us how many feet of pipe you have

in your dryer, make of dryer, number of boilers, h. p. of boilers, and let us quote you on a "Detroit" Return Trap System. IF our guarantee alone is not strong enough, you can try the system.

Read booklet No. 266 C, anyway.

EVERY YARD Using a Steam Boiler Should Have a Small Generating Set for Electric Lighting



An "ABC" Vertical Enclosed Self-Oiling Engine will pay for itself in a short time in savings of fuel and oil, contrasted with the ordinary steam engine.

Largest and best dynamo manufacturers direct-connect to the "ABC" Engine.



We direct-connect to any good generator.

You cannot overlook thorough investigation of the "ABC" Engine if contemplating the installation of an Electric Light Plant.

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PITTSBURG
ATLANTA

AMERICAN BLOWER COMPANY
DETROIT, MICH.
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CHICAGO
ST. LOUIS

SAN FRANCISCO
SEATTLE

Ablest Engineering Organization in the Blower Business. Designers of Steam and Waste Heat Dryers, Scott System Conveying, Drying and Burning Brick. Manufacturers of "Sirocco" Waste Heat and Mechanical Draft Fans.



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THE ELECTRIC CITY BRICK CO.

Manufacturers



Capacity 60,000

PLAIN BUILDING BRICK

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Chambers Brothers Company,
Philadelphia, Pa.

Gentlemen:

Please find enclosed settlement of account.

We wish to state to you that we have passed our 8,000,000 mark with your Number 10 Brick Machine, and are good for 2,000,000 more before our brick year ends.

Will say that we have made brick with our new plant with more ease than we have ever made before, and have sold more brick than we expected to sell. This compliment is due to our Machinery.

Yours very respectfully,

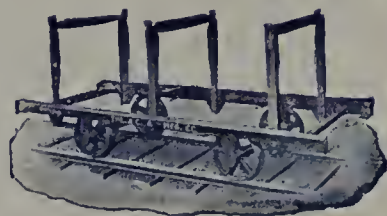
Jno. H. McKenzie, President.

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BUILDERS OF

CLAYWORKING MACHINERY

PHILADELPHIA AND CHICAGO



RAIL,
SWITCHES,
FROGS.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

TURNTABLES,
WHEELS,
AXLES.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

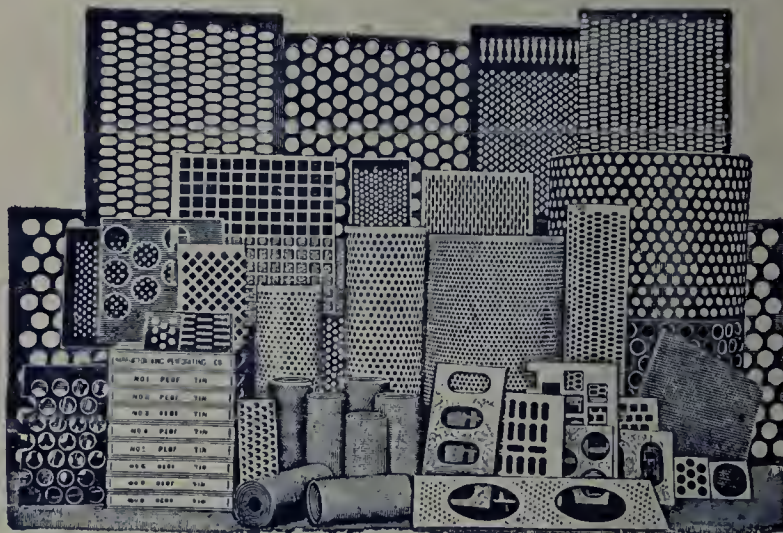
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



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No. 624 North Union St.,
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You Are Hereby Invited

to turn over to us any clay drying trouble of which you may be possessed.

Looking for Trouble—

drying trouble—is our business. If you have any of that nature you'd be glad to be relieved of, we'll accept it cheerfully and, for a reasonable remuneration, relieve you of it permanently and to your entire satisfaction.

We have solved drying troubles for the leading brick plants in the middle west. We can solve yours for you if invited.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists
Brick Works Engineers

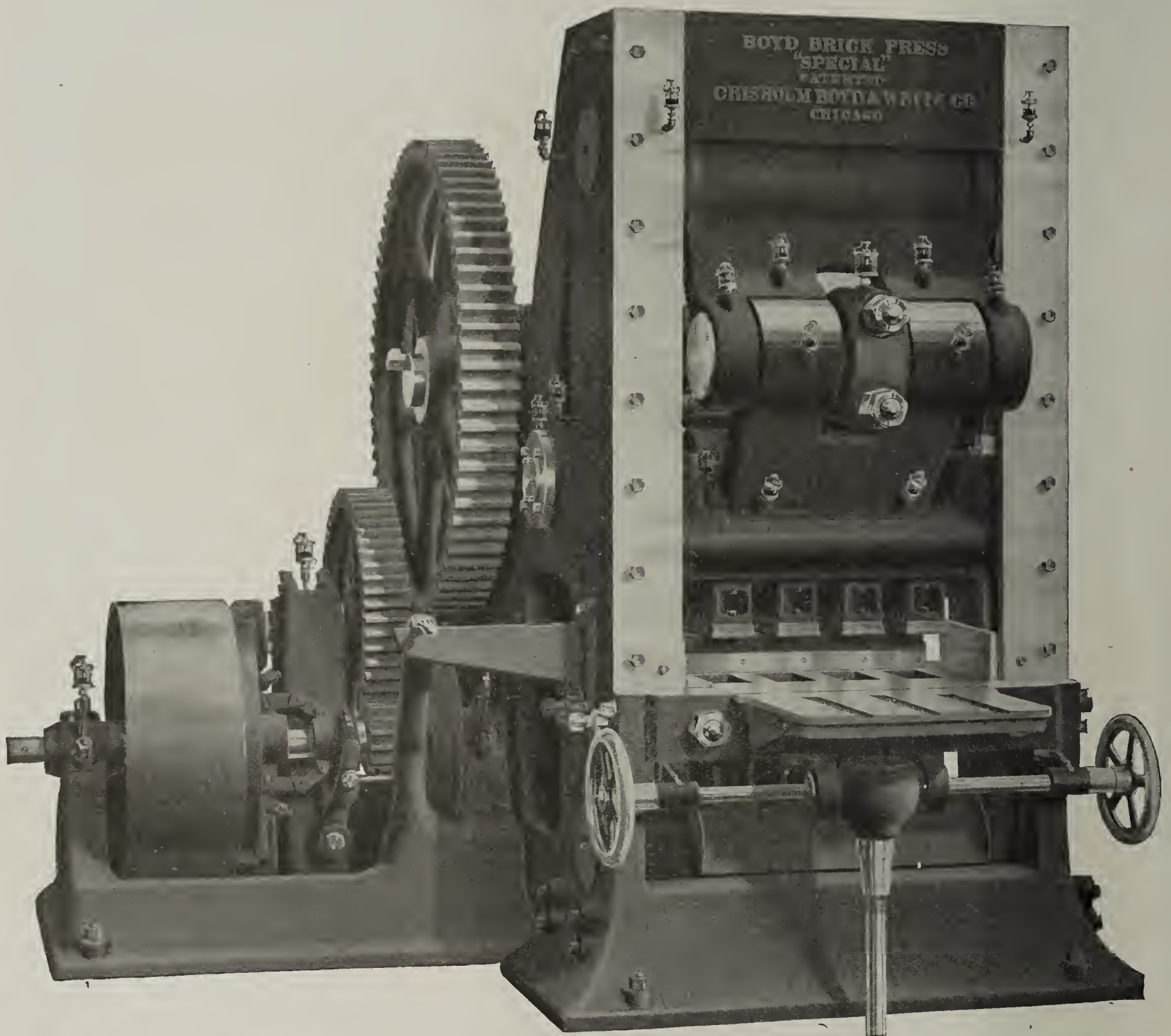
*Largest Manufacturers of Brick Drying
Equipment in the United States*

108 La Salle Street, : : Chicago



The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.

BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

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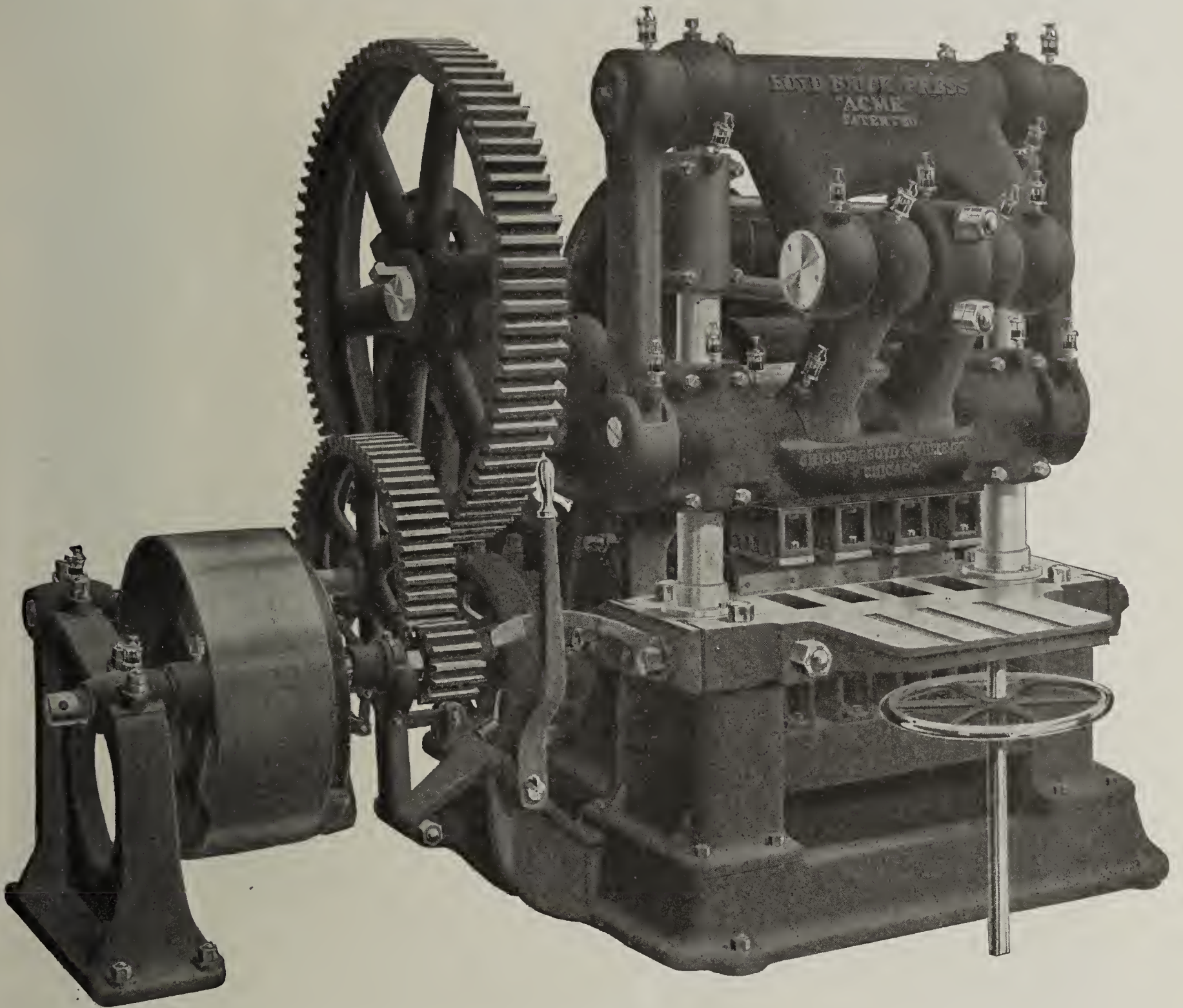
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.

The Boyd Brick Press

Four-Mold Acme.



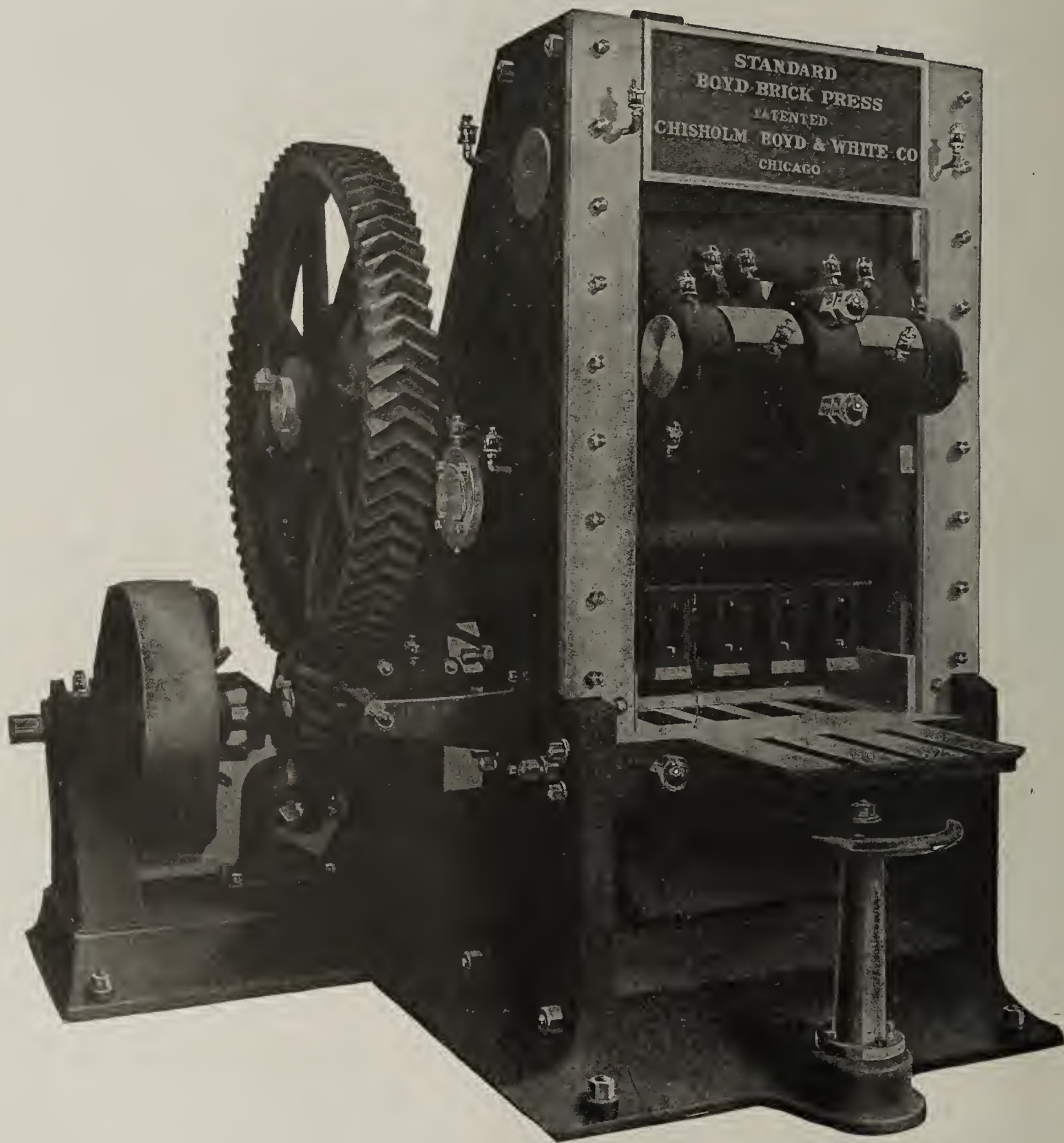
Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

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OUR NEW STANDARD BOYD BRICK PRESS

Is the Limit of Perfection in Brick Pressing Machines.

Chisholm, Boyd & White Company,

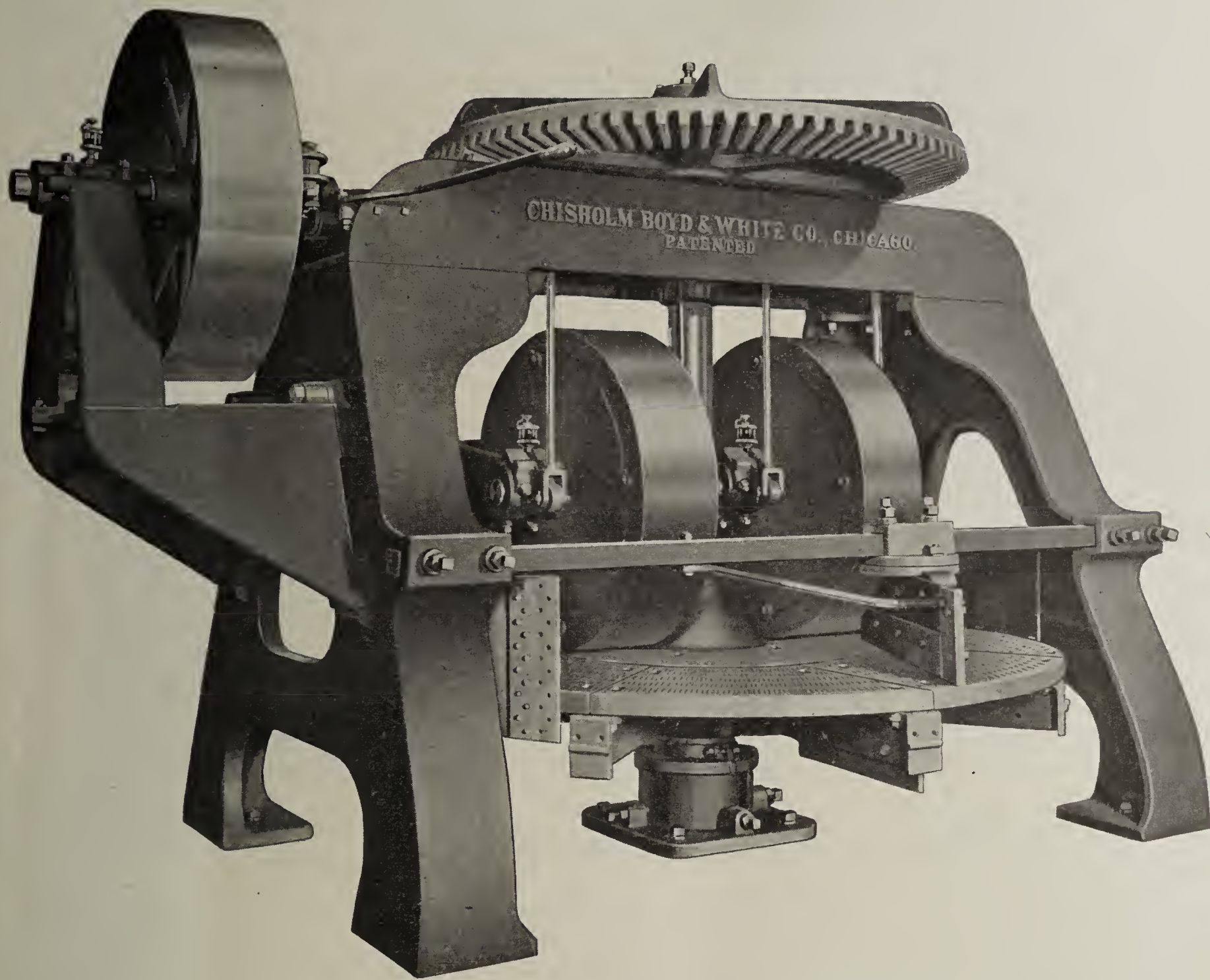
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BOYD QUALITY.



OUR NEW NINE-FOOT HEAVY DUTY DRY PAN.

For design, strength, durability and efficiency
this Dry Pan has no equal.

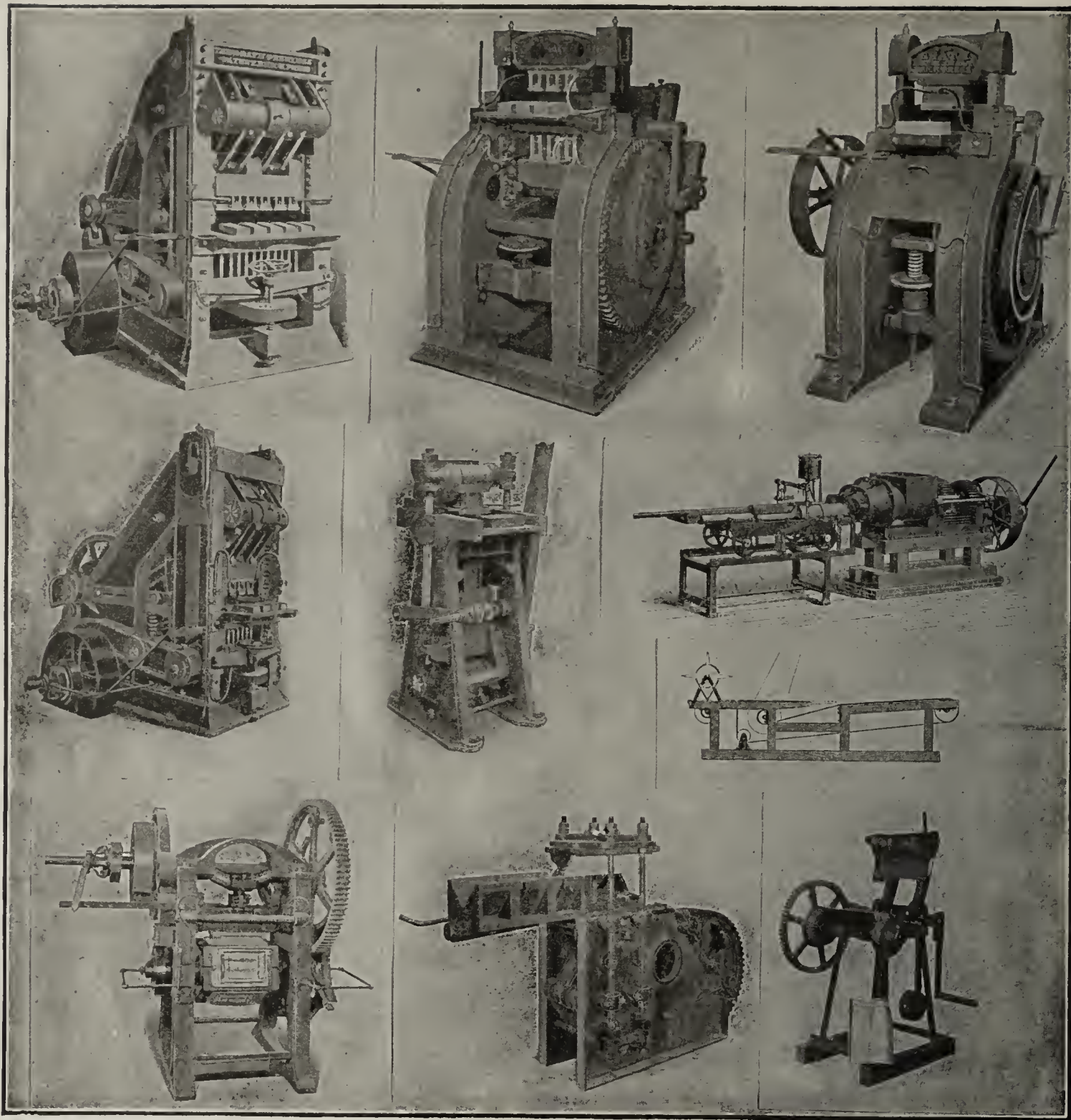
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**Press Brick and Roofing Tile Machinery. All Guaranteed
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To get the best results with least fuel use

SCHURS OIL BURNERS

for burning Brick and all Clay Ware, also for
Boilers or any place where a clean heat is wanted.

THE MOST PERFECT OIL BURNER.



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FOR DOWN DRAFT.



NO. 2.

FOR UP DRAFT.

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This speaks for itself.

Write for prices and full information and catalog.

Illinois Supply & Construction Co.

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Long Distance
Phone
Bell, Main 235.

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The Day for Building Single Kilns Has Passed.

The time has arrived for manufacturers to recognize the fact that to continue in business, in order to make money and successfully compete with present conditions, they will have to keep abreast of the times, and to do this they will have to equip their plants with an up-to-date Continuous Kiln. By this is meant a Continuous Kiln which will do *all* that the *best* single kiln will do at one-half the cost in fuel and cost of operation, and at the same time do away with the smoke nuisance and really give a better grade of ware. Such a Kiln is the Grath Up To The Minute Continuous Kiln.

Style A. For the use of fuel or crude oil, and natural gas exclusively.

Style B. For use of producer gas.

Style C. For use of coal or wood direct, also oil and natural gas.

The above kilns are all adapted for any and all kinds of clay ware and can be burnt uniformly throughout (free from all soft or over burnt ware). These kilns can be built for less cost than single kilns of like capacity, at the same time will be substantially built of best materials and are designed by one who is thoroughly practical in the art of the burning of clay ware.

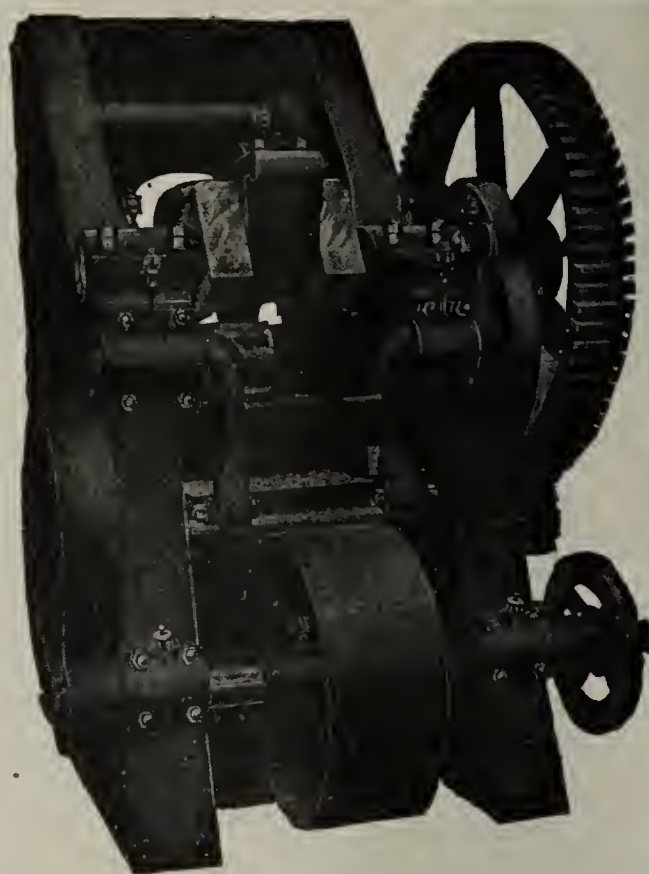
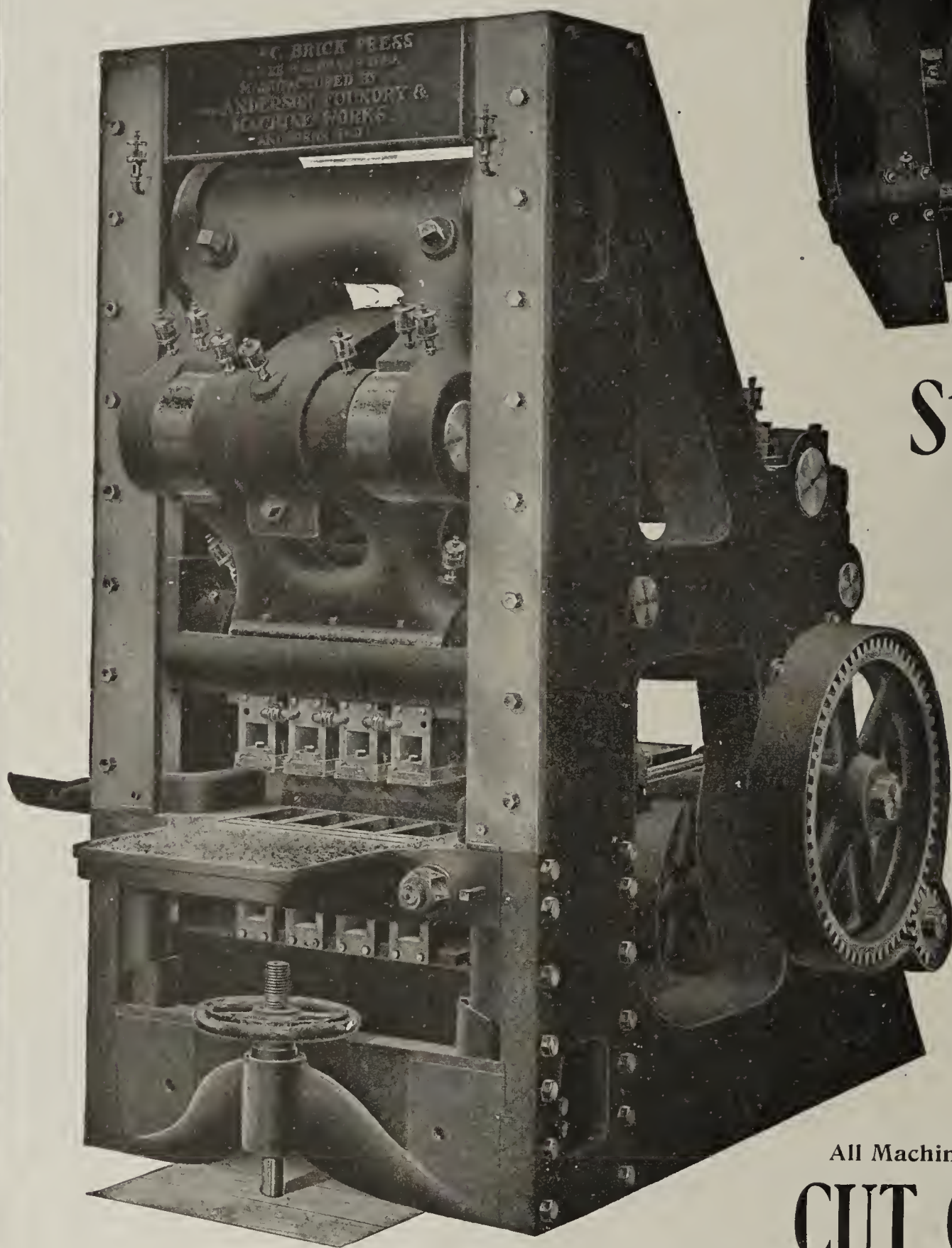
For further particulars address,

Illinois Supply & Construction Co.

Century Building,

St. Louis, Mo., U. S. A.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

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All Machines Are Equipped With

CUT GEARING

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THE ANDERSON FOUNDRY & MACHINE WORKS,

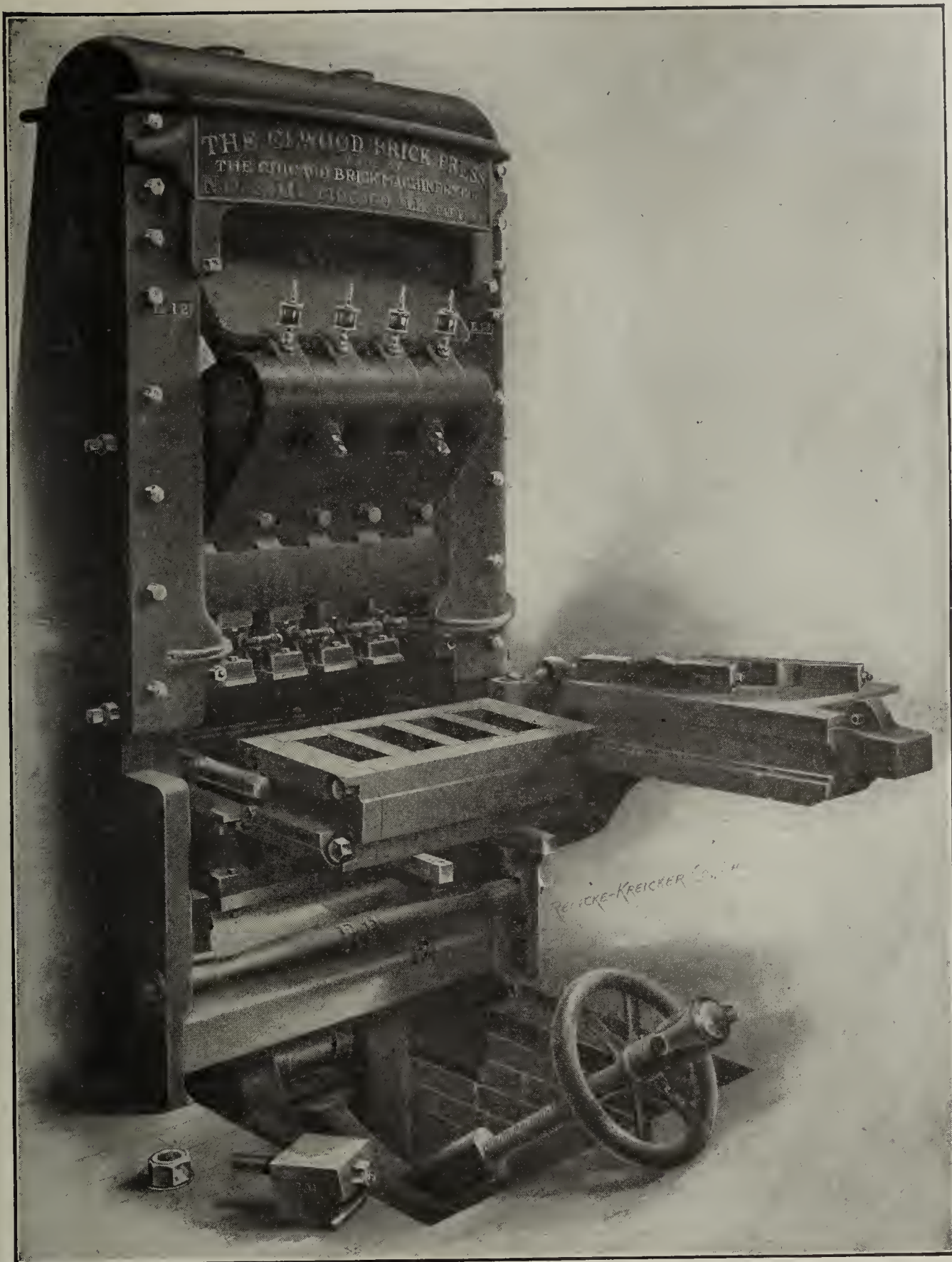
Manufacturers of Soft Mud Brick and Drain Tile Machinery,

Sold by the C. W. RAYMOND CO.,
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The easiest method of changing molds is by the use of our OPEN DOOR MOLD TABLE. Two interchangeable mold boxes furnished. Simplest of all Presses. Send for our NEW BOOKLET showing the 1911 improvements.

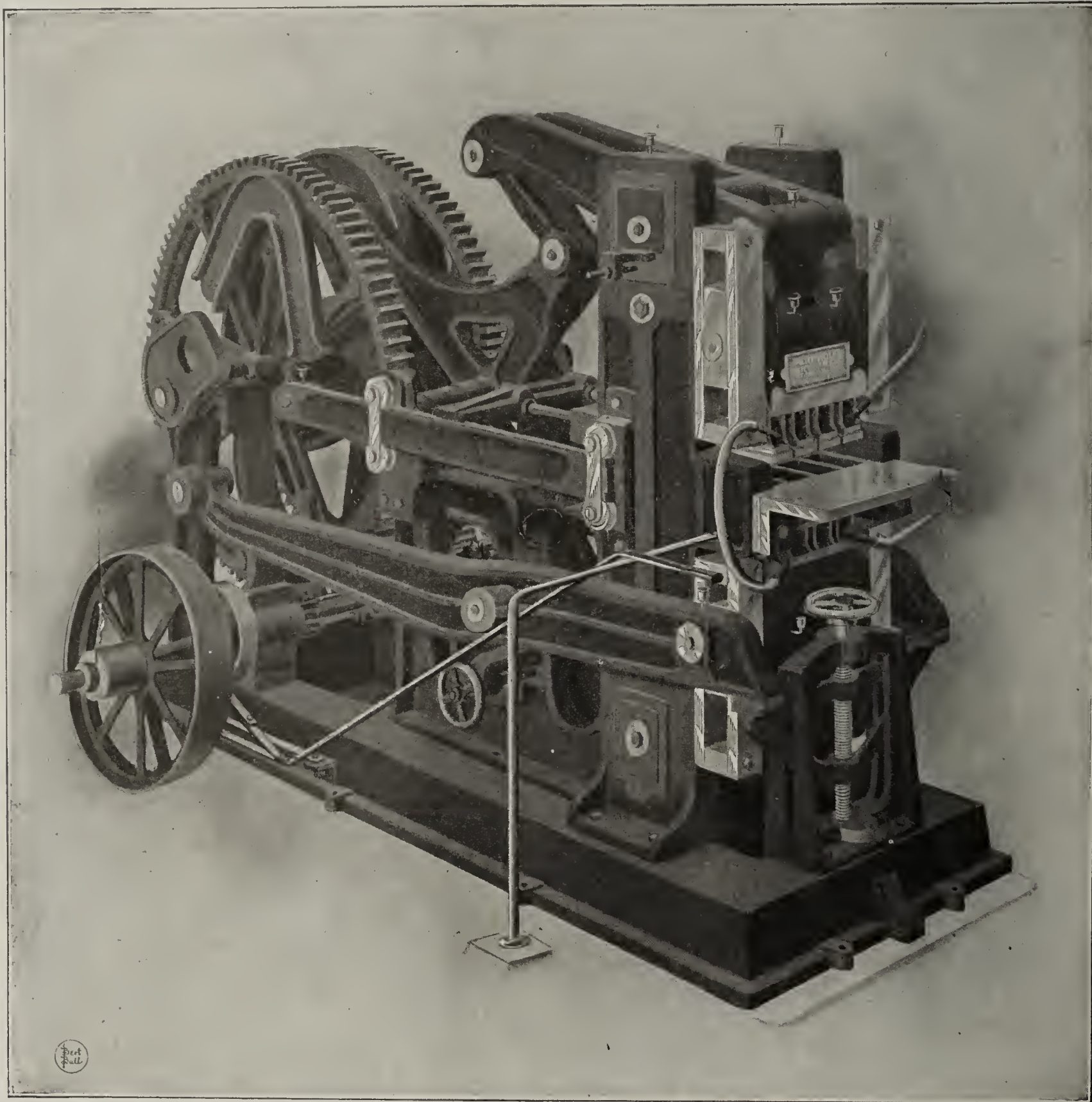
CHICAGO BRICK MACHINERY CO.

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The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.



If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

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The Andrus Brick Press

Weights Fifteen Tons.
Makes Brick Every Day.
Has less parts than any
other Press ever invented.

We manufacture a full line
of Dry Press Brick
Machinery, Stiff Mud
and Drain Tile Ma-
chinery, and solicit
your orders for sup-
plies and repairs on
all kinds of Clay-
working Plants.



Scott-Madden Iron Works Co.

Works:
Rushville, Ind., and
Keokuk, Iowa.

Third National Bank Bldg.

ST. LOUIS, MO.

ALL THINGS COME TO HIM WHO WAITS

Whoever said that was a back number—a dusty member of antiquity. It is not a text which appears in the business curriculum of the modern man who does things.

What's the use of waiting?

In these piping days of fast progress to wait is to be a tailender—a spectator on the line of march of the live ones.

This brief preface is simply apropos to what we are about to speak of at more length.

For many months past we have used considerable space in this magazine explaining and illustrating our mechanical device for conveying, by natural gravity, brick, paving blocks, tiling, etc., between any two given points—a device which has proved successful beyond expectations because of its extreme practicability, enormous saving in expensive labor and surprising economy of operation.

Publicity has brought results—brought us a great many actual orders and stimulated country-wide interest in our simple but effective method of handling these commodities. We may truthfully add that more orders have been placed on our books the past year than in any previous period of our existence.

At one time we were ninety days behind with our orders, in spite of the fact that we were constantly increasing our factory capacity.

Now, to the point!

We know there are hundreds of brick manufacturers who realize they will have to install our Carrier System sooner or later, and it is to these we are going to point the warning finger.

This is the quiet season of the year. Now you have time to study your business in the light of a past year's output, and make comparisons with your competitors; to study your equipment with critical eyes and locate the leaks.

Therefore, this is the proper time to order a Mathews Gravity Brick Carrier System for your plant. Put the problem up to us and don't worry any more about it. You no doubt have had your mind made up to do this, but you have said to yourself, "There's no need to hurry."

Let us respectfully contradict that thought; it is expensive procrastination.

You are approaching the near time when you are going to want a Carrier System badly—so urgently that you won't want to wait, and when that time comes you will regret not having placed your order well in advance.

PLACE YOUR ORDER NOW FOR DELIVERY ANY NUMBER OF MONTHS AHEAD, SO IT WILL BE READY WHEN YOU REALLY NEED IT.

Orders are all numbered and filled as booked.

Don't wait—now is the time to make up your mind.

Write us at once. Advice, plans and estimates submitted on short notice.

MATHEWS GRAVITY CARRIER COMPANY

ST. PAUL, MINN., U. S. A.

FUEL OIL BURNING EQUIPMENT FOR THE CERAMIC INDUSTRIES

With proper burners and equipment, Oil is an ideal fuel for any or all the Ceramic Industries. It is the cheapest fuel, except in the immediate neighborhood of the coal and natural gas fields.

It gives a very uniform heat.

The evaporative efficiency of nearly every kind of oil, per pound of combustible, is probably the same. Either crude or fuel oil may be used.

The firemen are disposed to favor oil, and therefore no objection from labor will be met.

The oil should be heated to be more readily atomized.

The efficiency of fuel oil plants will be greatly dependent upon the general character of the installation of auxiliaries and fittings, and therefore the work should only be given to those who have given careful study to the matter, and who have had extended experience in burning oil fuel. The form of the burner will play a very prominent part in the use of crude petroleum. The method and character of the installation will count for much. Consumers should principally look out that they do not purchase appliances that have been untried and have been designed by persons that have had but a limited experience in operating oil devices.

The necessary apparatus consists briefly of one burner for each fire box, a pumping, heating and regulating system for drawing the oil from the oil storage tanks and feeding it to the burners under constant and uniform pressure, a reducing valve for reducing the compressor or boiler pressure, the necessary pipes, valves and fittings, together with oil storage tanks.

The Relative Values of Oil and Coal.

No. 1 Oil at per bbl.	No. 2 Equals, all saving considered, coal at per ton	No. 3 Equals, in small Ceramic plants, coal at per ton	No. 4 Equals, in boiler practice, coal at per ton	No. 5 Equals, losses in ship- ment considered, coal at per ton
.60	1.59	1.67	1.96	2.24
.70	1.84	1.94	2.28	2.61
.80	2.11	2.22	2.61	2.98
.90	2.37	2.49	2.93	3.35
1.00	2.63	2.77	3.26	3.73
1.10	2.91	3.06	3.59	4.10
1.20	3.16	3.33	3.91	4.47
1.30	3.43	3.61	4.24	4.85
1.40	3.70	3.90	4.59	5.22
1.50	3.87	4.07	4.89	5.59

Calculations based on oil weighing 7.6 pounds per gallon, with 42 gallons per barrel, having a heat value of 19100 B. T. U. per pound, and on coal per ton of 2000 pounds, having a heat value of 13,500 B. T. U. per pound.

Column No. 1 above represents the cost of oil at various prices from 20c to \$2.00 per barrel.

In column No. 2 above, the price of coal is figured against the known economies of oil in burning clay wares in larger plants with the most efficient equipment adapted to kilns or furnaces, taking into account labor, etc.

Column No. 3 above represents the maximum price that can be paid for coal to equal oil, in the smaller size plants. In these plants, the efficiency of the fuel is the same as in No. 2, but there is not the corresponding saving in labor, nor has any consideration been made of other economies.

Column No. 4 represents the price that can be paid for coal to equal oil in boiler practice. With the moderate size power plants such as used by the clayworkers any saving of labor has not been considered.

Column No. 5 above represents the price of coal equal to oil, taking account of the loss in shipment of the different fuels which is borne by the purchaser, even on a delivered price.

TATE, JONES & CO., Inc.

Chicago Representative,
GEO. E. LUCE,
No. 181 Van Buren St.
CHICAGO.

Manufacturers Oil Burning Equipment,

Pittsburg, Pa.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:

"Directions for Laying Brick Street Pavements."

"An Object Lesson in Brick Pavements."

"Proper Construction of Brick Street Pavements."

"The Permanent Roadway."

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Shawmut, Pa.

Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

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DEVONSHIRES and REPRESSED

KUSHEQUA

Highly Vitrified by Natural Gas.

Tough Paving Blocks, Beautiful in Color and Finish.

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PAVING
BUILDING

• BRICK AND BLOCK •

SIDEWALK
FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. • Streator, Ill.

Thurber Vitrified Paving Brick

and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.

Arthur S. Goetz, Agent,

Factory at Thurber, Texas.

Ft. Worth, Texas.

THE DECKMAN-DUTY BRICK CO. Paving Brick and Block.

Annual Capacity 30,000,000.

Plants, Collinwood, Ohio, Carrollton, Ohio, Malvern, Ohio.

Offices, Electric Bldg., Cleveland, Ohio.

The Danville Brick Company, Manufacturers of the Unsurpassed Danville Paving Block.

Danville, Ill.

LET US QUOTE YOU PRICES.

PROMENADE TILE

Chocolate Red

Highest Vitrification—Lowest Absorption.

BEST BY TEST.

KUSHEQUA KERAMIC COMPANY,

Kushequa, Pa.



All persons are warned against INFRINGEMENT.

FISKE & COMPANY, Inc.

BOSTON.

NEW YORK.

VITRIFIED PAVING BRICK.

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of \$2.00.

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500,000

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Terre Haute Vitrified Brick Co.,

Manufacturers of

High Grade Vitrified

PAVERS.

Samples Free.

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Marion Brick Works

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MARION PAVERS

A Strictly High Class Paving Block.

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FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.

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Pres. and Gen'l Manager.

L. A. CULVER, JR.,
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The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

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WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

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(C. A. Bloomfield, Treas. and Manager)

P O. Box 413.

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President.

CHAS. M. CROOK,
Gen'l Manager.

Bessemer Limestone Co.

Youngstown, Ohio,

Manufacturers of

BESSEMER BLOCK,

An unexcelled repressed shale paver.

Correspondence solicited.

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HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

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THE TUTTLE BRICK CO., of Middletown, Conn., installed a six-track Standard Drier two years ago. A year later they installed six additional tracks—on the strength of the splendid showing made by the original equipment. Now (in a letter written Jan. 21, 1911) they say :

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CLAY WORKER

THE FIRST SESSION OF THE TWENTY-FIFTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION, LOUISVILLE, KY., FEBRUARY 8, 1911

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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No. 2.



OFFICIAL REPORT OF THE TWENTY-FIFTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION, HELD AT LOUISVILLE, KY., FEBRUARY 6 TO 11, 1911.*

THE SILVER ANNIVERSARY of the National Brick Manufacturers' Association may properly be designated as a convention without a discordant note. Not a single inharmonious incident occurred during the week to mar the pleasure of those in attendance. From the moment when President Blair called the meeting to order Wednesday afternoon until the following Friday when the final word was spoken by acting President Bloomfield, the deliberations were dominated by a spirit of harmony and enthusiasm which bodes well for the future of the Association and allied bodies.

The absence of President-elect Crook, due to ill-health, was the one cause of regret. In all other respects the utmost good cheer prevailed throughout the week. The members of the American Ceramic Society were conspicuous by their absence. On this account the numerical roster showed an apparent falling off in attendance of nearly one hundred. Nevertheless a careful scrutiny of it shows that there was a larger number of visiting brickmakers present than at any previous convention.

The National Paving Brick Manufacturers' Association were comfortably quartered in the Assembly Hall adjoining the exhibition room on the tenth floor, near the entrance to which a splendid exhibition of paving brick was installed Saturday night and challenged the

admiration of the earliest arrivals. The officers of the Building Brick Association were on hand early Monday and had few idle moments thereafter.

The National Clay Machinery Association held executive sessions Tuesday and devoted themselves to glad hand work the balance of the week. The Seelbach Hotel lived up to every promise, and afforded splendid facilities in every department. The exhibition room and convention hall were elaborately decorated and proved admirably adapted to the needs of the delegates, so much so that not a single unfriendly criticism was heard during the week.

As usual the ladies attended the first session, and seemed to thoroughly enjoy the oratory incident to the welcoming of the convention, election, installation of officers, etc. Especially did they seem to enjoy the presentation of the silver service to the Secretary's little granddaughter, Adelaide Randall Gould, who, though but six months' old, made her debut so happily as to instantly win the affections of all present. It was an occasion of unmingled pleasure and it seemed to be the opinion of every one present that both in numbers and spirit the convention was the most successful yet held.

FIRST SESSION.

Wednesday, 3 p. m., Feb. 8, 1911.

President Will P. Blair: Gentlemen, the convention will please come to order. Prayer will be offered for us by the Rev. Aquilla Webb, of this city.

The Opening Prayer.

Rev. Aquilla Webb: Oh Lord, our God, we desire to acknowledge thee in all our ways and in every undertaking, because our help and strength cometh from thee. We pray that thou wilt look in great mercy on us and guide us in the way of truth. We rejoice that thou has brought so many of these men together in health and strength. May every blessing be on them in their deliberations. Bless the loved ones that remain at home, and when this convention is over will thou watch over each one on the journey home, and grant Oh God, that we may also realize in the work committed to our hands that we are not



President Will P. Blair,
Terre Haute, Ind.

alone fashioning work of clay, but our character in the work, and grant each one here today may realize that as our hands are doing the work intended for them, that we are also fashioning our own characters. Do thou help us to be concerned about the material that we put into the buildings of time, but also to be supremely concerned over the work

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so it may be well done, and so well done that when the great day comes it may be a part of our entrance into the Kingdom. Bless, Oh God, each one today; do thou watch over us all the days of our life. Keep us true servants of thine, and finally in that building eternal in the Heavens that is to endure for all time and eternity, may each one have an abundant entrance, we ask in Christ's name. Amen.

President Blair: Dr. Webb wishes to make an announcement that may be of interest to many of our members.

Dr. Webb: I am not going to make a speech; the man who is to make a speech today, Mayor Head, is abundantly able to do that, and to those of you who are not familiar with Kentucky, I want to say he is not only our Mayor, but next year he will be the Governor of Kentucky. (Applause.) What I want to especially call your attention to, for I feel that you are here to get out of the city all that is here, and while you are to have a meeting tonight, I want to announce that we are going to have a meeting in the church on the corner of Broadway and Fourth—we call it the "Big Red Church on the Corner." We have a man, Mr. Stelzle, who is going to speak on "The Church and Social Unrest." He is the ablest man today dealing with the labor trouble, the troubles you men are concerned with. You come and hear Mr. Stelzle, and I am sure you will be well paid. You are talking about steam engines in practice. In Mr. Stelzle you

say I turn the city over to you, for I know when you came here you saw your work on every side. It is to the brick-makers we owe our beautiful homes and our greatest and most magnificent buildings. Therefore, I welcome you to your own. In truth, the city belongs in a large way to the brickmakers. For our best streets and all of our buildings, we have to look to the brickmakers. When you come here you see signs of your handiwork on every side, and it is a pleasure to welcome you to Louisville. We have all kinds of brick in Louisville save one—we have no brick to throw. (Laughter.) In welcoming you to this metropolis of the new and old South on the borders of the hustling North and the progressive South, it is more than a pleasure because you have in this organization only those calculated to build up municipalities, and those who have built up the country in general.

You know the brickmaking business goes back thousands of years. History tells us that Pharaoh had brickmaking in his day; they made brick with straw, and they say he was a good overseer, and that he placed his name on each brick. I suspect he thought some one else might start the brick business and take advantage, as we sometimes do in these days, or maybe he was just a good advertiser in his day. We can see the brickmaking business is of long standing, and



First Vice-President C. A. Bloomfield,
Metuchen, N. J.



President-elect C. M. Crook,
Youngstown, Ohio.



Second Vice-President W. H. H. Rogers,
Rochester, N. Y.

will see a steam engine in pants. You come down there tonight and you will get the best thing you have got since you have been in Louisville. If you men and women have time, I would like to have you come down there tonight. It is to be a great meeting, and will be well worth while to hear this presentation. It is the strongest thing we have got to deal with today, not only as a church but as business men, to understand these relations in the large sense.

This is the first time I have had an opportunity of looking at you, and I rejoice to see so many women present. I have been called on on many occasions here in Louisville to officiate, and this is the first time since I have been in Louisville that any organization of men here when they invited me to anything as they did to your banquet tomorrow night, invited my wife, so I think you are all a pretty good lot of bricks. (Applause.)

President Blair: Ladies and gentlemen, I am pleased to say to you that in our coming to Louisville, we shall have a word of welcome from the Mayor of the city of Louisville, the Honorable W. O. Head. (Applause.)

Mayor Head's Welcome.

Hon. W. O. Head: Mr. President, Ladies and Gentlemen brickworkers, and I may say, therefore, the home builders of the nation—It is needless for me to say I welcome you, to

it has been wonderfully improved as the years have gone by, for I understand you can now turn out three or four hundred thousand brick in ten hours and still we haven't enough they say, for as the old world moves on and building progresses, we need more brick. It is a pleasure for me to welcome you on your twenty-fifth anniversary—your silver anniversary. It shows that you must have a splendid organization, and an organization of good men to hold together that long, and grow each year as I am told you have. I understand your slogan for 1911 is "Advertise Brick." That is fine, because you are winding up the alarm clock to arouse the business world when you do that. Advertising means business growth, and when growth stops business decays, and it is very important that all classes of work shall be pushed in this active day. Publicity is the mightiest force known to the human family. It enlightens, it goes forward, it argues, and it does us much good in every way.

I trust and I hope, my friends, you will come to see us again. In fact, we would not care if you made this permanent headquarters for your convention. (Applause.) We rather like the looks of you. This is a splendid body of ladies and gentlemen, and if you decide to make this permanent headquarters, we will help you all we can. I am glad to see an organization that brings the ladies with it, be-

cause without them we can never succeed very well. (Applause.)

My friends, I want you to feel at home here. You know it is customary to turn the keys over, but when I wakened this morning I understood that you had already taken the city; we had left the doors and gates open so you would have no trouble getting in, for we knew you were coming, and I trust you will make yourselves at home. Visit the City Hall, our council chambers are open to you if you want to hold any meetings there, and I want to see you all enjoy yourselves while here.

When you get through with your work, I trust you will have fun and frivolity, because I assure you there is no brick dust in our hospitality. There is no brick dust in our eyes, and I assure you there is none in our liquor. (Laughter.) So you are ours and Louisville is yours. Before I get through, if you will pardon me, I want to thank the gentleman who publishes a magazine called *The Clay-Worker*. I got a copy of same the other day, it came into my office and I read with great pleasure the nice things he said about Louisville. It is a splendid magazine, there was so much valuable information in it, and he said so much about Louisville that I want to thank you, Mr. Randall, in person not only for myself, but for 250,000 people in Louisville.

the grand old Commonwealth of Kentucky. But most of all, we do appreciate the welcome to your hearts and for the time being to your society.

After such a greeting we feel like hanging our hats on the nearest peg and making ourselves at home, but if there is a fellow here who does not feel that way, or who will not look as if he did, then you have the authority of this Association to cut off his supply right now, and not allow him another drop during the session of this convention.

This is certainly a cosmopolitan gathering. Almost every State in our beloved Union is represented.

I am reminded of a little girl whose father was acquainting her with the family history. After he had told her that her mother was born in San Francisco, her father in Boston and herself in Pittsburg, she seemed much perplexed for a time, and finally replied, "Well, papa, I have just been wondering if mamma was born in San Francisco and you in Boston and I in Pittsburg, how we three ever got together."

But with our modern means of travel it does not seem so remarkable that we have gotten together as does the fact that we were eager to do so, and were all impatient for the 8th day of February to arrive.

Time was when "East was East" and "West was West," and infinitely more did this condition apply to the North and South, but now, thank God, there is no North, no South, no East, no West. Sectionalism, with its attendant bitterness, has gone forever. And while we are possessed of local state pride, yet our greatest glory is the fact we are all American citizens. That we bear a name which is politically above every other name.

When the State of Ohio elects a Democratic Governor and the



Third Vice-President Eb Rodgers,
Alton, Ill.



Secretary Theo. A. Randall,
Indianapolis, Ind.



Treasurer John W. Sibley,
Birmingham, Ala.

Most assuredly we are glad you are within our gates. We feel honored at your coming. We want you to know that we own and claim you as the nation's home builders, and remember that the sunshine of affection glows forever in Louisville; we love our friends, and as such we greet you. (Loud Applause.)

President Blair: Mr. Mayor, your very kind words of welcome are appreciated, and we are pleased to call on one of our members, Mr. G. W. McNees, of Kittanning, Pa., to respond.

RESPONSE TO ADDRESS OF WELCOME.

BY MR. G. W. MCNEES.

Mr. Mayor and Citizens of Louisville:

It has been a source of wonder to many that the city of Louisville should so excel in her beauty, her social life, her commerce and in so many things that make a city great, but knowing as we now do, the "Head" of her government, the mystery is solved.

With us, Mr. Mayor, it is a case of love at first sight. But I would suggest that your city retain its company manners for a few days, as we intend taking a second look.

The warmth of the Mayor's welcome would indicate that he believes we are a pretty decent lot of fellows. Let us pray that he may not learn differently, at least until we get out of town.

At any rate, such a welcome makes my task an easy and delightful one, and in behalf of the National Brick Manufacturers' Association I beg to thank you for this generous, whole-souled and kindly reception, in this beautiful hotel, to your splendid city and

State of Tennessee a Republican, when President Taft can appoint one Confederate soldier to a Cabinet position and another to the Chief Justiceship of the highest court, surely the political millennium is drawing near. And today it matters not from which one of the great galaxy of States we come, geographic and sectional lines are forgotten, and whether we "reckon so," whether we "guess so" or whether we simply "allow so," we are all equally welcome to this beautiful Southern city.

How much of this feeling of kinship, this broad spirit of fraternity and human brotherhood has grown out of our and similar associations I do not venture to assert. But as we touch elbows here, take each other by the hand and look into each other's faces, as we come into more or less intimate social relations, we realize that "One touch of nature makes us kin." And we appreciate the force of what Longfellow has so beautifully said in his poem picturing the splendid art of the Oriental clayworker—

"The human race
Of every tongue, of every place—
Caucasian, Coptic or Malay—
All that inhabit this great earth,
Whatever be their rank or worth,
Are kindred and allied by birth,
And made of the same clay."

Now, Mr. Mayor and citizens of Louisville, we realize that we are enjoying the hospitality of "no mean city," and we trust that you will pardon the statement that we bring to your city an association representing no mean craft, business and profession, as indeed it is, all in one.

It has been said that he is a benefactor of the race who "makes

two blades of grass to grow where one blade grew before." But the clayworker takes the crude earth and fashions from it shapes of utility and beauty in endless variety that minister to the comfort, the necessities and the happiness of mankind.

The pretty ornaments in your drawing-room, the tile under your feet, the dishes on your table, your beautiful houses and the roofs on them, your splendid churches and towering skyscrapers, and the very bricks in your pavements, over which is transported much of the commerce of the world—the manufacturers of all these things are represented in this association.

Of what other industry can it be said that its products are at once so beautiful, so useful and so imperishable? They withstand equally well the rains and the drought, polar frosts and southern suns. Of them it may truly be said that, "Neither moth nor rust doth corrupt."

Is it not, then, a fact that the industries represented by this Association are adding tremendously to the permanent wealth of the world? And whatever of success we may enjoy individually, we have the satisfaction of knowing that it has not been at the expense of others, but the benefits which mankind derives from our labors is the measure of our prosperity.

We have a twofold purpose in coming here. To discuss matters pertaining to our business interests and to enjoy a few days of respite and social pleasure.

In nothing is the advance of civilization more apparent than in the contrast between business methods of today and of former years. It is seldom indeed that we find anyone practicing dishonorable methods. Business never before was conducted on so high

Then with our offices miles away and enjoying the warm-hearted hospitality of this delightful city, let us make the most of our splendid environment and catch pleasure as it flies. And under the smiles of these beautiful women who are honoring us with their presence we are bound to be happy. For—

"Women whose form and whose soul
Are the spell and the light of each path we pursue,
Whether sunned in the tropics or chilled at the pole,
If women be there, there is happiness, too."

Then, when our convention shall close and we return to our homes, we shall have reason to remember this occasion. And—

"May we carry hence, each one, some word, some look, some tone.
Into his after life to be treasured heart deep and carried home.
An echo from the distant sea.
A thing of joy to memory in all the years to come."

(Loud applause.)

Secretary Randall: The next on the program is an annual event, the address of our President, Will P. Blair, of Terre Haute, Ind. (Applause.)

PRESIDENT BLAIR'S ADDRESS.

Ladies and Gentlemen of the Convention:

The twenty-fifth anniversary of the National Brick Manufacturers' Association marks a high tide of interest historically and practically. It occurs at a time when this country is viewing her reckless past in utter amazement. The country has been unable

MEMBERS OF THE LOUVILLE BRICK CLUB WHO



M. J. Bannon, Louisville, Ky.



Isaac Tyler, Louisville, Ky.



J. G. Morey, Louisville, Ky.

a plane, and never did the word of a business man possess so much value.

Formerly a man looked with a jealous eye on others engaged in the same business. And if he made some new discovery it was considered a sacred secret, to be locked up in the innermost recesses of his heart.

Today we meet in this convention not only for the purpose of getting information ourselves, but of freely imparting to others any knowledge we may possess.

Then men were envious of the success of their neighbors. Today we look on our neighbor's success not only with tolerance, but with genuine pleasure. And may the day hasten when we shall realize even better than now that selfishness has no place in business. That in helping others we are helping ourselves, and that outsiders will place the same estimate upon us and our business which we place on each other.

Then as to the other feature. We are too prone to neglect the social side. We get so close to business we are apt to forget there are better things.

Let us not forget that time is passing and that—

"Soon, too soon,
The noon will be the afternoon.
Too soon today be yesterday.
Behind us in our path we cast
The broken potsherds of the past.
And all are ground to dust at last
And trodden into clay."

to poise herself in the shock suffered from this onlook. A cry has gone up in the interest of the future demanding that our natural resources shall hereafter be conserved for the benefit of the country's future welfare. This cry of alarm has taken on almost a moblike spirit. On the one hand it is demanded that the resources of our country shall not fall into the hands of a favored few for distribution when needed, but rather shall be preserved for a larger distribution by the many for the benefit of all of us. On the other hand, there seems to be a demand for a limitation against the use and consumption of whatever we may wish or whatever we are able to purchase, that natural resources shall be apportioned under a limitation rule, so that it may not be said in the future that our country has either been guilty of extravagance or prodigality.

Whatever may be the outcome of this condition as may be developed by the philosophy of our own civilization, we can scarcely predict. That a better regulation in all these matters will be developed to the ultimate good of society and to the future good of the country. I doubt not, but aside from all this, as shown in the history of the world, history must repeat itself time and again, and will repeat itself now. Conservation for futurity is best solved by substitution. If you cannot have bread to eat, eat meat; if you can't have meat, become a vegetarian. A large part of the world lives on bananas; another part eat rice and fish.

Because the wonderful forests of this country have heretofore furnished the great proportion of domestic utilities and conveniences there is no reason why we should long for a continuance. There is no reason why our country should pass through a period of the slowly awakening process. Full and complete relief may be

had, and may be had at once, if the clayworking fraternity in this country will with one united effort direct the attention of the country to the possibilities of substitution that are to be found in her products. A house without a single piece of wood in it, its embellishment inside and out, its adornment, its utilities, are now quite possible by the craft and skill of the members of this Association. A greater opportunity than now has never been presented to our industry. A failure to grasp the situation, to take advantage of conditions, would be a commercial crime. It would be none the less a crime that efforts in this direction should be undertaken with dilatory action and feeble hands.

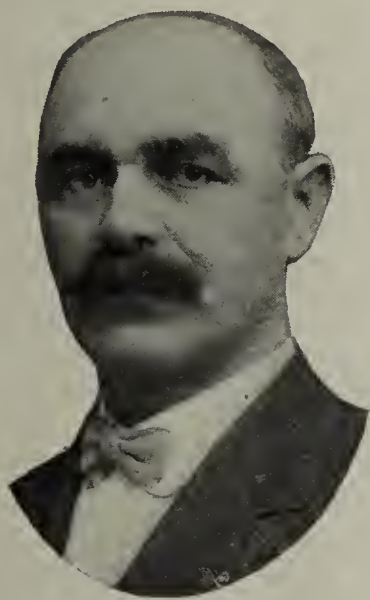
That the allied and organized efforts carrying out the fundamentals of this association have been stronger in evidence during the past few years is gladly conceded, but that these shall become more united and more determined and more persistent in their efforts is unquestionably true. The American Ceramic Society has done a great work, but its work is in its infancy. The National Paving Brick Manufacturers' Association has impressed the economy and desirability of paving brick upon the American municipalities to an extraordinary degree, but that organization needs the stimulation of unity and the appreciation of its own worth and character as an American institution. What they have done has been well done, but what they may do is absolutely necessary for the supremacy of their product. As their efforts grow united and thus become strong, the desired recognition will come in all its completeness.

A publicity committee was urged into existence by this Association for the especial purpose of bringing all kinds of building brick into public favor. Its work sowed the seed that brought forth

worse than thrown away. If you have any time left after giving your own business and your own line all the attention it requires bestow a favor upon your neighbor or even your competitor. It matters not what your line, whether of face brick, hollow construction goods, backers or liners, whether you can make the poorest or the best goods. If you cannot devote all your time to its production and sale, exercise charity and benevolence rather than hunting cause for a grouch. A sale of the best clayworking product very often opens the way for the poorest, and a sale of the poorest often opens the way for the sale of the best. There are practical uses for all classes of goods commercially manufactured today, and while this is true, all must concede that the demand of the American public in many respects is changing. Few expenditures are made for the day or the season; the greater portion being as an investment pure and simple. Therefore permanency and economy are the chief factors that control.

It is your duty, therefore, to make the very best product that your situation and material will permit. It would seem that the solid structures that are being built in our larger cities would meet the demands of civilization for hundreds of years to come. At any rate, it is believed to be so. It is not expected that the building erected today in 25 or 30 years from now will be torn down and replaced by others, but they are expected to last a hundred and even a thousand years. We must therefore furnish the material to meet this requirement. In this respect we have seen a revolution take place in the last few years. What satisfied the market five years ago will not at all answer today. In many respects we have kept pace with this demand. Never before were brick manufactured of so high a quality. Never before were brick so economically-

ENTERTAINED VISITORS CONVENTION WEEK.



T. Bishop, Louisville, Ky.



H. C. Kleymeyer, Evansville, Ind.



R. W. Brown, Louisville, Ky.

fruit that has been worth while. This effort was followed by the organization of the Clay Products Association, which did stronger and better work. It was again followed by the Building Brick Association of America, and in what it has accomplished during the past year there is not a single producer of clay manufactured goods in this country that is not its debtor. and I am frank to say that the manufacturer who either throws cold water on the efforts of any of these organizations or who even stands idly by, though without condemnation or commendation, is not only an enemy to the craft but an enemy to himself.

I do not deem it worth while to review the conditions of the past year in a way to remind you as to whether or not your business has been one of profit or of loss. It is enough to say, and I feel that I ought to say as much, that each of you have done as well as you deserved. The thing that I would rather impress upon you is that you shall deserve more. Think you that the number of neatly equipped bath rooms that have come into the modest homes of our countrymen by the thousands and which have taken the place in the last few years of the wash basin, the wash tub, the creek and the mill pond, and even brought a bath itself where no bath had been—think you this and all this would have taken place but for the insistent picture that meets your eye every time a magazine is opened? The advantage, the comfort, the economy of our entire production must necessarily be brought to the attention of everybody in this country if you would have everybody buy who can buy.

At no time should the spirit of jealousy be manifest. It is without excuse or reason. Time employed in its consideration is

manufactured. While the price of labor has almost doubled in the past few years, the price of brick has practically remained the same. Economical methods are being continually introduced. Not all of them that are suggested are by any means what they are alleged to be. If it were so, by lopping off 25c a thousand here and 25c a thousand there, as contended by the claimants, we should soon be making brick for nothing. But in spite of improvements in manufacture and in spite of the long period of time since the manufacture of clay products was undertaken, we really know but little about it yet, and we are far and away from being masters of it. It is an inviting, an interesting and even an enticing study. Great fame awaits the man who understands possible structural processes in the molding of clays alone. The combined genius of craftsmen and machine men has accomplished but little in this direction. It seems like saying much that 300,000 builders can be pushed through a single machine in every 10 hours, or that 100,000 10-pound paving block is an ordinary day's run for a single machine, but really a blush of incompetency must come to us when we walk from our own machine and stand before the great printing press of the day. A vast field of research work lies before the clayworking industry of this country. To the outsiders it may seem a simple problem, but it is not.

We have knocked at the door of Congress for many years, asking national aid. Finally our petition has been granted and henceforth we may expect at the hands of the Bureau of Standards co-operative efforts to solve the thousand and one problems that confront us. Not alone in the manufacture of clay products are the problems that hinder and delay, but even a far greater field is open

that their uses may be properly understood and appreciated by the public. The educational features of our various promotional organizations are of the utmost importance. Time will not permit me to enter into the discussion of these features incidental to encouraging the sale and use of clay goods. In the abode of man by night and in the provision for his footsteps by day, in hundreds of ways, the use of clay for domestic and public purposes walks hand in hand with the discoveries of medical science in the provision of a sanitary condition for the benefit of all mankind. Nor must it be considered for a moment that clay products are limited to features of utility, economy and comfort. The demands of art and beauty are fully and completely met.

The whole people should know of these things. Conditions should be common knowledge, such as are found in the vicinity of Wade Park, Cleveland, Ohio, where the residences of brick, embellished with terra cotta and adorned with brick pavements, each constructed with skill and artistic beauty, and of such possibilities of brick pavements as are found in the driveways of the new Pennsylvania depot of New York City, which furnish habitations and streets, if not closely akin to the New Jerusalem, at least approaches an ideal paradise and dominion control that should satisfy every creature here below. (Applause.)

Secretary Randall: This brings us to another annual event, the report of our Treasurer, Mr. John W. Sibley, Birmingham, Ala. (Applause.)

TREASURER'S REPORT.

To the Officers and Members of the National Brick Manufacturers' Association:

Gentlemen—As we assemble in this beautiful city for our twenty-fifth annual convention, thus celebrating our silver anniver-



C. J. Deckman, Cleveland, Ohio.

sary, so to speak, it is brought tenderly to my mind that on the occasion of our former convention held here it was my honeymoon trip, and out of gracious compliment to my blushing bride you honored me with election as treasurer of the Association. In the exuberance of youth I attempted to be facetious in my first report, being proud of the fact that it showed a surplus. Brother Anthony Ittner, with a keen appreciation of the ridiculous, nominated me for re-election, with the proviso that I must always show a surplus and furnish a joke in my report. (Laughter.) In the passing of nineteen years it has been a harder task to provide the joke than the surplus, notwithstanding the three panics we passed through. But it is extremely gratifying to me in my report to this convention to show a much larger surplus than was originally committed to my care, and that, too, without any resort to "frenzied finance."

This is more forcefully illustrated by the story that is told of a philanthropist, who visited a destitute negro family and having his heartstrings torn with pity, drew out his wallet and said: "Here, Hamlet, take this dollar and go out and buy a chicken for Christmas dinner." Hamlet, the young son of the house, accepted the banknote gratefully, and the poor widow, with tears in her eyes, bowed the philanthropist out. But the garden walk wound by an open window, and as the parting philanthropist passed by the window he was amazed to hear the mother say shrilly to her son: "You, Ham, you jes gimme dat dollah an' go git dat Christmas chicken in de nachel way." (Laughter.) So I am jis' nachelly glad to report a surplus on hand of \$465.80.

RECEIPTS AND DISBURSEMENTS ACCOUNT OF THE TWENTY-FOURTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION.

RECEIPTS.

Balance in treasury, account 1909.....	\$90.71
Membership fees, 111 at \$5.00, 1910.....	\$555.00
Membership fees, 525 at \$3.00, 1910.....	1,572.00
Reports and pamphlets sold.....	12.00
	2,139.00
Total receipts	
	\$2,229.71

DISBURSEMENTS.

Paid for programs, mailing, etc., per voucher...	\$113.30
Paid for convention reports, mailing, etc., per voucher	263.79
Paid for Postal Telegraph Co., per voucher....	111.30
Paid for miscellaneous printing, per voucher..	154.74
Paid for engrossing certificate, per voucher....	11.40
Paid for postage, expressage, exchange, per voucher	194.38
Paid for extra badges, per voucher.....	15.00
Paid for clerk hire, allowance, per voucher....	300.00
Paid for Secretary, traveling expenses, per voucher	250.00
Paid for Assistant Secretary, allowance, per voucher	100.00
Paid for Ohio State University scholarship, per voucher	250.00
Total expenditures	\$1,763.91
Balance in treasury	465.80
Total	\$2,229.71

RECAPITULATION.

Total receipts	\$2,139.00
Total expenditures	1,763.91
Balance in treasury	465.80
Total	\$2,229.71

Respectfully submitted,

JNO. W. SIBLEY,
Treasurer.

Election of Officers.

President Blair: The next order of business is the election and installation of officers. The first in order of business is the nomination and election of president for the ensuing year, and we are ready to receive nominations for president.

C. J. Deckman, Cleveland, Ohio. I do not intend in presenting a candidate for election as president to take up any great amount of your time. All of you who know Charles M. Crook, of Youngstown, Ohio, know him to love him. You love him because of his manly virtues. You love him because of the sacrifices he has made in time, and almost the sacrifices of his health in furthering the industries which we represent. Elect him your president and you have done this organization of ours more honor than you have done him. Allow the message to be sent to him at his home in Youngstown, Ohio, that you have elected him your president for the ensuing year, and it may materially assist him in recovering his lost health, and return to him his physical health and happiness, and it will be a message that will be a blessing not only to ourselves but to the entire organization as represented by this convention. I therefore place in nomination for your consideration and election, the name of Charles M. Crook, of Youngstown, Ohio. (Loud applause.)

Mr. C. A. Bloomfield, Metuchen, N. J.: I second the nomination of Mr. Crook, and move the nominations be closed and the secretary be instructed to cast the unanimous ballot for Mr. C. M. Crook for President.

The motion was seconded by several, and carried unanimously.

President Blair: The Secretary notifies me that the ballot has been cast for Charles M. Crook, of Youngstown, Ohio, and Mr. Crook is your president for the ensuing year. I regret very much indeed that he is not here to speak for himself. I am very glad that this Association has spoken to him in the manner that it has. I am sure Mr. Crook will reflect the utmost honor upon this magnificent organiza-

tion of ours. With this work so well begun, we will now have nominations for the office of first vice-president.

Charles T. Harris, New York, N. Y.: For the office of first vice-president, I wish to nominate a gentleman who, for seventeen years has attended every convention of this National Brick Manufacturers' Association, and during that time both by word and by deed on many occasions, he has shown his love and active interest in the welfare of the Association. I take pleasure in nominating Charles A. Bloomfield, of Metuchen, N. J., for the office. (Applause.)

R. C. Penfield, New York City: I desire to second Mr. Bloomfield's nomination.

G. W. McNees, Kittanning, Pa.: I move the nominations be closed and the secretary be instructed to cast the ballot of the convention for Mr. Bloomfield.

Anthony Ittner, St. Louis, Mo.: I second the motion. Motion carried.

President Blair: The secretary has cast the ballot and Mr. Bloomfield has been elected first vice-president. Mr. Bloomfield is present and can speak for himself, so I would ask him to come up on the platform. (Applause.)

Mr. Bloomfield: Mr. President, Ladies and Gentlemen—I did not expect to make a speech on this occasion, and I came entirely unprepared. As I look over the history of our conventions I am reminded that it is customary for the nominees after election to thank the convention, but on this occasion, there are two thoughts that come to me that those who have spoken have not taken into consideration, with reference to our business and our occupation, and I want every member of this association as we meet together for mutual good and mutual benefit, to stand shoulder to shoulder and go away with a moral sense of obligation of their profession, as well as pecuniary and financial. In the first place, it has been customary for the brickmaker to build his house of wood, and the denuding of our forests has produced such a condition that those who are aware of what the natural result will be are looking with alarm on this continued cutting down and using for building purposes of our trees and forests. It lies with you to prevent that disaster, and if you will take that into consideration as well as the financial end, you will be doing a great good. Then there is the other thought. You pick up a paper and read with horror that a family has gone to bed at night: father and mother and the little ones; during the night in that frame building, a fire has raged, often all have been taken out in the morning incinerated. We hold it within our power to prevent any such thing as that by insisting upon the building of fireproof residences in the future, and they can be built as cheap as the flimsy fire traps that have been going up for the past twenty years. These are thoughts every clayworker present today ought to take away with him. If he will carry these two thoughts in connection with the financial end of the business, he will be more successful in the future than in the past. Gentlemen, I thank you for the high honor you have conferred on me. I appreciate it fully. (Applause.)

President Blair: The next in order is the nomination for second vice-president.

R. G. Eisenhart, Horseheads, N. Y.: Mr. President, and Gentlemen of the Convention—Those of you who had the good fortune to be at our Rochester convention two years ago learned that the Rochester brickmakers are royal entertainers. I am in a position to know and can say they are a bunch of live wires. We were fortunate a year ago to chose one of these gentlemen our third vice-president. The gentleman has made good; he makes good wherever you may place him, and it affords me great pleasure to nominate that gentleman for our second vice-president, Mr. W. H. H. Rogers, of Rochester, N. Y. (Applause.)

Hervey Haigh: I second the nomination of Mr. Rogers.

Elliott S. Morse, Washington, D. C.: I move the nom-

ination be closed and the Secretary be instructed to cast the ballot for Mr. Rogers for second vice-president.

Motion seconded and carried.

President Blair: The secretary announces he has cast the ballot and I declare Mr. W. H. H. Rogers of Rochester, N. Y., elected for the ensuing year, and we will hear from Mr. Rogers.

W. H. H. Rogers: Mr. President, Ladies and Gentlemen—I appreciate the honor you have paid me by electing me to the office of second vice-president. I accept the office and thank you again for your courtesy. (Applause.)

President Blair: This brings us to the nomination of the third vice-president.

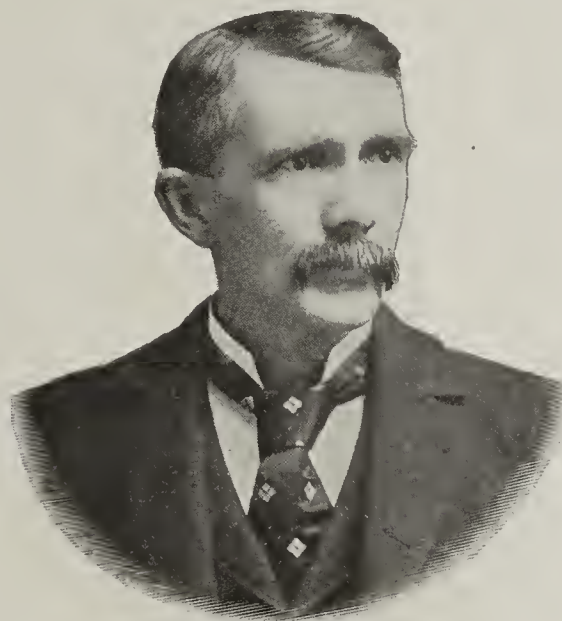
W. J. Snyder, Brazil, Ind.: I wish to place in nomination for the office of third vice-president a younger man, who I know will make good. A young man of untiring zeal and wise energy, Mr. Eben Rodgers, of Alton, Ill. (Applause.)

Fred Talbot, St. Louis, Mo.: Mr. President, St. Louis seconds the nomination of Mr. Rodgers.

J. W. Robb, Clinton, Ind.: I move the nominations be closed and the Secretary be instructed to cast the entire ballot of this convention for Mr. Eben Rodgers.

J. H. Chambers, Philadelphia, Pa.: I second the motion. Motion carried.

President Blair: The Secretary assures me that he has



G. W. McNees, Kittanning, Pa.

cast the ballot according to your instructions, and I therefore declare Mr. Eben Rodgers, of Alton, Ill., elected to the third vice-presidency of this Association. Inasmuch as he is recommended to us as a young man and I am informed that he is an honest man, because only last week he returned to the owner an umbrella that he had borrowed (laughter), as a young man, I call upon another young man to bring him to the platform in order that you may see and hear from Mr. Rodgers. Mr. Snyder, the young man who nominated Mr. Rodgers, will please bring this young man to the platform. (Laughter and applause.) It is with pleasure that I introduce to you Mr. Eben Rodgers, of Alton, Ill., your third vice-president. (Applause.)

Mr. Eben Rodgers, Alton, Ill.: Mr. President, Ladies and Gentlemen—I thank you very much for this honor. I appreciate it thoroughly. I hope I will have the ability to serve this Association and to make it better, if possible. (Applause.)

President Blair: Now, you have before you the serious duty of selecting the Secretary of this association.

M. E. Gregory, Corning, N. Y.: I find in looking over the proceedings of the conventions of this Association, that nearly if not quite all of the "has beens" some time or another in their existence, has had the honor and the pleasure

of nominating our friend Randall for the office of Secretary, and gentlemen, I would like to add to my honors by nominating Mr. Theodore A. Randall for Secretary. I believe we owe it to him for the good he has done for us and what he has done for the members of this Association, and what he has done to make this Association what it is today. Therefore, it gives me great pleasure to nominate Mr. Theodore A. Randall for Secretary of this convention for the twenty-fifth time. (Applause.)

O. N. Townsend, Zanesville, Ohio: I desire to second the nomination.

J. H. Mead, Warners, N. Y.: I move the nominations come to a close and the Assistant Secretary be instructed to cast the ballot of this Association for Mr. Randall for the office of Secretary.

Seconded by several, and carried.

President Blair: The Assistant Secretary has performed her duty as requested and I declare Mr. Theodore A. Randall elected Secretary for the twenty-fifth time. (Applause and cries of speech.) I suppose I will have to introduce Mr. Randall. I don't want to misrepresent things to you, and I don't want to stand here and tell all the truth about him that I know. If you have not found out all about him in twenty-five years, that's your fault. (Laughter.) I will let him speak for himself. (Applause.)



Anthony Ittner, St. Louis, Mo.

A Member: Oh! you Teddy! (Laughter and applause.)

Secretary Randall: Mr. President, Ladies and Gentlemen—If any one had said to me twenty-five years ago that after a quarter of a century I would still be serving this Association as an officer, I would have laughed at him. I think I would have hired somebody to "tie a can" to me then and there had I dreamed of such a long term of servitude. It has been a very pleasant term of servitude, and I am very glad indeed to thank you again for the twenty-fifth time for this vote of confidence, for I take it as such. I do not think I ought to talk more than half an hour under the circumstances. (Laughter.) I am reminded of the story of two little Hebrew boys just after Christmas, walking along the street. One who had received a new pair of mittens was bubbling over with enthusiasm, and was talking continuously, pointing this way and that and gesticulating as Hebrews do as he talked. The other little fellow had his hands shoved down deep in his pockets, and did not have much to say. Finally, the first little boy said to him, "Ikey, what makes you so still; why don't you say something?" Shoving his hands still further into his pockets, Ikey replied, "Oh, go on Abe, talk yourself; I ain't got no mittens." (Laughter.) At one of our earliest conventions at Philadelphia, I mean our first convention at Philadelphia, I made my first serious

effort at a little speech at the "powwow" and just after I made my escape, I met D. V. Purington and W. A. Eudaly. Mr. Purington took me by the hand, and turning to Mr. Eudaly said, "Randall is growing, Eudaly," and with that quick wit for which Mr. Eudaly is famous, he asked, "Better or worse?" (Laughter.) Well, I have been growing ever since and I can prove it. I have grown right through my hair (laughter) and a good friend of mine who was good enough to tell me the truth, said to me last night, "Randall, you have got the swell head," (laughter) so you see I am growing; whether for better or for worse, is for the other fellow to say. One thing is sure, our Association is growing in strength numerically and otherwise, as Treasurer Sibley's good cash balance shows. It is growing in influence, and I hope with the continuation of your cordial support, we shall mark another high water mark a year hence. I thank you very, very sincerely. (Applause.)

President Blair: Next comes the election of Treasurer. We are ready for nominations.

Anthony Ittner, St. Louis, Mo.: Mr. President, it gives me much pleasure to place in nomination our present Treasurer to be his own successor. He has so faithfully fulfilled the requirements which he says I made, and I think he states the question correctly, and I am convinced that he can continue to fulfill the requirements, that it gives me exceeding great pleasure to place in nomination Brother John W. Sibley, of Birmingham, Ala. (Applause.)

W. D. Richardson, Columbus, O.: I had thought of nominating Mr. Sibley, but I happened to think it was Mr. Ittner's privilege so long as he attends our conventions, and I hope my turns will never come, but I think we all agree that the contract which seems to have been made with Mr. Sibley by Mr. Ittner should be renewed. Therefore, I second the nomination of Mr. Sibley. (Applause.)

Mr. Ittner. I want to depart from the stereotyped method that has been adopted heretofore in electing our officers, and I move that Brother Sibley be elected by acclamation.

Secretary Randall: I want to amend the motion by moving the suspension of the rules to allow Mr. Ittner's motion to carry, because thirty-eight years ago Mr. Ittner was elected to the presidency, here in Louisville.

Mr. Ittner: You want to make me out an old man. (Laughter.)

Secretary Randall: What I started to say was that if there is a single man in this Association that the rules should be broken for, it is Mr. Ittner, for he was elected President at our first Louisville Convention, nineteen years ago. (Laughter.)

Mr. Ittner: Mr. President, Anthony Ittner don't want any rules broken for him. I stand by the Constitution, not only of the National Brick Manufacturers' Association, but I stand by the Constitution of the United States of America. I want to make a motion that comes under our Constitution, Rules and Regulations, and I now move that our Secretary be instructed to cast the ballot of this Association for Brother Sibley. (Laughter and applause.)

Fred Smith, Omaha, Neb.: I second Mr. Ittner's motion.

Mr. Richardson: I think that is just as much of a suspension of the rules as electing Mr. Sibley by acclamation. (Laughter.) We have been instructing the Secretary to cast the ballot, but it is not according to the Constitution, and as far as the Constitution is concerned, I think Mr. Ittner's original motion is just as much in order as this one. (Laughter.)

President Blair: I see in this an effort to mix up the chair. But I believe the question is upon the original motion.

Mr. Bloomfield: It is upon the amendment. (Laughter.)

President Blair: The amendment was not seconded.

Fred Talbot: It seems to me we are getting the chair mixed all right, and I want to see Mr. Sibley elected some way. (Laughter.)

President Blair: Before this gets any worse, I will put the

motion before the house. The motion should be that the rules be suspended, and the Secretary be instructed to cast the ballot of this Association for Mr. Sibley for Treasurer for the coming year. (Applause.)

(The motion carried unanimously.)

President Blair: I want to say that by the direction of this convention, as indicated by the motion, the Secretary has cast the ballot for Mr. John W. Sibley for Treasurer of this Association, and I declare him doubly unanimously elected, and I present him to you, your new Treasurer, Mr. John W. Sibley, of Birmingham, Ala. (Laughter and applause.)

Mr. John W. Sibley: Mr. President, Ladies and Gentlemen—I am certainly overcome by your kindness, and I would that my tongue could utter the thoughts that arise within me, that I might express to you the gratification for the honor you have conferred upon me. I will strive to live up to both requirements, and provide a surplus and consult my darkey friends for the jokes, but I hope your expectations will not be set as high as the Western delegate to a big Sunday school convention held here in Louisville last year. It seems that the reports from the various States were being given orally by the different chairmen, and when, in the roll call, the name of the Lone Star State was reached, a brawny specimen of Southern manhood stepped out in the aisle and squared his shoulders and said: "Mr. Chairman, I represent the great State of Texas; the first white woman born in Texas is still living, and she now has a population of over 3,000,000." (Laughter.) Of course, for just a moment there was a period of silence, and then a voice from the gallery rang out loud and clear, "Send that woman to Wyoming; we need her." (Laughter and applause.)

President Blair: I thank this Association sincerely for your kindness and consideration of your presiding officer during the past year. It is with the utmost gratification and pleasure that I now surrender this emblem of authority to my worthy successor, Mr. Bloomfield, who as First Vice-President will preside over this convention in the absence of the newly-elected President.

Chairman Bloomfield: Ladies and Gentlemen—In assuming the position I am about to assume, I do so with regret. I fully appreciate the honor, but in the years that I have been meeting Mr. Crook I have learned to love and respect him, and it is with a feeling of sadness I stand here before you, knowing that he is unable to be here to-day, on account of his broken health, and I trust I shall have the pleasure soon of entertaining a motion from some brother clayworker on the floor to send a telegram to him, conveying not only the news that we have been honored by electing him to the highest office within our power, but that we sympathize with him in his sickness and trust that soon he will be restored to perfect health. I will ask our Secretary to announce the next order of business.

Secretary Randall: The next in order of business really is the election of a member of a Committee on Technical Investigation. There is a typographical error in the program, by which it would appear that Mr. Purington is the member whose term expires this year. This is not the case. Mr. Anthony Ittner, of St. Louis, is the member whose term expires at this time, and it is up to the convention to re-elect Mr. Ittner as a member of this Committee on Technical Investigation, or elect some one else to take his place.

J. M. Blair, Cincinnati, Ohio: I nominate Mr. Ittner, and move that the rules be suspended and the Secretary cast the ballot of this convention for Mr. Ittner to succeed himself on the Committee on Technical Investigation.

R. C. Penfield, New York, N. Y.: I second the nomination of Mr. Ittner.

Mr. Ittner: Before that motion is put I wish to make a suggestion, and in making that suggestion I want to acknowledge my obligation to Brother Blair for the high honor he seeks to confer on me by continuing me a member on this

Committee on Technical Investigation; but I am satisfied there are many members of this convention who are much better qualified to fill that office than myself, and who have more time to devote to the duties of this committee than I have, and it is in the interest of this Association, and this feature of the work that it will have to do, that I decline. I am sincere in what I am saying. I know that some one can be elected in preference to myself who will be much more valuable as a member of that committee. Hence, with all due deference to Mr. Blair, I ask to be relieved from further service on this committee, and it might not be out of place for me to go a little farther by way of explanation. I received a letter from the Chairman or Secretary of that committee during the past year, asking me to make certain suggestions in the interest of their work, and I was absolutely at the time unable to do it, so I let it go by default, and that alone should render me unfit for further service on that committee; so I ask to be relieved.

Chairman Bloomfield: If the convention will bear with me one moment, I had the pleasure of serving for about twelve years on that committee with Mr. Ittner, and I think he is fully competent and should be re-elected.

W. D. Richardson: I have served on that committee, I think, ever since its organization, and I know and appreciate the position Mr. Ittner takes in this matter. There are few



J. M. Blair, Cincinnati, Ohio.

men so situated that they can do that work. The other members who have been put on that committee year after year could not do it, and I think they should not take the position of asking to be re-elected, and I think Mr. Ittner's position in that matter should be respected. He realizes that it is not a question of ability or anything of that sort. It is a question of a man having the time to do it. Since the matter has come up, and Mr. Ittner has made his talk, I think the committee itself should be consulted. Therefore, if a motion is in order, I move that we postpone the election of a member of this committee until the committee has had time to confer and we have heard the report.

Alfred Yates, Shawmut, Pa.: I second the motion.

Motion carried.

Not on the Program.

M. E. Gregory: I would like to ask for the privilege of the floor for a few moments. It is customary, you know, at our conventions to honor at different times the older members of this Association. That is very nice and very appropriate, and I indorse it fully, but at this time we have a young member of the Association we would like to honor. I have in mind Miss Adelaide Randall Gould, six months old. She is here, and it has been the great privilege of certain friends of this little babe to secure a little token for her. She is the young-

est member of the National Association, for I am told by good authority that no person can live in the Randall family over three days without being a member of the National Brick Manufacturers' Association, so she has been duly accredited a member of this Association, and in behalf of the friends of this little child, for we believe we will love her as we have learned to love her mother and her grandmother and grandfather before her, we present this token to Adelaide Randall Gould, and officially declare her the granddaughter of the N. B. M. A. (Applause.)

(Secretary Randall carried little Adelaide Gould to the front of the hall, that the convention might see the youngest member, where a silver service set was given him for the little one, after which she was taken back to her proud mother in the rear of the convention room.)

The Assistant Secretary Remembered.

Albert D. Klein, Omaha, Neb.: It is customary in all organizations to recognize merit. We have in our midst, as a member of our organization, one whose merit has been displayed in a wonderful manner. A few friends have gotten together, and in the name of the Association we wish to recognize that merit and the long, faithful service of our Assistant Secretary, who has served us in that capacity for twenty-one years. It is fitting that we present to Miss Addie Wallace, our Assistant Secretary, this bracelet, as a token of our love and esteem. (Applause.) (Cries of speech.)



W. J. Snyder, Brazil, Ind.

Chairman Bloomfield: These things are very gratifying and show the spirit of the convention. I believe those of us who know the Assistant Secretary appreciate and feel deeply how dear Miss Wallace has grown to us. She can scarcely know from this slight token how we all love her, every one of us, and we appreciate that she feels too deeply to be able to speak.

Miss Wallace: It's a beautiful gift, and I thank you all. (Applause.)

Chairman Bloomfield: Before we go on with the regular business, we have here two of the representatives of the proposed National Clay Products Show that is to be held in Chicago in 1912, and they are very desirous to have a hearing before the regular program of the convention is taken up, and therefore I am very glad to grant the privilege of the floor to Mr. C. B. VerNooy and Mr. R. C. Penfield.

R. C. Penfield, New York: Gentlemen of the convention, we wish to present a matter that I consider of great importance. We have arrived at a time in the history of the clay business when if we are to get the recognition to which we are entitled, we must go forward and step into direct competition with the cement industry, which in the past two years has given a wonderful show and advertised its wares in a way that you all know is a great detriment to the clay industry. At the convention of the Illinois Association held in Chicago recently, a committee was appointed to take in charge the promotion of a Clay Products Show, to be held in Chicago in 1912, in either January or February. A committee of four has already been named, and the fifth place on the committee

has been purposely left vacant in order that the members of the National Brick Manufacturers' Association might appoint as a member of the committee the fifth man. There is no question but what the Clay Products Show will be given in Chicago. It will undoubtedly be given in the Coliseum or the Armory, and a creditable exposition will be presented. I do not think the members of the clay industries realize what a magnificent exposition can be given in connection with the industry of clayworking, and it remains for this committee, backed up by the National Brick Manufacturers' Association, the State associations, the National Paving Brick Manufacturers' Association, and all the allied associations in clay industries, to unite in giving one grand exposition. Now, it seems to me that it is very fitting that this Association should name some one representative of this Association, who, together with the four men who have already been appointed on this Committee, will undertake this work. The question of an exhibit of clay products is not a formidable one, when you consider for a moment that common brick, face brick, fireproof brick, paving brick, ornamental terra cotta, wall and floor tile, roofing tile and all burned clay manufacturers can show models demonstrating the merits of fireproof buildings. Paving brick manufacturers can show an example of a properly constructed street. Manufacturers of drain tile, aided by the Government statistics, can make a worthy exhibit. We have sewer pipe, conduits, electrical insulators, beautiful pottery. With the National Brick Manufacturers' Association to aid with its members and influence, and the State Association, the National Paving Brick Manufacturers' Association, the American Ceramic Society, the Building Brick Association, the United States Government itself would all have a part in it, and have an opportunity of seeing for the first time what this industry can produce. It is possible for us to give an exposition in Chicago which will far excel in architectural beauty the shows given by the cement people. We particularly request that the fifth member of that committee be nominated by this convention. (Applause.)

C. B. VerNooy, Chicago, Ill.: Mr. Chairman, Ladies and Gentlemen, in behalf of the brickmakers of Chicago, I extend an invitation to the National Brick Manufacturers' Association to hold its next convention in Chicago. I do this in the face of the kindly, warm invitation from the Mayor of Louisville our permanent headquarters. We have a little city up there we would like to show you; therefore I extend this invitation. (Applause.)

J. Parker Fiske, New York City: We have been asked by Mr. Penfield to nominate some one to represent this Association, and I am going to nominate a man who has represented this Association for the last twenty-five years in many ways; a man whom I hope will represent us for twenty-five years more; a man who is amply fitted to represent this Association, not only in this matter, but in any other matter—he has the proper machinery to represent it most effectively. That man is Theodore A. Randall, editor and publisher of THE CLAY-WORKER. (Applause.)

Nomination seconded and carried.

W. J. Snyder, Brazil, Ind.: Now that this Association has a member on that committee, and in view of the great opportunity, and not only the opportunity, but the desirability, of this Association co-operating in this great movement, I desire to offer this resolution.

Resolved, That it is the sense of this convention that the Executive Committee be requested to arrange to hold the next annual meeting of the N. B. M. A. in Chicago, Ill., at the time of the proposed Brick and Clay Products Show, to be held either in January or February of 1912, and as soon as dates can be fixed, the earliest possible notice of such meeting shall be published.

I move the adoption of this resolution, Mr. Chairman.

W. H. H. Rogers, Rochester, N. Y.: I second the motion.

R. C. Penfield: I want to say a few words on the resolution and urge upon every one the importance of carrying it. In order to start this thing right, in order to have the clay industry properly represented, and give exhibits of the various clayworkers, to get exhibits from a sufficient number to fitly represent this industry, not one moment must be lost, and we need to know and know early that the National Association is behind this movement, and we are going to get together in

January or February and make the greatest clay products show ever given in the history of the world.

Motion carried.

M. E. Gregory: I move the Secretary send the following telegram:

Charles M. Crook, Youngstown, Ohio:

The National Brick Manufacturers' Association, at its twenty-fifth annual convention, has just elected you president by unanimous vote, and extends to you its sincerest hope for your speedy restoration to perfect health.

(Applause.)

Elliott S. Morse: Second the motion, and suggest we make it a rising vote.

Carried.

Chairman Bloomfield: This brings us to the first of the regular papers on the program, "The Missing Link Between Success and Failure in the Brick Business," by R. E. Sunderland, whom I take pleasure in introducing. (Applause.)

PUBLICITY—THE MISSING LINK IN THE BRICK BUSINESS.

BY R. E. SUNDERLAND, OMAHA, NEB.

Mr. President and Gentlemen of the Convention:

The greatest force that is working upon the minds of men today is publicity.

Publicity begets knowledge, knowledge is truth and truth makes men masters.

Publicity is the friend of right and the foe of wrong; it makes the good prevail and the bad retire; it is the greatest producer of righteousness.

Publicity is prevention, an ounce of which is worth more than a pound of cure.

Upon publicity is the nation depending to right its wrongs.

Publicity removes temptations that have been causing the downfall of men in all departments of life; it is forcing men to look before they leap. Thus right conduct, honorable acts and worthy accomplishments are taking the place of regret and remorse.

Publicity has revolutionized business. It is the world's great highway to business success, and many there be who have passed that way.

Publicity is all of this and more. Yet my topic is "Publicity—The Missing Link."

But it is missing today only in those places where its value has not been recognized. It is the letter "x" in the algebra of the brick business. It is the unknown quantity, the mystery which may explain the success of your competitor and your own failure.

Failure, did I say? Yes, failure to meet your opportunities to the fullest extent. Yours, Mr. Individual Brick Man! Yours, fellow members of this Association!

Indeed, it is only too true, my brick friends, that "publicity" is an almost unknown word to you, and that you are today asleep to its burden of riches for you.

And what is it that arouses you from your slumber? It is the rush and rumble of a thousand carts; it is the roar of a hundred freight trains; it is the hum of scores of factories that are busily employed in a competing industry at your very doors.

If you should ask me to name the biggest word in the dictionary and the most important word in our commercial language, I would say, without any hesitation, "Publicity."

"Publicity" is a convenient, economical and effective vehicle for facts, for information, for knowledge; a vehicle with immediate access to every enlightened mind within the borders of our nation.

Put "publicity" at work for the accomplishment of some worthy reform, either local or national, and sooner or later the result will be attained. Employ "publicity" for the exploitation of a city, a State or a section, and you may bank on it there will be a movement of people and money to the promised land.

"Publicity" is the strongest link in that chain which binds together the various elements of society.

The surest cure for labor troubles is "publicity." Make it known to your men that you recognize your own right to run your own business; make it known that you know better than they how to manage your own business; make public the fact that all brick-makers in your part of the country are standing erect, side by side, prepared to defeat injustice, but determined to give the square deal, and that in liberal measure, and publicity will thus help you as it has been helping others.

"Publicity" breaks down barriers between people who have not understood each other. It brings strangers into close and valued friendship. It reveals the traitor and the scalawag.

"PUBLICITY" HAS BEEN DOING EVERYTHING, GENTLEMEN, BUT SELL BRICK.

Publicity has carried to success unnumbered enterprises and industries, and yet we have not given it a chance to sell brick. Publicity has been pleading in vain for employment in the brick business. We have almost entirely ignored the importance of placing the merits of brick before the public.

I assert that this great potential power which spells accomplishment and is revolutionizing commerce, government and society, is an almost unknown element in the brick business. Think of it! "Publicity," the strongest link in the whole chain of human achievement, is yet the great missing link in the brick industry.

Why did we not meet and answer this question ten years ago? What have we been waiting for? Does the brick man say, "All

things come to him who waits?" Surely he has done his waiting patiently and well.

We are sometimes asked, "Does advertising pay?" And do we not occasionally ask the same question? Are purchasers actually influenced by advertising? Name me fifteen articles that you buy somewhat regularly and I will show you that ten of them are widely and constantly advertised. How about that hat? Those shoes? Your collars, shirts, underwear? That suit of clothes? (No reflection, gentlemen, for I, too, am wearing one of that kind.) What is your favorite brand of cigar, soap, baking powder, coffee? Do you buy known or unknown machinery? Are you not influenced to a certain extent in all of your considerations by the effect of somebody's advertising?

Gentlemen, take an inventory of all the purchases you make and tell yourself, if you will not admit it to me, how few of them include obscure, unheard-of, unknown articles.

Now put yourself in the place of the prospective builder. What materials are offered? You have heard much about cement or "stucco" construction? You have seen many illustrated booklets of shingle-covered bungalows. But what have you read in favor of brick construction?

You know the answer. Brick is the last material to be considered (if it is thought of at all), because the prospective builder has not learned the truth about brick. Right here is the missing link between the owner's building fund and the brickmaker's bank account.

For every one hundred dollars spent to tell him about the other materials not more than a single dollar has been invested in brick publicity. The natural result is that he does not use brick, and can you blame him?

Why should a brick manufacturer have to be urged to advertise his wares? Is it not indeed inconsistent and illogical?

We fight off like a pest the solicitor who attempts to open our half-closed eyes to the value, the indispensability of advertising, yet we write a personal letter of thanks to some acquaintance who may have casually suggested to a prospective builder that he consider the use of brick.



R. E. Sunderland, Omaha, Neb.

We spurn the use of the printed appeal in behalf of brick and yet we find time, money and inclination to come here to confer and resolve and mourn together because brick as a building material has been losing its hold.

It is not necessary for me to exaggerate nor make rash statements, for the bare facts are sufficient to bring us brick men to our sense in regard to the overwhelming importance of making our product known and desired among men.

Brick would today be the ranking and the popular material if, when the public began to take notice of cement, the brick men had entered with heart and mind and money into an organized campaign of publicity, following the wise example of those in charge of the competing industry.

Millions of money have been spent in advertising another material, and that material has taken hold of the builders of the nation like magic, and that self-same competitor is sending the cold chills up and down the spine of every brickmaker who realizes the present condition of affairs.

More money, many times over, is invested in brick plants than in cement plants, and yet we are in the humiliating attitude of allowing our market to be advertised away from us into the hands of those enterprising, far-sighted business men, who control the cement business of the country.

What are we doing to save to our industry that place of prestige and importance to which it is entitled? How much money are we putting into this, the most important part of every business, the publicity department? Gentlemen, the amount is so small as to be unworthy of mention—so small as to make us ashamed of ourselves.

Where were we brick men when American home builders began to tire of frame construction? We were "asleep at the switch," and that is where we are today in the selling end of the brick business.

Where were our competitors? They were "on the job." Where

were their allies, the metal-lath and the waterproofing people? They were "on the job." Where were the artistic designers of houses? They were "on the job," their pockets filled with cement literature, their desks and walls a labyrinth of "stucco" photographs and their libraries bursting with periodicals and books about cement.

Why did not the public mind turn to brick? Simply because no invitation was issued; nobody explained the merits and beauty of brick; nobody defended brick; nobody reminded the public of brick.

I repeat, gentlemen, that the great missing link in the brick business is publicity. But the link can yet be forged and put into the chain. Shall we heat the metal and put the steam hammer into operation or shall we complete the trench, now partly dug, and bury ourselves in it?

The difference between a rut and a grave is merely one of size. Gentlemen, we are in a rut. Shall it become our commercial grave?

I take it to be admitted that the brick industry has suffered immeasurable money loss through the substitution of other material. And we may as well include in the general admission the fact that this loss has not been due to any degree of incompetency on the part of brick as a worthy material.

We are forced to admit these propositions, viz:

1. That brick has lost tremendously.
2. That this loss has occurred in spite of the fact that brick is a better material than those which have been used in its stead.
3. That brick has lost in spite of the fact that it is and always has been an available material.
4. That brick has not been displaced to any large extent because of disadvantage as to cost.

Here, then, is the startling fact that brick has suffered incalculable loss, and arrayed against this fact are three ample reasons why the loss ought not to have occurred.

We need not spend much time writing or reading obituaries, but from the past we should learn lessons which will be of value in determining our present and our future course.



R. G. Eisenhart, Horseheads, N. Y.

I would not present a picture intended to portray the brick industry as one whose lifeblood is slowly oozing away; nor should the impression prevail that prosperity is unknown to those whose capital is invested in the brick business. Poor indeed would be one's discernment if he should fail to read success and prosperity in the strong countenances, the happy expressions, the keen eyes of the brick men in this convention assembled.

But when we think of success do we define it as the absence of total failure? Are we true to life's fullest meaning if we merely ward off disaster? Are we making the utmost of our present opportunity to build up the entire brick industry as well as our own individual business? Are we broad-minded and far-sighted in our comprehension of the possibilities of the brick business?

Some of us are successful to the extent of making our particular investments pay handsomely. Some of us are making progress in just barely keeping the sheriff from becoming the custodian of our plants. Some brick plants in this country today (and to the writer's personal knowledge there are more than a few) are dragging to physical and financial ruin the men who own and manage them. All of this in spite of the fact that building operations have increased annually for years; in spite of the fact that the total consumption of building materials has been greater each year than it was the year preceding; and yet those in charge of the brick industry have utterly failed to inform the public as to the merits of brick, the best material of all, with the result that the business has failed to keep pace with that of its competitors.

Is it not high time to ask, What shall be done?

I wish every brick man would array all of the facts before his own eyes and then ask himself, "What am I going to do about it?"

To my mind there is but one thing that will do any good to the industry, and that is advertise brick.

In my own business much money is spent each season to advertise my own particular line of brick, and it pays me or I would discontinue the expenditure. Yet the effect upon the industry as a whole is not sufficient to be noticed.

But when I become willing to go beyond my own city limits; when I conclude that I have a duty to the brick business of the nation; when, in addition to my own expenditures for local brick advertising, I put up my money alongside of yours for general advertising; when I join with my brother brick men in New York and California and Minnesota and Texas—and in all the intervening territory; when I devote my best thought and time conferring with you as to the accomplishment of this much-needed thing called publicity, then shall I have given an intelligent and a worthy answer to the question, What shall I do about it? What is my duty, my opportunity?

The greatest need of the industry today is to teach the public to know, to admire, to demand brick. I wish to repeat that statement: The greatest need of the industry today is to teach the public to know, to admire, to demand brick. Can any man be so insensible to the actual condition of the business as to doubt it.

It is not freight rates; it is not freedom from labor troubles; it is not the need of competent burners and superintendents; not one nor all of the troublesome petty things that constitute our annoyances can be compared with the startling fact that the public is not at present interested in brick.

In order to proceed further into the discussion let us assume that every brick man now realizes and admits the necessity for publicity. How shall we proceed to put into operation the best plan for publicity, and how shall we pay for it?

First of all, we should agree upon one method or channel, and I commend to you most heartily your own publicity department, the Building Brick Association of America, an organization just as much a part of the National Brick Manufacturers' Association and just as inseparable from it as is the relation of the hand to the mind of the human body.

Those in charge of that association have during the past year given a most careful attention and tireless effort toward carrying out its purpose. With but scant funds a creditable amount of brick advertising has resulted, and many prospective home builders have had their minds turned toward the use of brick for the first time, and the results have been splendid.

But the surface has scarcely been scratched. There is beneath it for you and for me a mine of wealth if we will make the building public want brick.

Publicity costs money and the money must come from the brick men of the country. Paying for this publicity is your duty, your privilege, your investment. Don't let those who are devoting their time and thought and money—don't let them worry about funds with which to do this important work for you.

If you are now bearing your share of the burden, won't you persuade your neighbor to bear his? Won't you join heartily in such plans as the Building Brick Association is working out, having confidence that they are the result of thoughtful consideration, much experience and that your publicity money will be profitably invested?

Do I need again to refer to what the cement industry has done by means of publicity? Shall we conquer the field of public opinion or shall we allow our active young competitor to continue in peaceful possession?

Is it our pleasure to sit idly by while the press of the nation proclaims the alleged superiority of cement over brick?

Did I say the press "proclaims" it? Yes, editorially as well as in its paid advertising columns. How familiar is the sight of a column or a page devoted to the use of cement, and this occurs in the daily newspapers as well as in the national magazines. How much greater so-called "news value" does the publisher accord to such a story when there comes along with it a check to cover last month's advertising bill.

Put up the money and your publicity department will build up a popular interest in and demand for brick.

There is, in my judgment, absolutely no other way to forge this most important missing link. Whether brick shall come into its own depends entirely upon our attitude toward this proposition.

I come not before you pleading for publicity on behalf of any magazine; I do not bear in one hand plausible sounding arguments for advertising in some particular manner and in the other hand a publisher's advertising contract; my interest in this subject is not inspired by any advertiser's rate card; I stand before you as a fellow member of this Association, claiming no special right to be heard on this subject; but from the depths of my heart and with every atom of brain power I possess I believe and assert that this great missing link is absolutely essential to the security and success of the brick business of the nation.

It is because I believe this that, to the extent of my ability and time, I have been and expect to be exhorting and persuading the brick men of this Association and of the whole country to put their broad shoulders and their money under a great publicity campaign and thus forge into our chain of successful accomplishment and prosperity that great missing link, "publicity." (Applause.)

Chairman Bloomfield: This convention owes Mr. Sunderland a vote of thanks for that magnificent paper. There is not a week that has passed for two years but I have received at my home in New Jersey a pamphlet on cement which contains plans for cement houses. This shows the extent to which they are advertising their material all over the country.

General Discussion.

J. H. Chambers: To my mind, there has never been presented to this convention a more timely nor more forceful address than has just been presented by Mr. Sunderland, and I move from the depths of our hearts we give him a vote of thanks. I believe he has done us more good than we can appreciate.

Seconded by Mr. Ittner and carried.

J. Parker Fiske: Mr. President, I want to call attention to the publicity meeting of the B. B. A. tomorrow morning. We have, we believe, an interesting program prepared in regard to the various phases of brick houses. I believe there will be considerable discussion, and I would urge all of you to be here at 9:30 o'clock.

R. G. Eisenhart: I believe it would be advisable for this Association to have Mr. Sunderland's paper in pamphlet form, and have the Secretary send it out to every brickmaker of the United States. I do not believe we can do a better thing for ourselves.

Albert D. Klein: I second the motion, and suggest that the Secretary include with it an application blank and a request for \$5.00.

Motion carried.

Secretary Randall: You will see by the program that we are to have an evening session. Two papers will be delivered, and be illustrated by stereopticon views. We wish to get an early start, say about 7:30, for, following the papers, there will be an informal smoker in this room, given under the auspices of the Louisville Brick Club, and we will have a taste of Kentucky hospitality. The ladies are to be taken to the theater, and are requested to be ready to start at 7:45.

Albert D. Klein: Mr. Chairman, I move we adjourn.

Seconded and carried.

WEDNESDAY EVENING SESSION.

Chairman Bloomfield: Gentlemen, you will please come to order. Come up front and take seats. I am going to turn this meeting over to Vice-President W. H. H. Rogers.

Vice-President Rogers: Mr. George H. Tefft is going to give us an illustrated lecture on "Vitrified Sewer and Culvert Pipe." He is Secretary and Sales Manager of the W. S. Dickey Clay Company, of Kansas City, Mo., and as well Secretary-Treasurer of the Western Clay Products Publicity Bureau, of Kansas City. (Applause.)

VITRIFIED SEWER AND CULVERT PIPE.

BY GEORGE H. TEFFT, KANSAS CITY, MO.

Mr. Chairman and Gentlemen of the Convention:

I bring greetings to your Association from the Western Clay Products Publicity Bureau, an association composed of the manufacturers of vitrified sewer pipe and kindred products, whose principal territory lies in the Southwest and in the Mississippi valley west to the Continental Divide.

Mutuality of interests prompted me to accept the invitation of your Secretary to talk to you on the subject of "Vitrified Sewer and Culvert Pipe."

I want to tell you something of our bureau and its work and to suggest a closer co-operation or concerted action between the vitrified pipe and brick manufacturers in the matter of general publicity and the exploitation of clay products for sewers.

The Western Clay Products Publicity Bureau, as its name suggests, is an organization for the purpose of carrying on an advertising campaign for clay products. So far its efforts have been confined to advertising vitrified sewer pipe and drain tile.

The manufacturers of molds and machines and patentees of special designs took advantage of the extensive and elaborate advertising done by the cement companies to attract the attention of engineers and city officials to cement pipe.

Extravagant claims as to cost and serviceability were made.

The argument that every one should patronize home industry was used effectively. Some manufacturers of molds went so far even as to claim that cement pipe is superior to vitrified pipe.

The vitrified pipe manufacturers met this competition single-handed or in neighborhood groups by reciting the experience of different cities with this same material some 20 or 25 years ago, when the craze, as it may properly be called, went the rounds of experimental engineers.

Very little advertising was done. Pipe manufacturers were inclined to sit smug and knowing that vitrified pipe was the best material for sanitary sewers, they grew self-satisfied and careless. They overlooked the fact that the engineering profession, city officials and the public generally like to be told about and reminded of the material they use, even if it is sewer pipe.

About this time the little book, "Getting Together," was issued by what is now the Building Brick Makers' Association. Several copies of it fell into the hands of vitrified pipe manufacturers and the activities of the makers of cement molds and designs prompted them to act on its suggestion and get together.

In August, 1909, a publicity bureau was suggested, and in January, 1910, a permanent organization for the Western Clay Products Publicity Bureau was effected, with 22 members, representing 42 presses. The bureau is supported by subscriptions pledged for a definite period, payable monthly in advance, based on the number of presses operated.

A far-sighted, clean, broad, comprehensive publicity campaign was mapped out. In the articles of the association it was clearly stated that the prime or first purpose of the bureau would be to promote and encourage a wider and more extensive use of vitrified pipe for sewers, culverts and drains.

Through the medium of publicity in the engineering and trade journals, we showed that its use was a guaranty to a community that their sewers would be sanitary and permanent.

We reminded the engineers that its use was a guaranty and a protection to his professional reputation.

We have shown by indisputable evidence that vitrified clay will not disintegrate from the action of any acid, alkali or gas found in sewage or in ground waters, and that it is not affected by friction from the solid matters carried in sewage.

Second. To investigate, collect and analyze data on the causes of failures of all other materials used for sewers. This data, without prejudice or discoloration, to be offered in our ads. to those interested.

These advertisements in the engineering and trade papers are familiar to all of you.

We proclaimed that vitrified sewer pipe is the only sanitary material for sewers.

We pointed out the danger to the public health by the use of a



Albert D. Klein, Omaha, Neb.

material that is not proof against disintegration from acids, alkalis, gases or erosion, or, in other words, that will not convey all the sewage from its point of origin to the point of disposal, which is the proper function of a sewer.

We illuminated these facts and presented them from every point of view. We prepared a booklet known as "Sewer Facts," a modest little volume of facts and figures—no frills or furbelows—just plain facts, illustrated by photographs, tables and analyses.

This book was offered in all of our advertisements.

With the assistance of chemists and engineers we investigated the failures of numbers of concrete sewer pipe and sewers, publicity to which has been given through the medium of circulars. Later on these will be collected in book form under the subject, "Sewer Failures."

We have secured the opinions of several hundred well-known and experienced engineers as to the value of vitrified pipe as compared with concrete pipe for sewers. Without a single exception these men stated that they considered vitrified pipe an absolutely sanitary material. Nearly all replied unequivocally that they favored its use. Some qualified this statement by saying that they would use vitrified pipe except where there was a material saving in the use of concrete pipe, provided, the cement pipe was properly made.

This expert testimony has been distributed to points where it will do the most good.

We have kept everlastingly at it, with the result that we have caused engineers and city officials to stop and think and check up the statements made by the man with a patent mold to sell, and compare the only advantage claimed for cement pipe, viz: that it is cheaper (and it is after all only a claim) against possible epidemics, certain and sure inconvenience and the expense of replacing and rebuilding the sewer within a few years; to check their claims for permanence against a material that is known to be permanent; and to weigh an absolutely sanitary material against a material that is known to be spongy and porous, and into the manufacture of which the personal question enters so strongly.

The result is that the use of cement for small sewers, in the sizes in which it is possible to secure vitrified pipe, is fast disappearing. Engineers and city officials will not take the risk. It has dawned on engineers that it is inconsistent to require that clay pipe shall be vitrified, salt glazed and free from all imperfections and at the same time offer to accept concrete pipe that cannot possibly fill any of these requirements.

Cement or concrete is still extensively used, however, for larger sewers, where it can be made in the ditch, in mass, and where it is possible to get inside the sewer and smooth out and patch up the rough and broken places which the cement did not fill.

For these larger sewers we have steadily advised the use of vitrified brick lining for the invert to the spring line, but as none of our members are engaged in the manufacture of vitrified brick, we have not devoted much space in our efforts to increase this practice.

A broad statement that the use of vitrified brick for a lining to the invert is the best practice, and that it insures a sanitary and permanent surface for the average flow, with reference to some of the best work in the country, where it is used, is as far as we have gone.

I desire to recommend to the National Brick Manufacturers' Association that either through the proper committee of your Association or in conjunction with our bureau, an energetic, systematic campaign be laid and followed for the use of brick in the construction of large sewers and drains—vitrified brick as a lining for the

vitrified brick lining in the invert), taking into consideration sanitation and durability.

In the beginning we learned from you. Now we ask you to learn from us.

If you will put forth the same effort to secure the use of your material in the larger sewers that we have made in the smaller sewers up to 42 inches in diameter, it will result in an enormous increase in the demand for your product.

The cement manufacturer knows the composition of his material. He likewise knows the sewage is composed of every waste capable of being carried off in solution. He knows that it contains the acids formed from the decomposition of excreted and vegetable matter and from the chemical refuse of industries, both solids and liquids, together with sand, silt and gravel, carried along by the storm water.



Geo. H. Tefft, Kansas City, Mo.

invert and hard burned brick to back up the invert and construct the arch.

You hear a great deal about a possible enormous new market for brick as a building material. If you will only go after it in the proper manner you will secure an enormous market for brick for sewer construction.

I want to tell you that you are losing the sale of more than one thousand million brick annually on account of the adoption of concrete for large sewers.

This amounts in dollars and cents to approximately \$8,000,000, an enormous business, a market worth going after.

The basis for my figures is an investigation made in 325 cities in the territory covered by our bureau.

This investigation disclosed the fact that in 1910 thirty towns and cities ranging in population from 2,000 to 100,000 constructed concrete sewers from 42 inches to 10 feet in diameter that would require 118,000,000 brick in their construction.

If we could report on the whole United States there is no doubt that the amount would be at least ten times as great.

You should give this some attention.

It should have careful and immediate action on your part.

Your material will make a better, more sanitary and more lasting sewer. Its construction will give employment to an army of high-class, skilled labor, and the cost will not be greater than that of a properly reinforced concrete sewer (by that I mean one with



A concrete sewer recently taken up in Kansas City on Third street, between Grand and McGee. This sewer was laid 31 years ago, and has gone to pieces and has been replaced with vitrified pipe. The picture shows the concrete pipe in the ditch.



Some of the concrete pipe after being taken out of the ditch, showing the spongy and crumbly appearance of the concrete. You will notice the discoloration where the sewage has soaked in the concrete, making it very unsanitary.

He knows of the sewage fungus that has the remarkable power of extracting sulphur from the solution and storing it up in the form of minute refringent globules, thus generating sulphurated hydrogen.

Therefore, you seldom find a cement manufacturer offering his material for the construction of sewers, and never for the construction of the smaller sanitary sewers. He knows that the extensive use of cement in sewers means numberless catastrophies, and the discrediting of his material.

In introducing Portland cement and in exploiting it for new uses, it has been carried into this field for which it is unfit. It is often referred to in prospectuses issued for new companies, or in the news column of the daily papers, as the universal material. The claim is made on the one hand by a promotor who has stock

to sell, and on the other by a cub reporter to fill up space. These claims and this publicity has caused some engineers, who are otherwise conservative, and not usually susceptible to the influence of the hoi-polloi, to be misled in their enthusiasm for a material of extreme convenience and practicability on many lines, to employ it in the construction of sewers.

The cement manufacturer is a better advertiser than the clay manufacturer, and, I believe, I am right when I say that no other one thing has done as much for the cement industry as the cement show.

Through it the manufacturer has told the story of his wonderful material, and it may be truly called a wonderful material.

Their expositions are not any more interesting and will not attract a larger attendance than a similar exhibit of clay products would do.

The clay manufacturer includes the maker of brick, terra cotta,



Twenty-four-inch vitrified pipe replacing disintegrated concrete pipe on Third street sewer in Kansas City.



Some vitrified pipe in the ditch that has been in use in sanitary sewer work for 31 years.

fireproofing, ornamental terra cotta, refractory materials, sewer pipe, drain tile, roofing, floor tiling, pottery—from the milk crock to the daintiest vase, porcelains—from bathroom fixtures to the costliest egg shell cup or decorated ware; in short, all ceramics.

At this point, I wish to read to you an editorial in this week's number of the "American Architect," which is, perhaps, the leading paper in that ancient and honorable profession.

The matter of a clay products show has been discussed in our bureau and a committee has been appointed for the purpose of conferring with the committees of other clay working organizations. It is my understanding that the Western Brick Makers' Association at their last meeting appointed a similar committee and I sincerely hope that this convention will recognize the demand for such a show by appointing a committee to act with other organizations so that this great industry, of which you are such an important part, and of which we are a part, will secure its share

of public attention and the publicity which is due it through the means of an annual show, the first show to be held not farther distant than one year from this date.

I have brought with me streopticon views of some of the famous sewers of the world, a number of failures of cement pipe and cement drain tile, which we have investigated, illustrations of how to build a vitrified pipe culvert, and views of the so-called tin culverts. It is our practice to exhibit these pictures before councils or committees of citizens at points where the use of concrete pipe is suggested. (Applause.)

Vice-President Rogers: Mr. Tefft has given us a very interesting talk. I would like to supplement his remarks. I had supposed that the difficulty of having cement pipe enter into competition with vitrified pipe was practically done away with. We had the same condition in the State of New York thirty odd years ago, when cement pipe was just beginning to be used. Now I know of no concern in the State of New York making cement pipe. At the time I speak of, in order to test the merits of the two kinds of pipe, and knowing that all sewage deposits have more or less acid in them, which attacks the cement pipe, I put a sample of cement pipe and two samples of vitrified pipe in sulphuric acid. One sample was of a pipe made in Akron, Ohio, and the other in Rochester, N. Y. The cement pipe had remained in the acid but a very short time before it had entirely disintegrated and lay in the bottom of the jar. The two pieces of vitrified pipe were in those jars for six or seven years, and they had not even discolored the acid. I then went out of the sewer pipe business, but I have no doubt if I had kept those samples of vitrified pipe in



Some of the vitrified pipe after 31 years in use in a sanitary sewer. Notice the splendid condition of the pipe. It was absolutely in no way affected from the sewage or elements.

the jars until the present, they would have been intact and in as perfect condition as the day they were put in. At that time we were doing considerable business in the State of New York. We had occasion to replace iron pipe that had been in ten months with vitrified pipe. As there was considerable acid in these drains, it had completely destroyed the iron pipe. Mr. Tefft requests that we appoint a committee of this organization to work in connection with a committee from the Sewer Pipe and Drain Tile Association. What is your pleasure in the matter?

Secretary Randall: I move that the matter be referred to the Committee on Resolutions.

Seconded by Mr. Grath and carried.

Vice-President Rogers: The next on the evening program is a lecture or paper by Prof. John R. Bell, of Huntingdon, Pa., on "Trade Schools and How They Might Benefit the Brick Manufacturers." I am pleased, gentlemen, to present Mr. Bell to you. (Applause.)

TRADE SCHOOLS AND HOW THEY MIGHT BENEFIT THE BRICK MANUFACTURERS.

BY JOHN R. BELL, HUNTINGDON, PA.

Mr. President and Gentlemen of the Convention:

I certainly enjoy the privilege of addressing this, the most deeply interested and intelligent aggregation of the manufacturers of a material which has most undoubtedly been a potent factor in the civilization of man all through these ten thousand chronological years of the history of brick, on the subject of "Trade Schools and How They Might Benefit the Brick Manufacturers."

I want at this time to pay a tribute, and a just tribute, to the

magazine known as *THE CLAY-WORKER*, which is undoubtedly an encyclopedia, not only on all matters pertaining to brick manufacture, but also on brick laying, as well as a history of brick and industrial education. I also wish to pay tribute to the fine articles which I have read for several years back, written by Mr. Anthony Ittner, a man whom we all love, and a man whose articles have been very valuable to me. So I repeat, it certainly gives me pleasure to address an audience composed of men who understand industrial education as does Mr. Ittner and most of you men.

Brick and bricklaying are common, one to the other; without good brick the bricklayer is unable to achieve results; without good bricklayers the brick manufacturers cannot attain good results; therefore our interests are in common.

Industrial training is essential to the American boy of today, the same as training always has been, in order to achieve success in all kinds of human endeavor. The history of all men of any consequence to civilization is a chronological narration of individual and collective methods of training.

Demosthenes of Athens when a boy was awkward and weak of body, with unsocial habits and a defective voice, made possible his philippics, which are models for the orators today, by standing on the shore and pitting his lung powers against the fluctuating and breaking waves with pebbles in his mouth to overcome the stuttering impediment in his speech; he steeled his will and exercised his muscles—through a diligent self-training he made his name imperishable.

Alexander the Great believed that nothing was too great for him to accomplish; through training he tried to master every branch of knowledge, practical and theoretical, from literature to political and moral science, metaphysics and medicine. He was a man full of personal conceit and was master of all his endeavors, and conquered the world, and died at the age of 33 years.

Under the present moral standards we cannot hope for better results under the apprenticeship system. Therefore the industrial schools are the only solution of the industrial problem. I can give numerous references where apprentices never worked on a corner



John R. Bell, Huntingdon, Pa.

and seldom on the face of a wall. Therefore the trade schools are a solution to the problem. The education of the craftsman will be a total abolition of the evils which now exist. There has been a wonderful evolution in the building materials and the manufacture and utilization of same in constructing and building arts. Little did the half-savage and almost naked Babylonian dream, as he sat beside his camp-fire 4,500 years B. C., as he noticed the moist clay beneath his camp-fire had become hard and the subsequent laying of the material in the erection of the abodes for the partly savage in the plains of Babylon, that the art of brickmaking and bricklaying should evolve to the erection of buildings that would pierce the clouds and make great nations.

To the birth of this and other kindred arts we are now on the threshold of the systematization of the education of the neglected mechanic, who has done more for the civilization of man than all the arts and professions combined. It is indeed a disgrace to civilization and especially America, who is not on a standard with other nations in the education of the mechanic. Sweden, I consider, is leading the world in industrial education; Germany is next, and France not far behind. Both Sweden and Germany have compulsory free industrial and technical education for graduates of the common schools. Saxony has practically the same system, with a population of about 3,750,000; they have 39 higher industrial schools, with 10,660 scholars; 122 industrial technical schools, with 10,119 scholars, and 18 technical schools for girls, with 2,445 scholars. I believe I have a method in view that will even out-rival this much-boasted little kingdom, but this part of the subject I will discuss later. The necessity of the education of the American boy in industrial lines needs no eulogy, and the results of same are to you very apparent. While the industrial education has been neglected, yet there is more good being accomplished along these lines than you possibly can imagine, and the trade schools are far more numerous than you can conceive, but even among most of those now in existence we need more systematization and educated instructors who have at least some theoretical training.

PUBLIC INDUSTRIAL SCHOOLS.

Public Industrial Schools and Their Relation to the Industrial Conditions.—The public schools in most of the cities of America have already inaugurated the manual training and also the trade schools in their system of education, and this is the gateway by which the boys can find themselves and follow their particular avocation. I now have a bill prepared, which I believe will be passed by the next Legislature of the State of Pennsylvania, providing for compulsory free trade schools in conjunction with the public school system, which, if passed, will eventually solve a problem for the coming generation. This bill, if passed in this State, will no doubt be adopted by other States and perhaps eventually become a federal law. This, though, recalls a story. I heard an argument between Mr. Smith, a preacher, and Mr. Jones, a tradesman, as to why the latter did not attend church. Mr. Jones' reply was that the preacher wore fine clothes, which he could not afford. Mr. Smith replied, "I am wearing a white laundered shirt which cost but 50 cents and you are wearing a woolen shirt which cost at least \$2.00; now what is the difference?" Mr. Jones replied, "You have starch in the brain and I have wool." This illustrates the fact that if the craftsman and the professional man are following their avocation and both have equal chances of education the class distinction will be obliterated and wool, linen and starch, etc., will only be considered for their commercial value, and this, I am sure, the free industrial schools will accomplish, and this is exactly what the prison schools have and are now accomplishing. There is some objection to the free industrial schools as applied to small towns. This can be overcome by establishing the system now in vogue in Beverly, Mass. Most towns have some industry where the practical training can be accomplished and leave to the school room the theoretical training under specialized instructors on this branch of pedagogy, who can also teach all of the practical possible. Of course this will necessitate the co-operation of local industries in small towns. In Beverly a leading enterprise has equipped a model shop in their works where the boys of the local schools receive the shop end of their education. Mr. Murrill Dobbins, a member of the Board of Education of Philadelphia, Pa., was instrumental in establishing the trade school in connection with the public schools in that city in 1906. The school is supported and maintained out of the general school fund. N. H. Odenall is the principal. Bricklaying is taught in this school and they are accomplishing good results. I am sorry to state that most of the building trades are taught only in night school, but they are doing excellent work even under this disadvantage and also in not having suitable buildings to allow scaffolding, etc. Some of the trades taught are as follows. Architectural and mechanical drawing, bricklaying, plumbing, carpentry, printing, electrical construction, sheet metal work, pattern-making, house and sign painting, etc.

Newark, N. J., has a trade and commercial high school, which was built last year (1910), for trade school work. It is a combination of brick and terra cotta of the English Gothic style of architecture. Bricklaying, stone masonry, carpentry, wood turning, patternmaking, sheet metal work and a number of other trades are taught, as well as applied science and domestic economy. The building has a capacity of 12,000 students for both day and night schools and is part of the common school system.

The city of Cleveland, Ohio, in September, 1908, gave to the boys and girls and journeymen mechanics of that city a new technical high school, which is the pride of the world for industrial educational purposes. It is a dark brown brick building, four stories high. Time will not permit to enter into details on this school other than that engineering, designing and constructing work of all kinds are taught. Bricklaying is the most important of the building trades at this school, as well as patternmaking, cabinet-making, machine shop practice, and cooking and millinery will be the principal features for girls and women. The journeyman mechanics and apprentices of this city are privileged to attend. Special attention is given to applied arts, tilemaking, pottery and clay molding, in fact, a thorough course in ceramics. The course of instruction is four years. They have a boys' class of 650 and a girls' class of 350. This is a model school and there is talk of establishing another similar school on the west side of the city. I would not be surprised if this school is now in course of erection.

Both Massachusetts and Wisconsin have passed State laws making an appropriation for industrial education. This is, I consider, encouraging to the brick manufacturers.

In the city of Altoona, Pa., manual training is taught in all of the schools from the first primary grade to the end of the last year in the high school. Shop work begins in the seventh grade and all the expenses for maintaining the school are taken from the public school fund. They do not aim to turn out full-fledged mechanics, but the high school industrial graduates have an elementary knowledge of mechanics, drawing, blacksmithing, foundry practice, patternmaking and machine shop practice. Most of the graduates enter the employ of the Pennsylvania Railroad Company and take up some trade in the local railroad shops.

Mr. C. M. Schwab in 1903 donated to Homestead, Pa., one of the most complete industrial school buildings in the United States; in the same year Mrs. Schwab donated to the borough of Weatherly a magnificent industrial school building. The same year the counties of Warren, Wilkes-Barre and Westchester, Pennsylvania, had industrial public schools donated to them. In Johnstown, Pa., industrial education is given to all grammar and high school grades. Bradford, Pa., has a complete public manual training school. In the north side of Pittsburgh alone they have 11 public industrial schools. A number of the schools of the city have workshops. The city of Boston, Mass., has a complete manual training and industrial school in connection with its public schools.

I will now give a summary of all the industrial training in public schools in cities of over 8,000 population

In 1890 there were 37 cities which had industrial public schools. In 1900 they had increased to 169 cities, an increase of 132 cities in 10 years' time. This indicated the enormous advance in trade school work in the public school system.

I will now give a brief summary of the number of public trade schools in each State:

	Schools.	Pupils.
1. Massachusetts	9	3,519
2. Rhode Island	7	1,918
3. Connecticut	4	862
4. New York	22	9,561
5. New Jersey	3	279
6. Pennsylvania	10	4,447
7. Delaware	2	59
8. Maryland	7	1,036
9. District of Columbia	2	115
10. Virginia	1	180
11. North Carolina	5	429
12. South Carolina	1	120
13. Georgia	1	75
14. Kentucky	3	810
15. Tennessee	1	50
16. Alabama	1	16
17. Louisiana	1	200
18. Texas	1	820
19. Oklahoma	4	674
20. Ohio	5	1,977
21. Indiana	2	1,071
22. Illinois	7	2,591
23. Michigan	4	969
24. Wisconsin	4	435
25. Minnesota	1	414
26. Iowa	1	112
27. Missouri	2	1,453
28. North Dakota	3	499
29. South Dakota	5	611
30. Kansas	1	600
31. Montana	1	314
32. Colorado	5	1,593
33. New Mexico	2	622
34. Arizona	5	691
35. Nevada	1	100
36. Idaho	1	35
37. California	9	3,144
Totals	144	41,736

This concludes the remarks on public industrial school work.

The second subdivision of my address is private trade school work and a brief history of most of them.

The New York Trade School is no doubt the first distinctly trade school organized of any consequence. It was founded by Col. Richard Tylden Auchmuty in 1881, and in 1892 J. Pierpont Morgan added to the endowment funds \$500,000, but a charge is made for admission. "For each trade taught at the school a course of instruction is prepared which outlines in detail what work the student is required to go through and the order in which the work should be performed." "A course of instruction is arranged by which both the practical and theoretical branches of a trade are taught." This school has, in my opinion, one of the best methods in vogue. The school term is six months for day students and three such terms for evening classes. The evening classes include the following: Bricklaying, plastering, plumbing, electrical work, wood patternmaking, house painting, steam fitting, fresco painting, blacksmith's work, printing, sign painting, cornice and skylight work and sheet metal pattern drafting.

The day classes are the same as the evening classes, with the addition of carpentry and the omission of plastering, wood patternmaking and blacksmithing.

The Great Eastern Trade School, 44 to 50 East 32nd street, New York City, is the largest trade school in the world devoted to teaching plumbing, plastering and bricklaying. The instruction is practical and individual; estimating and the reading of plans and blueprints is covered in a thorough manner; entire buildings are erected in this school, and it is in session every working day of the year. The age limit is from 16 to 50 years; in other words, there is no age limit, and most of the students earn money while attending school and help pay their expenses, and the proprietors of the school secure positions for most of the graduates. You can enter at any time and as soon as proficient will be given a letter of recommendation. The charges are very small and include the entire course. I commend this school to the careful consideration of every boy and man who believes he has an aptitude for bricklaying, plastering or plumbing. These are the best paying trades. A boy will not regret his judgment in selecting this school.

The California School of Mechanical Arts, in San Francisco, was endowed by James Lick in 1875. This endowment was \$540,000, but the buildings were not erected until 1895. This school is devoted mainly to the machinery trades—molding, patternmaking, model making, forge work, machine shop practice, machinery, electrical construction and ship driving.

The Wilmerding School of Industrial Arts, also located in San Francisco, on adjoining lots with the California School of Mechanical Arts, was endowed in 1894 by J. C. Wilmerding, a merchant of that city. The endowment was \$400,000. The trades taught are bricklaying, cement finishing, carpentry, plumbing, clay modeling, architectural iron work, wood carving, cabinet making and electrical work and architectural drawing.

The Williamson Free School of Mechanical Trades, Williamson, Pa., has a three-year day course of 11 months each year. Bricklaying, carpentry, patternmaking, machine trades, steam fitting, electrical and steam engineering and mechanical and architectural drawing are taught. This school has been and is a power in the evolution of trade school work. In my experience as foreman and contractor I have had a number of the graduates of this school work for me who were excellent mechanics. I recall one instance where

a graduate of this school succeeded me as a foreman for a heavy contractor when I had secured a position of advancement with another contractor. I was the first man this boy worked under after graduating at this school.

The Coyne National Trade School of Chicago is making a name for itself in bricklaying, plumbing, electrical and drawing instructions. They teach moving picture operating also. The school is maintained by the tuition charged. The student is given a certificate as soon as he is qualified, depending entirely upon his individual efforts.

The Milwaukee Trade School was established in 1906 through the energetic efforts of Mr. F. W. Swyer, of Milwaukee. The course is 10 months, with the exception of plumbing and gas fitting, which is five months. The age limit is 16 and is a school for registered apprentices; all applicants must have a common school education.

The St. Louis Trades School, St. Louis, Mo., is unusual, due to the fact that plumbing, gas fitting and mechanical drawing for plumbers are the only trades taught. Although young, this school has already commanded a place of recognition among the important schools of this country.

The Pratt Institute, Brooklyn, N. Y., was established in 1887. It is an institution devoted mainly to applied science course, but the evening classes teach most of the mechanical trades to apprentices and journeymen.

The David Rankin, Jr., School of Mechanical Trades, St. Louis, was founded by David Rankin, Jr., of St. Louis, who died at Atlantic City August 18, 1910. He gave most of a \$3,000,000 fortune to this school. Mr. Rankin's life story was on a par with Tennyson's "Enoch Arden." David Rankin and his brother were in love with their cousin and David lost the suit and the brothers did not speak for 16 years, till both met at their cousin's grave. Then both were bound together in mutual sorrow. David did not make friends and had no visitors at his home. He devoted his entire energy to business and acquiring a great fortune. The experience gained thereby no doubt actuated him in the education of the craftsman. Brick-



Elliott S. Morse, Washington, D. C.

laying, carpentry, patternmaking, painting, plumbing and steam fitting are the trades taught in the day classes and these and a number of others are taught in the evening classes. The building ordinance of St. Louis is also taught and lectures are given on all the intricacies of the various trades. The school year is divided into three terms—the first term from September to December, the second term from January to March and the third from April to July, inclusive. In training men to positions of foremanship and superintendency this is one of the most important schools in the United States.

The Massachusetts Charitable Mechanics' Association Trade School of Boston was organized in 1795. The age limit is from 17 to 24 years. This is a night school only and has a three-year course, with the exception of plumbing, which may be completed in two years.

The Carnegie Technical School of Pittsburg, Pa., principally a school of applied science, but it is also a trade school of a high order. It was founded by Andrew Carnegie in 1904. The students must be 16 years of age and pass a satisfactory examination unless he has a certificate of a preparatory or high school. The school is divided in three separate schools. The School of Applied Science, the School of Apprentices and Journeymen and the Technical School for Women. Before the buildings were completed they had 1,723 applications. Each year new buildings are being erected and when completed the distance around the school will be one mile, less 80 feet. This will be the largest school of any technical and trade school in the world.

I am personally acquainted with Director Arthur A. Hammer-schlag. Through his experience he has won a place among the greatest educators in technical and industrial education in the world. This, with Andrew Carnegie as its financial foundation and its geographical position in the midst of an educational district, has already won for it a world-wide reputation.

The Winona Technical Institute of Indianapolis has a nine-month course in most of the building trades and has been in operation since March, 1907. This school has reported very good results. The president of the school is Dr. S. C. Dickey, who for many years has been devoting his best efforts towards spreading the teachings of Christianity among the common people.

Men of great prominence are the directors of this school, such as H. H. Hanna, president of the Atlas Engine Works, of Indianapolis; H. J. Heinz, the pickle manufacturer, of Pittsburg; McDonald, president of the Standard Oil Company in Kentucky; J. M. Studebaker, wagon manufacturer of South Bend; M. Hackett, owner of the Fort Wayne Sentinel, and W. J. Richards, banker, of Indianapolis. This school is largely maintained by the various manufacturing associations. The school in tile setting deserves special mentioning.

This department alone justifies the school being placed among the important schools of the United States. The Cleveland School for Bricklayers was established by the Mason Constructing Association of Cleveland in 1906. They have both day and evening classes. The length of the course is six months, including instruction in drafting and the principles of geometry. This sounds well, but the knowledge of geometry alone that the average young man could possibly acquire would be very limited, let alone the mastering of an art.

A large trade school is now in course of erection in St. Petersburg, Fla. I wrote for information relative to the name of the school and its director, but as yet have not had a reply.

The Polytechnical Institute, Los Angeles, deserves special mentioning as an industrial school, as most of the trades of any consequence are taught. This school is considered of importance among the various trade schools. The bricklaying department is above the average.

The Baron De Hirsch Trade School, New York City, is a Jewish institution. This school, as well as the Jewish Training School of Chicago, the Hebrew Technical Institute, New York City; the He-



John Ringle, Wausau, Wis.

brew Orphans' Asylum, Philadelphia, as well as the vast number of Jewish protectories, all of which have trade school courses, illustrate the importance of the Jew in industrial education. The Jew always has played an important part in the affairs of the country and also is and will in industrial education.

Two wealthy Jewish merchants pledged the funds for the voyage of Columbus, as Prof. Adams of Johns Hopkins University has explained, "Not jewels, but Jews, were the real financial basis for the expedition of Columbus." It has been historically proven that Queen Isabella's jewels were in pawn, for such was the impoverishment of the Spanish crown. The maps used by Columbus on his first voyage were the work of a Jew by the name of Jaime Ribes. He also made improvements in the compass and in the application of astronomy to navigation. Without these the discovery of Columbus would have been an absolute impossibility. A number of the crew were also Jews. It was Rodrigo De Trina, a Jew, who first saw land, and the first white man to set foot on the virgin soil of America. Tones, a Jew, was also the first to discover the use of tobacco. The first man to enlist in the Spanish-American war was a Jew. The first killed was a Jew. Fifteen Jews went down in the Maine.

To the Jews we owe the credit of our intrinsic value of coinage, as well as the foundation of Christian religion. The Jew is also playing his part in the advancement of industrial education. All the Jewish schools mentioned have trade school instruction.

The third subdivision is the negro trade schools. When we consider that the negro occupied one-fourth of the globe for 3,000 years and never advanced civilization the least iota until the white man took many of them and placed them in bondage, and there remained until chattel slavery was no more profitable and the civil war brought the abolition of slavery and then the climatic condition of the United States made it necessary for the negro to build houses for themselves and face life the same as the white man, they deserve more credit for their advancement than we can appreciate, and even this race of people, many centuries behind us, have many industrial schools over the United States.

The Tuskegee Industrial Institute, Tuskegee, Ala., is the most

important of the negro schools. Booker T. Washington, who established this school, is president. The trades taught are bricklaying, brickmaking, plumbing, printing, shoemaking, painting, carpentry, blacksmithing, wheelwrighting, carriage building, carriage trimming, harness making, saw-milling, tinsmithing, tailoring, machinery and agriculture. The course of instruction is three years and they are producing mechanics who are worthy of the same.

The Berean Manual Training and Industrial School, Philadelphia, established in 1899 by Dr. Anderson, has grown into an important institution. It has 19 teachers and 500 pupils, but due to the lack of funds it is greatly handicapped in not being able to complete a large building under course of erection. Most of the mechanical trades are taught, and it is interdenominational.

In both Camden, N. J., and Philadelphia, Pa., trade schools were erected this past summer at a cost of \$80,000 apiece, and another in Manassas, Va., at a cost of \$30,000, to be known as the Manassas Colored Industrial School.

St. Joseph's Industrial School for Colored Boys, at Clayton, Del., is another school of importance in producing good results in industrial education for the colored race. I admire the negro for advancing his condition of life in the industrial field as well as the professional, but he is too far behind the white man in civilization to create. He is doing well to imitate. Therefore we cannot put him on an equality, either industrially or professionally, but he has a purpose to perform among his own people in their evolution.

The fourth subdivision is the Indian trade schools, and this class of school marks the greatest evolution in industrial education. This evolution I can best illustrate by recalling a poem.

O God beneath Thy guiding hand
Our exiled fathers crossed the sea;
And when they trod the wintry strand,
With prayer and psalm they worshipped Thee.

What change! Through pathless wilds no more
The fierce and naked savage roams;
Sweet praise along the cultured shore
Breaks from ten thousand happy homes.

Laws, freedom, truth and faith in God
Came with those exiles o'er the waves;
And where their pilgrim feet have trod
The God they trusted guards their graves.

And here Thy name, O God of Love,
Their children's children shall adore,
Till these eternal hills remove
And spring adorns the earth no more.

The fierce and naked savages are now to be found in industrial schools all over the United States. One of the most important is the Indian Industrial School at Carlisle, Pa. The trades taught are bricklaying, carpentry, printing, painting, shoemaking, laundering, farming, gardening, harnessmaking, tinsmithing, wagonmaking, blacksmithing, sloyd, clay molding, paper cutting and folding, sewing and tailoring, cooking and housework, freehand and mechanical drawing.

I will now name a number of the most important Indian schools of the United States:

1. United States Indian Training School, Phoenix, Ariz.; teaches 12 trades (bricklaying, etc.).
2. Greenville Indian Training School, Greenville, Cal.; 4 trades.
3. Indian School, Perris, Cal.; 15 trades.
4. Grand Junction Indian Training School, Grand Junction, Col.; 7 trades.
5. Fort Lapwai Indian Training School, Lapwai, Idaho; 3 trades.
6. Haskell Institute Indian School, Lawrence, Kas.; 21 of the principal trades (bricklaying).
7. Mount Pleasant Indian Industrial School, Mount Pleasant, Mich.; 6 trades.
8. Pipestown Indian Training School, Pipestown, Minn.; 4 trades. This is principally a girls' school.
9. Fort Shaw Industrial School, Fort Shaw, Mont.; 15 trades.
10. Carson Indian Training School, Carson, Nev.; 13 trades.
11. United States Indian School, Santa Fe, N. M.; 78 trades.
12. Browning Indian Boarding School, Elbowoods, N. D.; 11 trades.
13. United States Indian Industrial School, Fort Totten, N. D.; 8 trades.
14. Chilocco Indian Industrial School, Chilocco, Okla.; 12 trades (bricklaying).
15. Arapahoe Indian Boarding School, Darlington, Okla.; 5 trades.
16. Red Moon Boarding School, Hammon, Okla.; 4 trades.
17. Indian Training School, Chamberlain, S. D.; 7 trades.
18. Pierre Indian Industrial School, Pierre, S. D.; 6 trades.
19. Tomah Indian Industrial School, Tomah, Wis.; 6 trades.
20. United States Indian Industrial School, Nittenberg, Wis.; 6 trades.
21. Fort Mohave Indian Industrial School, Mohave City, Ariz.; 12 classes (bricklaying).

This will give an idea of the importance of the Indian trade schools. All of these schools teach the most important and popular trades. Painting, printing and carpentry are taught in all of them and bricklaying in most of them. Total of Indian industrial schools is 45.

These statistics show that the civilization of the red man is being accomplished through the industrial schools which the United States Government is maintaining, and this being proven, why not give to the poor white man's children at least an equal chance of industrial education? This can easily be accomplished in organizing industrial schools in connection with the public school system.

FIFTH SUBDIVISION.

The last but not least subdivision of my remarks is prison trade schools, schools which have a cause for their existence.

If the public schools were serving the same purpose as the prison schools then this class of schools would be less numerous.

But to eulogize on this school is impossible, as time will not permit. I can but give a current idea of their importance.

We have in the United States 95 prison reform schools and at least 750 instructors, and on an average of 34,000 inmates. About 25,000 of these are in the industrial departments. The average of those who can read is in the neighborhood of 4,000 and those who can neither read nor write 2,500. When discharged most of the inmates possess trades and all can read and write, and the majority possess the equivalent of a common school education.

I will not give you the names and history of the 95 schools, as this in itself would constitute a lecture, but will give the number in each State: California, 2; Colorado, 1; Connecticut, 1; Delaware, 3; District of Columbia, 2; Georgia, 1; Illinois, 6; Indiana, 2; Iowa, 2; Kansas, 2; Kentucky, 1; Maine, 2; Maryland, 7; Massachusetts, 10; Michigan, 4; Missouri, 3; Montana, 1; Nebraska, 2; New Jersey, 3; New York, 9; Ohio, 4; Oregon, 1; Pennsylvania, 4; Rhode Island, 2; South Dakota, 1; Tennessee, 1; Vermont, 2; Virginia, 2; Wisconsin, 3; New Hampshire, 1; Florida, 1; Alabama, 1; Minnesota, 2; Arizona, 1. Total, 95.

I will speak of but two of these as illustrative of the rest.

The New York State Reformatory, Elmira, teaches the following trades: Barbering, bookbinding, brass smithing, bricklaying, cabinetmaking and machine and woodworking, carpentry, clothing cutting, electricity, frescoing, hardwood finishing, blacksmithing, house painting, iron forging, machinist, molder, photographing, plastering, plumbing, printing, steam fitting, stonecutting, stonemasonry, tailoring, tinsmithing, upholstering and stenography and typewriting.

This school is serving a noble purpose and attaining great results in reformation and in producing mechanics. It is also one of the model prisons of the world.

Now I will give you a brief account of the school I represent, namely, the P. I. R., at Huntingdon, Pa., a State institution for male first offenders between the ages of 15 and 25 years. From a prison standpoint of view we consider it one of the best in the world. Cleanliness and reformation are the two mottoes. Our general superintendent is T. B. Patton, the president of the United States Prison Congress. All officials, instructors and teachers are specialized men and all officers are men well selected. If they were otherwise they would not be retained by the general superintendent and board of managers. The latter are selected from the most prominent and greatest men of Pennsylvania.

On an equal basis I believe we are producing more mechanics than any other school in this country. We first find the boy's avocation. Second, we teach him the correct method of performing that avocation, and, third, we give a repetition of that method. These three things are essential to all boys. A boy must depend upon the university of life for acquiring speed, as this is a question of years of application at any trade. Personally I know of many boys who received their industrial education at our institution who are holding positions of foremanship in the various cities of the country. I extend to you all an invitation to visit us among the rolling ridges, tributaries to the once natural barrier that so long held civilization in check from its progress westward, enriched and beautified by the "blue Juniata," a river made famous in song by the composer of "Alfarata."

My method of instruction is a compilation of the best methods in vogue in all schools of the world that are known to me, and most of my methods are original; my designs for ornamental work are all original. Much of my information was derived from my father, C. C. Bell (now deceased), organizer of the department and head of same for thirteen years, where I am now devoting my best efforts.

The School of Letters is accomplishing marvelous results, which reflect inestimable credit on the moral instructor.

The trades taught are as follows: Baking, barbering, blacksmithing, bookbinding, bricklaying, butchering, carpentering, cement finishing, cooking, cutters in shoe and tailor shops, electricians, stationary engineering, farming, firemen, florists, gardening, horse-shoeing, house painting, laundry men, machinists, molders, pattern-making, photography, plastering, plumbing, pressmen in printing offices, printing, operators on linotype machines, shoemaking, sloyd, sign painting, stonecutting, stonemasonry, tailoring, tinsmithing, woganmaking, wood carving, wood turning, architectural, mechanical and freehand drawing, band, orchestra and vocal music, military and gymnasium work, clerks, librarians and a number of others.

Concluding the remarks on the P. I. R., I will state we construct all our buildings and make most of the manufactured material. There is nothing too great for our schools to undertake and nothing too difficult to execute in connection with our institution.

In concluding I will state I have outlined the necessity of trade schools and I have narrated the work being accomplished by them, and the remarks all through my address point out the importance of trade schools to the brick manufacturers. But the most important benefit is in creating a desire for brick by producing mechanics who will build you brick in a superior manner and who will be able to construct ornamental work. This the trade school will accomplish.

I have boys in my bricklaying department who can construct, under my instruction, the most difficult ornamental designs that the mind of man can create.

You also understand the law of economics and the application of the law of supply and demand. I will now conclude by asking you the question, Will trade schools benefit your association?

I have five slides here taken from drawings. I was unable to get slides from my work, owing to the fact that the laws are very strict in regard to the work done, and having pictures taken in penal institutions. (Applause.)

Vice-President Rogers: Mr. Penfield advises us he has some slides illustrating the exhibits made in London at the Annual Building Exposition, an enterprise that has been having expositions in that country for about ten years. Inasmuch as it was agreed that the N. B. M. A. should assist in the effort to establish a great exposition in Chicago, I think our members will be interested in seeing what has been done along the line of exhibits. We would like to hear from Mr. Penfield.

Mr. Penfield: I do not think there is anything to be said, for the slides will speak for themselves.

(Slides were exhibited.)

Secretary Randall: These slides have been made from pictures made of the London exposition. They have an annual exposition of builders' supplies, which is fostered by the British Clay-Worker. In fact, I think this exposition was started by the editor of that paper, Mr. H. Greville Montgomery. I think we owe a vote of thanks to Mr. Penfield for these illustrations, for they were certainly very interesting. (Applause.)

Vice-President Rogers: This closes the evening entertainment so far as the lectures and lantern views are concerned,



W. D. Richardson, Columbus, Ohio.

but there is an entertainment of a different sort to follow, so keep your seats.

THE SMOKER.

When, after a few minutes' wait, the curtains on the stage were parted, a typical old-style negro minstrel scene was disclosed. For nearly an hour the delegates listened with delight to darkey songs and darkey jokes by a band of sure-enough Kentucky dorkies. Then refreshments were served, and social chat or buttonhole talks became the order till long after "taps."

THIRD SESSION.

Thursday Afternoon, February 9, 1911.

Chairman Bloomfield: The convention will come to order. The first number on the program this afternoon is a paper by Ellsworth Ogden, of Zanesville, Ohio, on "Rejuvenation of Brick Plants." I want to introduce those of you who are not acquainted with him to Mr. Ogden, who is one of Prof. Orton's boys who has made good in practical brick yard work. (Applause.)

SOME POINTS TO BE CONSIDERED IN BRICK PLANT CONSTRUCTION.

ELLSWORTH OGDEN, ZANESVILLE, OHIO.

Mr. President and Gentlemen of the Convention:

The first subject to be considered in the location and building of any plant for the making of clay structural material is the

source of the clay supply and the nature of the deposit. We shall give attention briefly to three general kinds of deposits, namely, the mine, the open shale pit and the surface clay field. It is obvious that each of these three kinds of deposits calls for special features in the plant equipment for making this raw material into a commercial product.

The clay mine deposit has some advantages over the other kind. It can be worked practically every day of the year regardless of weather conditions. The temperature in the mine varies only a few degrees from summer to winter and the clay when used direct from the mine never comes to the plant in a frozen condition. The method of working the mine makes it easy to get uniform mixture of clay in the cars or at least to make every group of two or three cars contain the various components of the clay deposit in the desired proportion for the body mix. The miners are distributed in various rooms, and each miner can work the face of his room in such a way as to keep the different strata of clay separated, or shoot them all down together, as the needs of the case may demand. The entries and gathering switches in the mine can be so arranged that from four to twelve loaded cars can always be on hand ready to send to the plant. When the nature of the freshly mined clay is such that it requires no weathering the construction of the crude clay storage is very much simplified. It is necessary only to have a chute or hopper that will hold the contents of two or three mine cars or sufficient to insure a constant supply of clay to the crushers or grinding pans.

The open shale pit deposit furnishes a somewhat more complicated set of conditions and requires a more extensive provision for the storage of the crude shale, if the plant is to be run every day in the year. The operation of an open pit is influenced greatly by weather conditions. In wet weather and extremely cold weather it is difficult and expensive to dig and load the material in the pit, and the handling of it on its arrival at the plant is rendered uneconomical by the sticky or frozen condition of the clay. These disadvantages cut down the output of the entire plant in bad



E. S. Kane, Kushequa, Pa.

weather and increase the cost per unit of output for the various crews of workmen and at the same time make the item of fixed expense abnormally large for that particular period. To overcome these difficulties it is necessary to provide an adequate storage for crude clay. This may be large enough to hold a supply of from one week to ten days' run, the idea being to work the pit whenever the weather conditions will permit and use from the storage only to tide over a few days of bad weather; or it may be large enough to hold three months' supply of clay, and thus render the working of the pit unnecessary during the winter months. The latter arrangement is more expensive in first cost, but the advantages to be gained by it bring a good return for the investment. With such a storage the force in the shale pit can be enlarged in good weather and the output increased so as to greatly reduce the nonproductive or fixed expenses of the pit such as the hoister and foreman, and at the same time make it possible to work the crew to its maximum efficiency regardless of the daily demand for clay at the plant. If a steam shovel is used in the pit the saving effected by a large storage is even more marked than with hand loading, because very few plants can use the clay as fast as a shovel can load it, and the result is that the shovel crew is working at a low efficiency most of the time. The cost of operating a steam shovel in freezing weather is decidedly more than in moderate weather, and this arrangement makes it unnecessary to run the shovel during the coldest months.

The surface clay field deposit is most susceptible of all to the influence of weather conditions. The manufacturers using this kind of a deposit have recognized this fact and either provide large storage sheds for the crude material, or else make no attempt whatever to run the plant in bad weather. It is true that the method of preparation of the clay before making it into ware makes a difference in the degree of stickiness than can be permitted in the clay as it comes to the plant; but the handicap of working a clay field or surface clay bank in wet or freezing weather is the same regardless of the use that is to be made of the material.

The power plant, its location, size and kind is a subject that is

influenced by a great many factors, and a discussion of all of them cannot be attempted in this paper, but some comments may not be amiss. So much has been written about the economy and efficiency of a central power station for the generation of electricity and the operation of the various machines or groups of machines by motors that we have all been made to see the desirability of this kind of equipment. In fact, we do not have to take it all on faith, for we now have many examples of electrically driven clayworking plants. The ease with which electric power lends itself to the driving of outlying motors, such as blacksmith force ventilating fans, pit pumps, etc., makes its use for these purposes and for lighting very desirable, and in fact advisable, even in plants where the main part of the machinery is driven by steam engine. A small engine and generator set is a valuable adjunct to any brickyard. The electric lighting increases the efficiency of the workmen on dark days, facilitates repair work at night and greatly reduces the fire risk and insurance rate.

In the selection of a steam engine for a brick plant the decided economy of the Corliss engine over the ordinary slide-valve type should be given due consideration. The Corliss engine is particularly economical on a brick plant load because that load is a variable one and the Corliss engine automatically adjusts itself to this variation in load. The engine should be located as close to the boilers as possible, for by so doing the labor of one man can often be eliminated. The writer knows of several plants where one man fires the boilers and runs the engine for forty to fifty thousand brick per day.

There are essentially two departments in the manufacture of the green ware—the clay grinding department and the making department. It is sometimes advisable to arrange the line shafting so that either set of this machinery can be run independently of the other set. It is especially desirable that it be possible to stop the clay-grinding machinery without having to stop the brick-making machinery. On account of the excessive vibration and general hard usage to which the clay-grinding machines are subjected they require much more frequent adjusting than the other machines about the plant. If the entire machinery plant has to be stopped for five or ten minutes to adjust a clutch on a dry pan the day's output is curtailed by just that much, whereas, if the grinding machinery could be stopped by simply throwing out a clutch the making would not be curtailed, provided, of course, that there was sufficient storage of fine clay to bridge over the interval when the pans were stopped. The line shafting should always be carried on substantial piers independent of the building and should be high enough to give good head room beneath all belts. This is a point that has been overlooked in a large per cent. of the plants throughout the country.

If dry pans are to be used the merits of the elevated setting should be well considered. This method consists in placing the pan high enough to permit the building of a hopper-bottomed chute beneath it, thus conducting the ground clay to the elevator by gravity and eliminating the troublesome bottom scrapers. In this method of setting the step bearing is carried on heavy steel "I" beams that span the hopper-shape space beneath the pan. The machinery manufacturers have estimated that this method of setting a pan diminishes the amount of power required to drive it by about seven horsepower. This in itself is no mean consideration, but the fact that there is no danger of choking or clogging up and thus causing stoppages and undue strain on the driving belt and driving pinion, and the ease of access to the step box that is afforded, are perhaps the most important arguments in its favor.

The storage bin for ground clay is a feature that usually receives too little attention in brick plant construction. In the manufacture of certain products such as face brick, where several different mixtures of clays are employed to produce the various colors and shades of brick, the large storage bin for the ground clay is absolutely essential to insure a thorough mixing or blending of the component materials.* This homogenizing of the various kinds of clay in the body mix is no less important in the manufacture of paving brick and sewer pipe, although its importance is not so keenly appreciated in these lines of manufacture as by the face brickmaker. We can not expect to produce a paving brick of uniform strength and resistance to abrasion throughout its whole structure unless our various constituent clays or strata of clays are thoroughly blended in the dry state before entering the pug mill.

The large storage bin not only assists greatly in accomplishing this mixing, but it acts as a reservoir for the overflow from the dry pans when they run ahead of the making machines and likewise serves as a source of supply for the making machines if the dry pans are stopped for a short time.

Every storage bin of whatever size should be equipped with an automatic feeder so as to insure a constant and regular supply of clay to the pug mill. Given a regular supply of clay and a regular flow of water and the mixing of the two in the pug mill to produce a body of the proper consistency is a comparatively simple process. The resulting clay column will be uniform in stiffness and will produce brick that will burn to the same size and density under any given heat treatment. For dry ground clays the automatic feeder of the Richardson type, with a revolving horizontal disc and stationary scraper, is the most satisfactory kind. This machine can be so arranged that the man at the pug mill can throw the discs into or out of gear and thus start or stop the flow of clay.

In the pug mill the clay supply and the water supply should enter together at the extreme end of the mill so that the maximum amount of pugging or kneading will be performed on the clay after the water has been added. In many cases the clay is allowed to

*See paper by same author, "Preparation of Clay for Dry Press Brick Manufacture." Vol. VIII, Trans. A. C. S.

travel two feet or more down the length of the pug mill before the water is added, or at least before the major portion of it is added—obviously this means just so much loss in the pugging treatment. Insufficient pugging is the cause of a good deal of the weakness of paving brick, as shown by the rattler test. This fact is often not realized by the manufacturer because to all appearances the clay is thoroughly pugged and is working well in the machine.

The question of kind of dryer and kilns is an important one and one that depends on a variety of considerations for its solution. Frequently the most potent of these considerations is not the question what is the most economical and most efficient, but what is the most expedient in our particular case. Inasmuch as these are subjects of sufficient importance to warrant more careful treatment than comes within the scope of this paper, they will be dismissed without further comment. (Applause.)

Chairman Bloomfield: You have heard this most excellent paper of Mr. Ogden's. Mr. R. G. Eisenhart, of Horseheads, will lead in the discussion of same.

General Discussion.

Mr. Eisenhart: Our friend from Ohio has given us a very valuable paper, and he has told you just exactly how to do it. I had worked exactly twenty-one years along that line, and just about the time I thought I had succeeded in doing it, I ran up against a new proposition, and it is along that line I want to speak. A year ago last October, I walked out to my plant and looked it over, and everything was running nicely, and I went home, leaving the night man on duty. At 11 o'clock that night I heard the whistle blow. That was an unusual thing, so I got out of bed and got dressed in a hurry, and I got down to the plant in time to see the whole plant on fire, and in two hours' time there was nothing left but a lot of ruins. The result of twenty-one years of hard labor had actually gone up in smoke. I want to tell you what I did, gentlemen, along the line so I could continue in business. About a week or ten days after the fire, a lot of men—I think nine or ten in number—came and took possession of the office, which was about all that was left of the plant. They were what are known as adjusters, and they did nearly all the talking, and I only did a little. Finally one among the crowd—I called him the bully of the crowd, and he proved to be one—said he had a proposition to make. I listened to his story, and it looked to me as though I was going to get very little out of my insurance, notwithstanding I was fairly well insured. Finally he asked me: "What is your loss?" I said: "There are my policies." He said: "How do you know what your loss is?" I went to my safe and I got out the plans of my works and an inventory made by an appraisal company, and I showed them that what had burned was worth about double the amount of my insurance, and it took the wind out of the sails of that bully in a moment; they signed up their papers, and the checks began to come in.

What I want to say is, those of you who have succeeded in working up your brick plant, like Mr. Ogden told you, don't be negligent in the line of insurance. It is one of the most important things. Some of the fire insurance companies don't carry any brick plants, and those who do charge enough for it; but no brickmaker can afford to work up his plant and be careless in his insurance, or he will wake up some fine night to find all his work has gone up in smoke. If I had not had the proper appraisal I would have had lots of trouble on my hands, but by having that I had no trouble. There are quite a number of companies who make a business of making complete plans and making an appraisal of your plant, and these plans show the location of every machine, every line shaft, every pulley and belt, and everything connected with the plant, and in case of fire you can show what your loss is, and in that way you can protect yourself against loss by fire. (Applause.)

H. C. Kleymeyer, Evansville, Ind.: What does it cost to have such an appraisal made?

Mr. Eisenhart: It depends on your works. It cost us \$300 to have plans made, and also this appraisal. After they have gone over the plant and made plans, the original plans are filed in a fireproof vault by the appraisal company, and they furnish you blanks, so that in case you take any of the machinery out, or put in any new machinery, or add anything to it, it is their business to make a record of the improvement you make from time to time, and in case you do have any trouble with the insurance people, they will protect you. They will bring a man as well posted in the adjusting of insurance as the fellows the insurance companies send to do the adjusting.

O. N. Townsend, Zanesville, Ohio: This subject of "Rejuvenating Brick Plants," and particularly the insurance part of it, I appreciate, and I would like to tell you our experience of eighteen years past. Seventeen years ago I heard the fire bells ring at 1 or 2 o'clock in the morning, and got to the plant in time to see our frame buildings going up in flames. That was about the second or third time we had had that experience in forty years in the brick business of my father, brother-in-law and myself. We decided to build a fireproof plant. We went to Chicago and bought one of the World's Fair buildings built of iron, and all of the new work we put up we built fireproof, so that we have a fireproof plant today and don't carry any insurance. We do not add any improvements whatever or any additions to the plant that is not as fireproof as possible. (Applause.)

Chairman Bloomfield: I will ask the Secretary to announce the next order of business.

Secretary Randall: The next paper on the program is "Clayworkers the Real Conservationists," by Architect Fitzpatrick, of Washington. Whether he is on his way to the convention, or has been detained at home, I do not know. I have not heard from him. He may come in tomorrow, and I would suggest that this number be passed for the present, at least. That brings us to a paper by C. E. Fuller, of Buffalo, Kansas, on "Economy and Efficiency in Waste Heat Drying." Mr. Fuller is not present, nor has he sent his paper, nor advised me as to whether he is coming. This brings us to No. 11,



O. N. Townsend, Zanesville, Ohio.

"Natural Versus Artificial Draft in Burning Brick," by John C. Boss, of Elkhart, Ind. Mr. Boss advises me that his subject should be "Drying" brick, instead of "Burning" brick. Mr. Boss is here and will read his paper. (Applause.)

John C. Boss: As our Secretary has announced, there was an error in the printed topic of my paper. The topic should have related to "drying" instead of "burning," as that is the subject my paper deals with. For several years Secretary Randall, knowing of our activities along the line of perfecting artificial drying along certain given lines, differing somewhat from the old methods, has insisted that we present the ideas, which, with your permission, I am very glad to do today.

NATURAL VS. ARTIFICIAL DRAFT IN DRYING AND BURNING CLAYWARE.

JOHN C. BOSS, ELKHART, INDIANA.

Mr. President and Gentlemen of the Convention:

The old adage, "Let well enough alone," is an exploded idea. The modern way of man constantly demands better things. There is a class of people who try to argue that it is wise to "let well enough alone," but not a single commercial line of activity can be pointed out where it has been possible to apply this old, rejected theory.

Today man is not satisfied with the railway equipment that would suffice and be well enough for yesterday; we are constantly demanding better roadbeds and better equipment throughout. Yesterday man was able to enjoy the luxury of the modern steam railway locomotive and the wonderful equipment in that particular line, but today he defies the eagle in soaring through the air, eclipsing

and by far outstripping the wonderful steam locomotive for rapidity and speed.

Yesterday we considered it little less than marvelous to be able to send messages by wire, but not being willing to remain by that standard, which certainly answered the requirements, man determined to flash the message through space without the wires.

Thus it will be easily seen that wherever the modern activities of man attacks the unfinished in the different respective lines the idea of letting well enough alone cannot be tolerated.

The burden of the matter in hand is that of better facilities for artificial brick drying. It is but fair to admit that wonderful changes, great developments, great achievements have taken place in the art of artificial drying over the primitive methods which formerly held.

BETTER WAYS OF DOING THINGS.

New ideas are not made. Man is not entitled to claim that he is superior to his neighbor and for that reason he was able to perfect this or that idea, but, to the contrary, as necessity compels individuals to fight for an existence in a certain line this forms the successful basis and avenue through which the various inventions are conceived and accomplished. Figuratively speaking, it is in the air. The atmosphere is filled with a demand for better things, and as there is no such thing as "luck," but that we are easily able to draw to ourselves and acquire that for which we strive and are legitimately entitled to, this forms the nucleus and basis of inventions and brings to us the possibility of enjoying the better ways of doing things.

IMPROVED SYSTEM OF DRYING.

You will at once coincide with the thought that a more simple, modern method of drying brick would prove a great blessing to the brick manufacturer.

A dryer that required no iron cars.

A dryer that need not be operated in the nighttime.

A dryer in which the exhaust steam from the engine which



John C. Boss, Elkhart, Ind.

makes the brick would readily dry them; the exhaust steam making the brick today drying those that were made yesterday.

A dryer by means of which tender clays could be handled and dried with the greatest ease, without injury to the ware.

Briefly, a dryer that would accomplish all of these results you will at once admit would appeal to your judgment as being logical and the correct way of accomplishing a long-felt, desired need.

PRINCIPLE—BURNING.

The principle of drying brick with air under pressure was established and evolved in a rather singular manner. First the art of burning brick with air under pressure was made use of for quite a term of years, and it has been proven that air under pressure applied to a brick kiln for burning is a fundamentally correct principle, as much as that of using air under pressure for the air-brake on a train of cars.

DRYING.

The same identical principle has been applied to the art of drying brick and, really, the first is responsible for the origination of the idea and thought of making the latter application. Sufficient has been accomplished to prove that air under pressure for drying brick is likewise fundamentally correct, completely reversing the old principle of artificial drying.

DESCRIPTION OF THE OLD WAY.

It is not necessary to dwell at length on a description of how brick are dried artificially the old way. You are all familiar with the application. Suffice it to say that a dry kiln is erected, making the structure of an air-tight character, and on one end of the dryer is arranged a ventilating shaft to carry off the moisture. Iron cars are provided, the brick loaded on them, and in this condition the brick are conveyed to the dry kiln to their respective tunnels. It is plain that a considerable amount of space must be allowed on

both sides and top to permit of the cars entering and continuing through the same without striking obstructions. As soon as the tunnel is filled superheated air is supplied from one of several different sources and the drying process is started.

RESULTS THE OLD WAY.

The results are that the moisture in the tunnel is liberated and as the superheated dry air becomes loaded with this moisture it at once attempts to find a place of escape, but since the top and sides of the dryer are air-tight, which it must of necessity be, the moisture-laden atmosphere cannot escape until it has traveled the full length of the tunnel and finally arrived at the ventilating shaft.

HEAT ACTION.

The course of travel of the air is in a horizontal direction and when the heated air becomes saturated with the moisture, and added moisture is continually produced, the air cannot contain any more and the result is that a condensation takes place, the moisture again falling back on the brick and retards the process of drying continually until finally at least part of the moisture arrives at the end, containing the ventilating shaft, which admits of its escape. With the sides and top of the tunnel, as well as the setting of the brick on the cars, having large open spaces, when superheated air is liberated in the dryer or tunnels owing to the nature of the arrangement it immediately strikes hastily upward until it reaches the roof of the dryer.

WRONG PRINCIPLE OF DRYING.

In this manner the drying process practically begins at the top, which principle is wrong, and forms the basis of injuring and ruining more brick than any other sources or avenue on the entire brick-yard.

DRYING WITH AIR UNDER PRESSURE—NO DRY KILN NECESSARY.

The point that will appeal to the practical brickmaker is that with air under pressure it will not be found necessary to have a permanent dry kiln. Merely sufficient roof or protection to ward off the elements. No ventilating shaft is necessary, as the moisture is practically consumed and evaporated through the open structure. The process of drying and evaporation of the water is so perfect that even in damp weather it is impossible to detect any moisture in or around where the brick are being dried.

HOT AIR DUCTS.

With air under pressure each individual track in the installation is permanently equipped with a hot-air duct, arranged in a very simple manner to not only form an avenue to conduct the hot air, but also forms the foundation on which the brick rest when brought from the machine to the dryer.

PALLETS.

Hollow pallets are provided, being made air-tight on the bottom, sides and ends; slats are provided on the top of the pallet just the width of the thickness of the brick, the pallet being loaded at the machine, and when loaded are conveyed by an elevating, lowering car from the machine to where they are to be dried.

AUTOMATIC CONNECTION.

An opening is provided on the under side of the hollow pallet and a similar opening is likewise provided in the hot-air duct in such a manner that when the elevating truck lowers the pallet automatic connection is made with the hot-air duct, and when the entire row is full a suitable damper is opened at the end of the duct, which admits of the hot air entering into the tunnel, and, in turn, up through the pallet and through the brick.

ELEVATING CARS.

Two elevating, lowering cars are provided, one for the machine end of the dryer and one for the kiln end; the car conveys two loaded pallets, each pallet containing approximately three hundred standard size brick. When the brick are dried a similar car automatically raises the loaded pallet and conveys it to the kiln.

CURTAIN.

For the purpose of conserving the hot air and protecting the brick an asbestos curtain is arranged on each side of the row of brick, permanently suspended in the air in such a manner that as the track is filled with brick the curtain is pressed against the brick and retains the heat, allowing the mass of brick to dry, the heat commencing at the first, or under layer, on the pallet and then passing to the next above it, and so on until the heat has thoroughly penetrated one row after the other until it reaches the top.

EFFECT OF CURTAIN.

The effect of the curtain on the sides of the brick answers the same purpose in this instance as a permanent wall or casing, which is necessary for water-smoking a brick kiln. To illustrate: Every brickmaker understands the simple principle that it is necessary to protect a green brick kiln around the outside to make it at all possible to water-smoke it, and that the capillary attraction in the brick really dries them; and that were it not for the outside protection it would be a physical impossibility to dry or water-smoke the brick at all. It is the same in this instance. The loose asbestos curtain, about one-fourth to one-half inch thick, is pressed firmly against the brick and as the hot air enters the pallet the drying process is firmly established.

CORRECT PRINCIPLE OF DRYING.

Notice the air under pressure action as the hot air enters and heats the under, or first, course on the pallet. The moisture is liberated and the moisture-laden atmosphere need only to travel the height to which the brick are piled on the pallet and arriving at the top, it is at once dissipated and has no further contact with the brick. This is the reason and forms the basis of making it possible to dry the brick in one-third of the time that is possible the old way.

TIME REQUIRED THE OLD WAY.

To illustrate: The very best that can be accomplished in the way of time with the old application is from twenty-four to thirty-six hours for drying. This is true for the reason that from one-half to two-thirds of the moisture must be liberated from the brick innumerable times before it finally can escape through the ventilating shaft. With air under pressure the moisture is only liberated once, and as it is expelled from the brick it only rises to the height to which the brick are piled and is driven off into the open air, consequently the brick can be dried much easier and in very much less time.

LESS COST FOR DRYING.

When drying brick with air under pressure, using the exhaust steam through a system of tunnels, the fan which dries the brick is permanently attached to the power plant that makes the brick, so that the large engine that provides power for making the brick likewise furnishes power to drive the fan which dries them; and since the brick are readily dried in ten hours' time the only cost, as you will observe, is that incurred by the engine being called upon to furnish power to drive the fan that conveys the air to the tunnels for drying the brick, which is really a mere bagatelle—should not be more than three or four cents per thousand brick at the most. This is quite different from that of from thirty-five to sixty cents per thousand the old way of drying.

NOT NECESSARY TO OPERATE AT NIGHTTIME.

In addition, the feature that will appeal strongly to brickmakers is that it will not be necessary to operate the dryer in the nighttime, or twenty-four hours per day continuously.

SOURCE OF HEAT—EXHAUST.

The source of heat is of a twofold character. A very acceptable plan is to have a set of heating coils connected to the exhaust, attached to which would be a fan, the hot air thus produced being conveyed by the fan through the series of tunnels; and by this equipment it is possible to dry the brick exclusively with the exhaust steam in the length of time the engine would be operated for making the brick.

WASTE HEAT.

If, for any reason, it is not desirable to have the heating coils, but is desired to make use of the heat from the cooling kilns, then the heating coils would not be necessary, but, instead, a system of hot-air ducts and a suction fan to draw the heat from the cooling kilns through the same system of tunnels into the dryer.

DAMPERS.

The main air duct along the end of the dryer would be opened the entire length and the heat would be conveyed to the different tunnels, wherever it was found desirable, by means of opening and closing dampers, which are provided in the laterals leading from the main air duct.

The only way it is possible or practical to utilize the waste heat from the cooling kilns is when you have the round or square down-draft kilns. We do not consider it practical to attempt to utilize the waste heat from the up-draft kilns unless they are subdivided into very small kilns so it would be possible to have access to the heat continuously.

WHITEWASH.

Efflorescence, or "whitewash," frequently forms the basis of very serious difficulties and in many instances brickmakers are unable to locate the source of their difficulty. Few brickmakers recognize the fact that whitewash can be produced on brick during the process of drying in the old-style artificial dryers, and they persist in attempting to locate their trouble in their brick kilns (and it is true that very often the whitewash is directly traceable to the kilns), but, as explained above, in the old-style dryers, where the entire dryer is sealed air-tight save at the end containing the ventilating shaft, if the boiling process is hastened a little too hard, liberating more moisture than the air can carry, which makes it necessary to condense back on the brick, when this condensing process is repeated, if the clay is of a certain tender character, you may expect a whitewash effect on the brick when they come from the kiln, irrespective of how carefully they were burned.

One thing is true without a doubt, that when the whitewash damage has been started in the dryer it is more easily reinforced and the damage made greater in the process of burning than though it had not occurred originally, even in a small degree, in the dryer.

When dried with air under pressure it is absolutely impossible to whitewash the brick, irrespective of how rapidly the drying is executed.

CRACKED AND CHECKED BRICK.

When drying by the old system, owing to poor circulation, the heat, brick and moisture being so closely confined, the tunnels being air-tight and no escape for the moisture-laden atmosphere until it arrives at the end containing the ventilating shaft, this confined condition is a very serious test for tender clays that check and

crack easily in drying. It is often found necessary to continue the process of drying thirty-six to forty hours to be able to secure even fairly good results.

The reason for the damage is that owing to the poor circulation, when the heat is first admitted into the drying tunnels a very close, confined heat condition prevails, which rapidly removes the moisture from the outside shell of the brick and this part of the brick shrinks while the center, or core, remains large and damp. This process continues until the air in the tunnel becomes thoroughly filled to its utmost carrying capacity, when finally the excessive moisture which is contained in the air, not having been able to escape from the tunnel, again settles back on the brick. This checks the drying process at the point where the condensing conditions prevail, and this is the reason why injured brick will be found in some parts of the dryer while others may not be so badly damaged or injured.

A good test of this principle can be had by providing a trial whereby a few brick made up of tender clays be subjected to a test. The principle feature you will discover is that while tender clays would check and crack even in a thirty-six-hour period in an artificial dryer, a small quantity of the brick dried under advantageous conditions will prove that this tender clay will readily dry without damage in from eight to ten hours' time with air under pressure, the problem in hand being to make the same simple application on a wholesale basis, which is easily possible. (Applause.)

Mr. Yates: I would like to ask Mr. Boss a question. If I understood him correctly, he stated there was a sweating process in the dryer which produced a certain amount of moisture. In using waste heat there is a certain amount of sulphur fumes I would like to ask if same is not deposited on the brick so that the brick is scummed?

Mr. Boss: That might occur in an old style tunnel kiln



Alfred Yates, Shawmut, Pa.

where there was little or no circulation of air or heat. Under such conditions there is a boiling process, so to speak, and the scum results. Where a proper system of circulating or moving the heated air is provided there is little or no likelihood of the brick scumming.

Mr. Yates: As I understand it, the scumming is due to the heated air in which there are sulphur fumes coming in contact with the green brick.

Mr. Boss: Possibly you are right, but my experience tells me that there is little or no trouble from scumming when the air with which you are drying is kept moving. It is the same principle that operates in water smoking a brick kiln. With proper draft there is no condensation of the moisture in the atmosphere upon the brick, and therein lies the source of danger from scum or whitewash.

Chairman Bloomfield: What I don't know about making brick would fill a large book. I have only had four years' practical experience, and it has been pretty general. I have had a little experience on the dryer question, and it has caused me quite a lot of sleepless nights. We found no trouble when we were taking the heat from the kiln that had been burned off and allowed to stand four or five hours, but if we took the heat immediately from the kiln without allowing it to stand, we had scum. Then we finished another tunnel, and, much against the decision of the man who had got me into the trouble, I insisted upon raising the roof as we progressed from the place where the heat was introduced to the place where the brick

went in, to a difference of 3½ to 4 feet—the roof gradually raise to a place where the moisture goes out—and we have never had any trouble with our drying since. We can dry in six or eight to ten hours, and we don't get any cracked brick or block, and we have not had any scum. (Applause.)

Mr. Yates: Pretty good for a four-year-old. (Laughter.)

Chairman Bloomfield: Mr. Christopher Steadman, of Greenridge, N. Y., is to lead in the discussion of this paper, and I am pleased to introduce Mr. Steadman to the convention.

BURNING BRICK WITH FORCED DRAFT.

BY CHRISTOPHER STEADMAN, GREEN RIDGE, N. Y.

Mr. President and Gentlemen of the Convention:

I am before you in an unusual disguise, that of a sheep in a wolf's clothing. In other words, I am an owner of brickmaking property; I am in charge of considerable brickmaking, and am making brick for a living; and at this time I wish to address the convention with a description of a forced draft system of brick burning which in actual use has proven most economical in cost of installation and productive of brick of a quality much superior to our output before developing and adopting this system.

As a brickmaker I address this convention that my fellow brickmakers may profit by experience that has been profitable to me; but at the same time I wish to make it clear that having had much to do with the development of this forced draft system of brick burning, I still retain a considerable interest in the process or invention, and in that connection will profit by its adoption by other brickmakers. Such a confession may be unnecessary, but I don't want to grind my own axe behind the backs of my fellow brickmakers.



L. L. Stephenson, Birmingham, Ala.

To reduce the cost of manufacturing to a minimum and to secure a large percentage of brick of the best quality is certainly the aim of all brickmakers. In operating the Richmond Brick Company plant, with an output of 35,000,000 common brick per year, that has always been our effort.

The Richmond Brick Company which I mention has no connection with the bogus Mr. Richmond, who recently organized the "Easy Mark Club," of which Mr. Randall was invited to become a charter member. When I say Richmond Brick Company I mean Richmond Brick Company, of Richmond Borough, New York City.

The most interesting, economical and profitable improvement we have recently made has been in the burning of the brick. The location where we operate has been a brickyard for some thirty years, and long ago they used to burn with wood, but that method became obsolete several years ago.

The cost of burning our clay with wood might be \$1.00 per thousand for fuel, but that is beside the question, as a sufficiently reliable supply of wood could not be secured at any price. The latter practice was to burn with egg or grate size of anthracite coal, and this showed a nominal cost of 50c per thousand for fuel, but a considerable percentage should be added to this cost to cover the loss from the clinkered brick touching the fuel bed, the soft burned brick in the lower part of the hacks, the twisted jet brick and a general irregularity of the burn throughout the kiln, as it was always necessary to maintain a heavy fuel bed, which, if it got too hot, was hard to check, and if it got too cool was hard to heat up again.

In our location the finer sizes of anthracite coal could be bought for about one-third the cost of the larger coal which we were using to burn brick. We wished there was some blessed way to burn brick with that cheap fuel.

We investigated several kinds of forced draft apparatus, tried some of them, tried schemes of our own, but for a long time developed nothing that was satisfactory. Those earlier affairs were

fearful and wonderful, as we think now, but too expensive to install, and too complicated for satisfactory and practical use by our kiln men. But we kept at it until we made the great discovery—a rig that more than paid for itself the first time it was used. And the quality of the brick was our best, all hard and uniform, and the fuel cost half, or less than half, of what it had been before.

It took us many slow years to arrive, but when we did get things right they came fast. During the past year we have burned on our home brickyard about 20,000,000 brick with our forced draft burning system.

The burning apparatus, as we have finally made it up, is inexpensive and readily portable from one kiln to another, in fact, some of the original pipes we used at Green Ridge have been sent up to Mechanicville, N. Y., where they burned brick, and from there again to Boston, Mass.

I would liked to have brought one of those veteran pipes out here and show you the real thing, but as it was not convenient to do so, I made up a small model, which I will be glad to explain to any one who is interested.

The great advantages of forced draft for brick burning over natural draft are that with the forced draft you can better control the fires and thereby secure a larger percentage of best quality brick; with the forced draft you can shorten the time of burn, and thereby increase your kiln capacity and decrease your labor bills, and in most places you can find a supply of cheaper fuel, which would not burn with natural draft, but with the forced draft you can burn this cheaper fuel and thereby greatly lessen your fuel bills.

With the forced draft system we can get any heat at any time, in any part of the kiln, and have perfect, individual, mechanical control at all times. It responds to a turn of the wrist like a steam engine responds to the throttle. (Applause.)

General Discussion.

Mr. Steadman: I would like to say in connection with our burning system, we have up-draft kilns and we take all the waste heat from those kilns. We put up iron pipes and take every particle of waste heat from the up-draft kilns.

I have got through with my paper, and I remember what one of the members said about his first convention. He said when he first got up to talk, he was pretty badly scared, and that is the way I felt today. (Laughter and applause.)

Chairman Bloomfield: Gentlemen, you have heard both of these papers, and we would like to hear some discussion in regard to them, in order to bring out more clearly all of the strong points.

Mr. Eisenhart: I would like to have Mr. Steadman explain what kind of a kiln he uses, and what kind of a kiln this system can be applied to.

Mr. Steadman: We have not applied it to any but up-draft kilns for common brick—permanent walled up-draft kilns. It can be used anywhere—any kind of a kiln—any place where heat is desired.

W. P. Blair: Mr. Steadman invited those present who wanted to do so to see him later, and I would like to ask if he has an exhibit in the exhibition room.

Mr. Steadman: We have an exhibit in our room, No. 436.

Chairman Bloomfield: The next paper on the program is "Comparative Value of Fuels in Burning Brick," by Mr. Julius Koch, of St. Louis, Mo. (Applause.)

OIL AS FUEL.

JULIUS J. KOCH, ST. LOUIS, MO.

Mr. President and Gentlemen of the Convention:

Our good old secretary, "Teddy," certainly has a fine memory, for I had a letter from him reminding me of a promise to prepare a convention paper, made a year ago. As he does not accept a negative reply, coupled with the fact that I felt honored in being selected to present a paper before the convention of the National Brick Manufacturers' Association, I will comply and proceed to discuss the subject he has assigned me.

OIL AS FUEL.

Oil, like all other kinds of fuel, has its good as well as bad sides, and its true value can best be ascertained and controlled by its intelligent application and use.

One of the first things to be taken into consideration is its heat value, say, in British thermal units (B. T. U.), when comparison is to be made with any other kind of fuel, say, for instance, coal. The good grades of fuel oil and other oils used for fuel are usually estimated at 19,800 B. T. U. and a good quality or grade of coal at 14,000 B. T. U. In order to enable the fellow craftsmen to make the necessary calculations the following example may be used to illustrate the method, based on the fact that fuel oils are sold by the standard barrel of 42 gallons. As a gallon weighs about 7.62 pounds, we have 320 pounds per barrel. Estimating or accepting its heat value at 19,800 B. T. U., we now have 19,800 times 320, or 6,336,000 B. T. U. per barrel, which is its customary theoretical efficiency valuation.

For relative comparison with coal we divide such B. T. U. by

the B. T. U. per pound of coal, and we have as equal to one barrel fuel oil:

452 pounds coal of 14,000 B. T. U., theoretical efficiency value.
487 pounds coal of 13,000 B. T. U., theoretical efficiency value.
528 pounds coal of 12,000 B. T. U., theoretical efficiency value.
576 pounds coal of 11,000 B. T. U., theoretical efficiency value.

Knowing the heating value and cost of the fuels to be compared, no cognizance being taken of the latent heat of liquefaction of the oil as against the solid fuel nor the attendant loss of unconsumed fuel in the ash, both of these two factors will be in a measure the value of oil as a fuel, it is not a very difficult matter to calculate the economy in naked cost of one fuel as to the other. However, bear in mind that the above figures refer only to the naked cost of the fuel, and no considerations are taken as to saving in labor, or wear and tear in furnaces. The brickmakers in Texas have found out that there is a decided difference in using oil at 29 cents a barrel, or at a dollar per barrel, and it is indeed a very wise proposition to lay out or plan your kiln plant in such a way that when oil is no longer economical or available, that you can readily change to a different type of fuel. The large producers of petroleum oil use either coal or oil, as may be dictated by the question and spirit of economy. The Standard Oil Company estimates, after making exhaustive tests, that 3 2-3 barrels, 173 gallons of fuel oil, are equal to 2,240 pounds of good coal, including in this estimate all other benefits or advantages entailed by the use of oil. The California estimate is 3 1/2 to 4 barrels, as equal to 1 ton of coal.

Of course, various grades of oils can be and are used for fuel, but in the ordinary understanding or meaning of the term "fuel oil" it is said to be a petroleum oil, from which the more volatile or lighter hydro-carbons have been distilled off, whereas the ordinary crude oils run higher in such named volatile hydro-carbons, and it very often happens that a plant designed to burn a crude oil having a high percentage of low temperature, volatile hydro-carbons and a good cold test as well, may become practically worthless when attempting to burn a so-called "fuel oil" having a poor cold test and from which the volatile hydro-carbons have been removed.

AIR.

Quantity or volume of air necessary for a perfect combustion of any kind of fuel depends largely upon its percentage constitution joined table, per pound of fuel:

Hydrogen—34.5 pounds air, or 457 cubic feet, gives water and nitrogen.

Carbon—11.5 pounds air, or 152 cubic feet, gives carbonic acid and nitrogen.

But when one pound of carbon is supplied with one-half of the above quantity of air it undergoes only incomplete combustion, or what might be termed gasification, and will furnish upon such incomplete combustion carbon monoxide and nitrogen. It should here be stated that this so-called carbon monoxide is still combustible, and upon coming into contact with additional oxygen, from any source whatever, at the proper high temperature, burns and thereby creates higher temperatures. This phenomena is specially taken care of in burning flash brick, and the so-called green (serpentine) brick when made from calcareous clays; it is not always a question of perfect combustion to obtain the required heat conditions or temperatures, for sometimes the desired results can only be obtained by the more wasteful methods of smoky fires or imperfect combustion.

When it is further taken into consideration that the heat value produced by combustion per pound of fuel is as per following table:

Hydrogen burnt to water gives 62,000 B. T. U. per pound.
Carbon burnt to carbonic acid gives 14,600 B. T. U. per pound.
Carbon burnt to carbon monoxide gives 4,400 B. T. U. per pound.

Then it can readily be seen that all kinds of variable results are obtained by differential quantities and qualities of oil as to air. The intelligent or unintelligent use of such conditions may lead to advantageous, disadvantageous or economical use of the oil, and the resultant product can be governed as well.

BURNERS.

They are constructed and adapted to use either air or steam. Air, when used as a spraying medium, being a supporter of combustion, has a tendency to create a short or hot flame or fire along the lines of a Bunsen burner, thus in a measure localizing the heat, which under certain conditions in the kiln is very damaging. Steam, when used as a spraying agent, acts in a measure as a dilutant or carrier, thereby in a measure or way retarding combustion, and thereby effecting a long flame. For this reason the first method is better adapted to down-draft kilns and the latter way is best suited for up-draft kilns, but both the spraying agents, as well as the oil feed, should be easily controlled and regulated in order to obtain good results, for any disturbance in continuous or demanded operations will cause irregular burning or poor results. The more force in the spraying tube the finer will the oil be atomized, and the resultant combustion will be more or less rapid and complete, depending upon the other surrounding conditions. However, great care should be taken to exclude condensed steam, as the temperature necessary to bring back the primary steam pressure is an absolute loss. Steam pressure should be carried as high as possible, so as to heat the oil up to the desired limpidity and temperature in order to facilitate ignition and combustion. But be sure not to raise the temperature so high that combustible gases are created in excess, as violent explosions may take place; this danger exists more so in the crude oils, which still contain the more volatile hydro-carbons, than with the so-called "fuel oil," from which such hydro-carbons have been removed. Do not forget that the crude oils as a rule are easier of ignition than the heavier fuel oils. The feed pipe or tube for the oil should always be centrally located to effect uniform dis-

charge; defective or excessive side, bottom or top discharge will surely entail or cause excessive local temperatures, thus disturbing regular or uniform combustion, and the results will be hot spots in the kiln, and when not checked in time, may effect melting down or overburn. It is a very good plan to have the burners loosely connected so that the burners as a unit can be moved up, down or sideways. The air or pressure duct also should be capable of adjustment in order to enable the operator to govern the spraying in any manner that he may desire or see fit. Too much stress cannot be laid upon the proper air supply, and the writer ventures the opinion that more waste in burning oil is caused by an inadequate air supply, insuring only incomplete combustion, than is caused by excessive air, leading to a cooling off of the high temperatures effected by perfect combustion. It is well to bear in mind carbon burnt to carbon monoxide (incomplete combustion) creates only 4,400 B. T. U., while carbon burnt to a carbon dioxide (perfect combustion) creates 14,600 B. T. U. It is well to recollect that both of these gases are colorless, and the absence of smoke is not always evidence of perfect combustion.

PIPE LINES AND PUMPS.

It is always a good plan to have a duplicate installment of pumps and to operate them alternately a day apart so that if one outfit should break down the other is ready for service. It is better to have a stand-pipe and have the height of the oil therein governed by an overflow, as it is desirable, in fact necessary, to insure uniform pressure and thus have staple conditions. Ordinary tank pressure is variable, as it depends upon the continually changing depth of the oil in the tank, and in that way furnishes continually changing pressure at the burners.

The oil pipe lines should have as few turns and valves in them as possible, as the pressure at the tank end may have to be excessively high to compensate for the friction in the pipe lines and fittings; the farther away the kilns are from the initial point of pressure in the oil pipe line the more difficult it becomes to maintain the desired pressure at the kiln; this condition accounts for it, in a part way, why some kilns burn better and in a shorter time than



Julius J. Koch, St. Louis, Mo.

others. It is a good plan to have small pressure gauges attached to these lines, as close to the kiln as possible, so that the burner can readily see what pressure he has in his lines at the kiln. The necessary arrangement should also be provided for, so that any dirt or sediment liable to clog the burner will remain in the feed pipe, so it cannot enter the burner, and in this way save a great deal of annoyance, trouble and worry. An opening easily controlled or closed should also be placed in the burner so that the same can be cleaned out easily and quickly restored to its original and proper condition. There is not enough attention paid to this detail because hard matter or carbon may settle in the burner from the so-called "cracking" of the oil, caused by the burner itself getting so hot that the distillate leaves the burner and the fixed carbon remains in the burner. The steam lines should be so located as to present the factor of minimum condensation. Hot water does not spray the oil, but steam does; besides the hot water entails a loss of heat, not alone by absorbing heat again to turn it into vapor, but it may also reduce the heat in the furnace below the ignition point of the combustible gases or oils. The steam pipe line should also be so placed that the feeders to the burners will only take up live steam and leave the condensed steam behind. The modern oil burners are all provided with a device which is movable or re- movable, by means of which the steam opening may be increased or decreased at will, and thus control the distance that the spray will travel. A very fair illustration of this principle of operation can be found in the so-called "garden hose nozzle," in which all kinds of sprays may be induced by the relative position of the hose nozzle. It should also be borne in mind that the burners as a rule act as a kind of injector for air supply, owing to the velocity of the spray entering the kiln.

DRYING AND BURNING.

There exists an erroneous belief that fuel oil is not suitable for drying off, but there is no good reason why such should be the case,

as the results rest upon the proper equipment and intelligent application. No matter what kind of fuel is used for drying off, two factors are important. One is proper heat and the other is circulation. These two go hand in hand; that is, do not create more heat in turn, liberate more moisture than your circulation can carry off, and also regulate your circulation, so that you can have the maximum beneficial effect. One way to get a solution is this: For instance, you are now drying off with wood in a certain length of time owing to draft conditions, which we will assume as a fixed factor; we will take it for granted that it takes about one cord of wood to ten thousand bricks; we will assume, as is customary, that one cord of hard wood has a heating value equivalent to about two and one-half barrels of fuel oil, or as in the case of pine or red wood, an equivalent of two barrels of oil. This will make the fires very light, of course, when the quantity of oil consumed per hour in each furnace or arch is calculated. Under ordinary conditions this is not very easy to accomplish, but by equipping the fire boxes with the so-called "dog houses" there will be a place in the said firebox where the temperature will exist high enough so that this minimum amount of oil entering the firebox will be sure to ignite. With the ordinary construction of the fireboxes the defect is that as a rule when a low fire is attempted it generally goes out, and when ignition takes place later on the heat is too strong. Or when too much oil is used the temperature is too low for ignition and the kiln gets full of smoke and is liable to soot up. The practical absence of sulphur makes fuel oil a good substitute for wood in drying off. The so-called dog house is nothing but the old fire arch as is used in locomotives where oil is burned, only the dog house is constructed on a miniature scale. It generally takes about four to eight bricks to build up the same; they can be laid up loosely, as this "dog house" will have to be torn down and out as soon as the temperature or heat in the kiln is sufficiently high. The writer knows of a burner in his home town where a No. 1 burner used to drying off with wood, and who had never used oil before, made a



J. W. Robb, Clinton, Ind.

complete and perfect success in drying off with oil the first time he attempted it. All that is necessary is a little care, good judgment and proper equipment. In burning with oil care and judgment must be exercised to get the best results. The customary way to burn with oil is to tighten the platting, or flatting, as it is sometimes called, after the heat is through, and in most of the cases the slight openings still existing in the platting are still further closed up by placing clay on this platting. This statement refers to up-draft kilns; in down-draft kilns the results are obtained by dampening the kiln. This *modus operandi* as a whole is all O. K., if not carried to the extreme, as will be seen later on. As is well known, oil burners act in a way as an injector, that is, the velocity of movement of the incoming spray sucks in air from the outside, thus providing air for the combustion of fuel. In order to have good results, a good balance should be established between the spray and air in the relative and proper proportions. It should be borne in mind that the larger the quantity of oil consumed, the quicker the bricks in the kilns will heat up. This means that the more oil you spray into the kiln, the more air will be required for the combustion. If, however, the platting is left too wide open, the created heat will leave too fast, so that the brick in the kiln will not have sufficient time to absorb this heat. So the first thought will be to tighten and close up the platting with clay, as a general thing. At this stage of the process, all conditions are in good working balance, for a comparatively low temperature, but when a higher heat is needed, the first error committed is to decrease the opening or inlet for the air supply. It can readily be seen that if the conditions were proper before such a restriction, then the air supply now must be deficient. You cannot have good combustion when the air supply is not in the proper proportion to the fuel. At the beginning of the burning process, the air supply is generally too large, which causes lower heats. Higher heats can not be obtained, except when you burn the fuel to produce them, but when you increase the fuel supply, you must also increase the air supply, to balance the burning conditions, and there comes a time when the pressure in the kiln is but little less than the force

of the spray, and sufficient air cannot enter through the opening provided, especially is this true when a large quantity of oil is sprayed into the furnace, turns into gaseous fuel, and in this way fills the flue space in the kiln, and thereby still farther retards the influx of the air for combustion. This difficulty may be overcome by not having your platting too tight, so as to have a little less resistance in the kiln, and provide means for furnishing the adequate amount of air to insure the desired combustion. What I mean by this is: You must be in a position to furnish sufficient air at any time, no matter how much oil it may be necessary to consume, to effect the desired heat, and at the same time you must be able to dampen your kiln sufficiently to retard the passing out of the heat gases, so that the brick therein may be able to absorb all of the heat to the best advantage. Before closing this paper I wish to refer again to the steam feature. It is undoubtedly of great value to use steam at high pressure because in the first place it has better spraying effects and in the second place it heats the fuel oil more, so that it will be more limpid and have more heat imparted to it. When steam is condensed, it has lost heat and pressure, when it is figured that one cubic inch of water is converted into about 1,700 cubic inches of steam, it shows how easy it is to cause back pressure in the kiln, and in turn cause serious explosions, and when you take into consideration the amount of heat absorbed to convert condensed steam into live steam, it is surely shown that the introduction of water, instead of steam, is a detrimental factor in more ways than one.

There are three essential factors necessary to burn oil successfully: One is to have the proper amount of air, the other is to have the proper spraying agent, and also the proper temperature for ignition. This latter point is one that is very often overlooked, and the spraying part should always be well looked after, as the oil turning into gaseous fuel, absorbs a great deal of heat. (Applause.)

Chairman Bloomfield: This is a very valuable paper, and I am sure every one present feels it has been of great service to him. We have with us today a gentleman who, while he claims he is not an expert on this subject, yet has had considerable experience, and that experience covers a trip abroad for the purpose of gaining information on this subject—Mr. Eben Rodgers, of Alton, Ill. (Applause.)

General Discussion.

Mr. Rodgers: This subject is a little too deep for me. It is a very important one, and Mr. Koch has presented it very ably. All I can do is to emphasize the importance of our going further in this subject in the matter of buying coal. Few of you realize the difference in the heating value of the different coals, and not entirely on the price per ton. You may be buying a coal at a cheap price per ton, and yet be paying the price of a very high-priced coal, and not getting results. I believe it is a question worth going into.

Another question that is of interest to us. In all large power plants they have apparatus for analyzing the air as it passes up through the stacks, showing the perfection or imperfection of the combustion, and many of these power plants have recording apparatus that shows during the whole twenty-four hours just what the CO_2 has been, or carbon dioxid, the result of perfect combustion, and many of them pay their firemen on the percentage based on the carbon dioxid shown in the analysis of this air. If they can make the carbon dioxid run up, they get more money, and if not, they get less money, and you know how a fireman is going to keep his fires going under such circumstances. The same thing can apply to kilns. If you have too much draft, certain things happen, and the only way to find out is to make an analysis of the gas in the stack or the flue gases escaping, and when you find out just what is the right thing you know where to keep your fires, and in that way you can save lots of fuel. Also, it will help you in controlling the drafts to just the point you want them. All these things are worth looking into. They are working in a very satisfactory manner in a number of plants—not in brick plants, but in other industries—and they claim they pay good dividends. (Applause.)

Vice-President Rogers (in the chair): I will ask the Secretary to announce the next number on the program.

Secretary Randall: This brings us to the "Questions for General Discussion." If you care to pass these questions for the present, there is a paper which is scheduled for tomorrow's program by Mr. Gregory, of Corning, N. Y., which can be heard at this time. Mr. Gregory is here with his paper, and he may be called away tonight. I would suggest that we hear his paper now.

Vice-President Rogers: If there is no objection, we will take it by consent. Mr. Gregory needs no introduction to this audience. (Applause.)

SYSTEM IN THE CLAY PLANT.

BY M. E. GREGORY, CORNING, N. Y.

Mr. President and Gentlemen of the Convention:

A short time ago a prominent man stood before a Government Commission and asserted his belief that one industry alone in this country could save one million dollars a day, if it inaugurated a systematic method of management. Twenty years ago, even ten years ago, such a statement would have been impossible, because facts were lacking to substantiate it, made now, it summarizes the strides of management in economy and efficiency, and the results of system as applied to business management. These facts have been brought out more clearly in recent testimony before the Interstate Commerce Commission.

The accusation was made against the railways that they have failed to utilize the principles of scientific management, and therefore are not economical. The same charge can be brought with truth against the majority of our manufacturing plants, and can be substantiated in almost every locality.

To completely systematize a brick plant on practical lines is not a holiday job, as there is no line of business which requires more careful study and application than the brick business, and the different systems should be worked up after the most careful consideration, and a thorough knowledge of the business. The methods of getting cost, handling men, executing work, etc., are susceptible to systematic consideration.

For me to outline a system in this paper, which can be used on every brick plant, would be impossible, as each have their peculiarities which should be considered in keeping cost and systematizing expenses. We have found it necessary to divide or classify the different items of expense somewhat as follows: Insurance and taxes, freight, shale or clay, supplies, kiln supplies, engine supplies, barn supplies, expense, office expense, pay roll, kiln repairs, machine repairs, building repairs, etc. These items, of course, can be changed to apply to the different lines of business. The total items of these several accounts may be transferred each month to a separate book, which at the end of the year or month, would show what the cost of operating was in each of the departments heretofore outlined each month or year. The amount of each month, or the total for the year divided by the number of brick will show the average cost of production for each department for the month or year. I have tabulated a form, which will illustrate this scheme, although the figures are not taken from actual cost, but will illustrate the plan in mind, which I should be pleased to explain to anyone.

Piece work can be handled much more easily in many plants, and more advantageously than day work; however, I think one defect of this system is due to manufacturers themselves, who are apt, as soon as they see their men making a little more than day wages, to cut them down. This tends to discourage the men, who refuse to consider the plan further. Why should a manufacturer care if his men make more by piece work than by day work? If they do the work, and do it well, he should be willing to pay for it, and give them a chance to better their condition. We have men who have been working for three years at piece work, and they have averaged about thirty per cent more than they were able to make by day work. They get out their work promptly and satisfactorily. Why should they not make the additional amount? It costs us no more than before.

Foremen can be encouraged to economize in the different departments by various means; for instance, when you employ a new man, tell him that you will give him a certain percentage of what he will save in that department in cost of production and supplies, as compared with that of his predecessors. By following this system, one soon gets his business down to a firm basis.

A record of shut-downs through the day or week, cause, duration, etc., furnished by the engineer, is sometimes a valuable guide in locating the defective machinery, etc.

Keep the men, as far as practical, in certain lines of work, and do not change them around. The same rule would apply equally to machinery. Continual changes as to the kind of brick made materially decreases the output of the plant.

Extra parts should be kept on hand for all machinery which is most liable to wear out, as the loss occasioned by a shut down at a busy time would pay for many extras, which would have to be had in due time in any event.

Boilers should be cleaned at regular and frequent intervals.

The amount of coal consumed each day should be tabulated.

Careful accounts should be kept with each kiln, showing the amount of material in same, amount of fuel each burn, results of burn, percentage of good and poor brick, etc. If this is followed

up, it will give the brickmaker much valuable information.

Our insane asylums are full of broken-down business men who never did but a few thousand dollars worth of business per year, while, on the other hand, we have men like Morgan, Hill and many others, who direct and manage vast enterprises apparently easily, as the result of system properly applied. (Applause.)

Vice-President Rogers: The discussion of this splendid paper will be led by Mr. J. S. McCannell, of Milton, Ont., Canada.

General Discussion.

J. S. McCannell, Milton, Ont., Canada: Mr. Chairman and Gentlemen of the Convention, when our Secretary wrote asking me to give a five-minute talk in connection with "System on Making Brick," my first thought was to decline. I am not in the habit of getting up and making speeches—my line is more in practical work; but, in view of the fact that I have been coming to our National Conventions for a great many years from Canada, and enjoying the fellowship of meeting the brickmakers of this country, and knowing your officials and knowing what good men they are, I felt it would be altogether out of place to decline.

Mr. Gregory has covered the ground so thoroughly that I really do not think it is possible for me to add anything to what has been said, but we all know that any business suffers from lack of system. They say that "War has slain its thousands, but that in business, lack of system has slain its tens of thousands," and the desire to impress the importance of



M. E. Gregory, New York.

system in our business is my only excuse for standing before you today.

It is just as important to have a system applied to a brick plant as it is to any of our great railway companies. No organization employing labor can hope to make a success unless some system is employed that will show results, both to selling price and the cost of goods manufactured. In a great many cases the machinery man comes along and convinces the man with the clay bank that all he has to do is to turn out the brick and his fortune is made. Now, the machinery man is not in business for the good of his health and is not to be blamed for selling his goods. The fault lies with the man who is running the business. He thinks all he has to do is to

SEASON OF 1910.

	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	Per Cent.
Taxes and Insurance.....	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	\$ 75	900	.225
Depreciation, Interest, etc.....	250	250	250	250	250	250	250	250	250	250	250	250	3,000	.75
Freight	300	400	400	500	500	600	1,600	1,600	1,000	1,200	1,200	1,200	10,500	2.625
Material	...	...	300	400	500	500	700	700	500	400	400	400	4,800	1.20
Supplies	50	50	50	100	100	100	125	125	125	125	100	50	1,100	.275
Kiln Coal	500	500	500	600	600	600	650	650	600	600	600	400	6,800	1.70
Engine Coal	100	100	200	200	300	300	400	400	300	300	200	200	3,000	.75
Maintenance of Teams.....	100	100	100	100	100	100	100	100	100	100	100	100	1,200	.30
Expenses, Miscellaneous	100	100	100	125	125	125	125	125	125	125	125	100	1,400	.35
Office	125	125	125	125	125	125	125	125	125	125	125	125	1,500	3.75
Machinery Repairs	100	100	150	150	200	250	250	300	300	300	250	100	2,450	.6125
Kiln Repairs	...	...	50	50	50	50	75	75	50	50	50	50	550	.1375
Pay Roll	100	100	300	800	1,200	1,500	1,800	1,800	1,800	1,800	1,500	1,200	13,900	3.475
	\$1,800	\$1,900	\$2,600	\$3,475	\$4,125	\$4,575	\$6,275	\$6,325	\$5,350	\$5,450	\$4,975	\$4,250	\$51,100	\$12.775

4,000,000 brick.

sell the goods at so much per thousand, and he is bound to get rich. Other firms are getting along and paying dividends, and why should he not do so? His trouble commences to increase. He finds that he is selling goods to men who do not pay up as promptly as they should. He struggles on, his payroll is too large, and he can not understand what is the matter. He suspects that his bricks are costing him more than he believed when he was in the hands of the clever salesman who induced him to embark in the brick business. He finds that his capital is commencing to get less, instead of greater. He tries to induce more capital, but without success. Before long he sees ruin staring him in the face, and presently the receiver is in charge. This is no uncommon story, but is the history of a great many concerns, which start into business without knowing where they stand at stated intervals. They are manufacturing several lines of goods, and imagine they are making money on each line. They may be pushing their best seller, under the impression that this is the line that is making the money, when in reality, if they knew the cost price, they might, as has been known in different cases, be losing money on every dollar's worth sold. No firm in the brick business, or any other business, for that matter, should think of going ahead without having a cost system, which will show exactly what each department costs to produce. In the matter of fuel, it is an easy matter to know how much coal goes to each kiln, and a record is kept of what it takes to burn the bricks. The same system applies all along the line.



J. S. McCannell, Milton, Ont., Canada.

What does the clay cost to put into the grinders or dry pan? What does each department cost? It is the little leaks that ruin many a concern. Any system that will detect these leaks in time will prevent many a loss, and in plenty of cases turn a loss to the right side of the ledger. Some concerns have a system which gives them the exact daily cost of the brick produced. We employ this system in our plant, and find it very useful and simple to operate. The brick business demands as much close attention to detail as any other business. No man need think he can succeed in making brick by adding the cost of the fuel to the wages paid to figure out his cost. If he starts on this plan he will soon find out his mistake, and soon he will either have a plant for sale, or the bailiff will be in charge. (Applause.)

Vice-President Rogers. If there is no discussion of this question, which has been well handled both by Mr. Gregory and Mr. McCannell, we will take up the questions for general discussion.

Alfred Yates: This is a very valuable paper, and important to many of us. Speaking from experience, I would say that the man without a system or organization can not make a success in the clay business. If he will only divide his business into departments, with one man at the head of each department, to receive a premium for his best efforts in the way of commission or weekly wages, he has an incentive to get results. Get these men interested, and when they become interested, all you have to do is to look on. If you hold out a premium for efficiency, you will get results. These walking

foremen on plants, one inside and one out, are not the thing. While he is at one end of the plant something is wrong at the other. If you have a man over each department, he will see that everything is running all right, for his own best interest. And your walking delegate, paid for walking up and down, is not needed, because at the end of the month you have a cost sheet, and know what each department is costing, and the head of each department knows what is waiting for him. I hope you will all go home encouraged by this paper, and try to adopt the suggestions made in same. I move that we tender Mr. Gregory a vote of thanks for this valuable paper.

Seconded by Mr. E. R. Dillehay and carried.

Elisha J. Kane, Kushequa, Pa.: There is one point that comes under this subject that ought not be lost sight of, and that is a system of co-operative savings. I desire to impress the importance of that for two reasons. Not only will your men watch the details and take a greater interest in the work when they are directly interested in the savings and cost in their own department, but if these co-operative savings be distributed at the end of the year, you will not be troubled by your men having to leave your employ. It is one thing to lose men and another thing almost as bad to have your men always considering the question of leaving. This system of co-operative saving stimulates loyalty, and loyalty as a part of your system is very profitable. (Applause.)

Vice-President Rogers: I will ask the Secretary to announce the next in order.

Questions for General Discussion.

Secretary Randall: Taking up the first of the questions for general discussion, I will say that it is a rule of the Association that each speaker shall be limited to three minutes, and no man be allowed to speak more than once on any subject. The first question is No. 13 on the program.

"Is the use of two-inch vitrified cubes practical in constructing or resurfacing worn-out state roads?"

Vice-President Rogers: I suppose I am responsible for that question. When it was sent in, I had an idea of getting more of a record than I shall be able to give. We have in the county of Monroe, in the State of New York, a county engineer who is looking for new ideas. Our State roads are an important question, and we will probably find as the years go by they are more important in all respects than at present, and that is, the taxes to keep them in repair. The engineer referred to has been experimenting along the line of resurfacing these roads with two-inch cubes by levelling off the top of the roadbed and resurfacing with sand, and putting these two-inch cubes over the top of the roadbed and cushioning the outside with gravel to keep them in place. The experiment has not been conducted far enough to give an intelligent test, or result, or show what they will be capable of standing. The road, so far as appearance is concerned, is as good or better than when originally constructed, and it is a cheaper way of construction than to tear it all up and go through the original process. I am not able to give you the data of the cost of such roads, but perhaps some of the gentlemen who are manufacturing vitrified clay products may be interested in looking further into this subject, with a view of furnishing some of the material for this kind of an improvement.

Mr. Gregory: I will say that the same engineer Mr. Rogers speaks of, wrote to me for prices on cubes. I wrote him that I was not making cubes, but paving brick. If he wants a first-class street or road, let him level off his top and put on brick, and there will not be any question as to the durability. It will not cost him a cent more, nor as much, to resurface that road with first-class paving brick, properly laid, than to fool with cubes, and then, too, no two-inch cube will stand what brick will, on account of its size. (Applause.)

Vice-President Rogers: The next is No. 14—"Does too much of the brickmaker's money go up in smoke?"

Secretary Randall: I have a night letter here from Anton Vogt, who is in Seattle, Wash., which answers that question, as follows:

"Replying to the question, 'Does too much of the brick-makers' money go up in smoke?' would say: 'Yes, every time a wooden house burns down. Adopt modern kilns and burn hard brick. Build kilns that you can regulate and burn up the

smoke, or adopt the Boss system, which is the correct principle of burning your old kilns.' With best wishes."

Vice-President Rogers: The next is question No. 15—"Is it feasible to combine the manufacture of hollow block with that of common building brick?"

Mr. Bloomfield: Mr. Chairman, I am doing both, and I think it is not only feasible, but I think every brick man, under the present condition of affairs, should manufacture hollow block as well as brick. The time has come when the high price of lumber and the fact that frame buildings are fire traps, liable at any moment, without any notice, to burn up some dear friend, when every brickmaker should be an apostle of fireproof building, and under the present circumstances they can be built fully as cheap as can be the cheap, flimsy frame buildings, and every brickmaker, I say, should be an apostle of a thoroughly fireproof house. You can easily change your face plate to make hollow block, and the same horizontal machine that makes your brick, with a change of face plate, will send out a stream of clay that you can cut off into fireproofing blocks. I have had that experience and know it can be done, and done profitably. I think every brickmaker should investigate this matter, not because there is money in it, but because he is fulfilling a moral obligation that he owes to his fellow man. You can do it by manufacturing hollow block on your horizontal brick machine as profitably as you can your brick.

Daniel Cobb, Jacksonville, Fla.: It has been my pleasure to demonstrate that statement in the State of Florida during the last year in taking charge of a property there. I had a contract to make some of these hollow block at a very good price—my competitor was a long way off—but in making these hollow block, I found it very much better to put in an independent machine to make them than to make them upon a brick machine. In my opinion, we should foster the use of hollow block or hollow fireproofing wherever it is possible, for the protection of those people and those children who have no hand in the construction of their homes. We can scarcely pick up a paper that we do not read of the destruction of some man's home in some part of the world or the other. I look upon the buildings constructed of lumber today as being far, far behind the times, and it devolves upon the members of this Association to foster the use of hollow block.

J. H. Mead, Warners, N. Y.: I have had some experience along that line, and I think as to whether it is feasible or profitable to do it depends somewhat upon the nature of the material you are going to use. We manufacture common brick, and we also manufacture hollow brick and some fireproofing in sizes 3x8 and 4x12, and along that line; but I have been unable to get the quality and put these blocks on the market at as reasonable a figure as they can be got at some other place. Our material is such that it is tender. We use shale, and in order to make these blocks good and hard and stand wear and handling, we must make them too heavy. The walls of the block are too thin, and in order to get them at all we have to use a considerable quantity of clay. At our plant we make hollow brick and have good success, as we have with our common brick, but to make a hollow block puts us up against it every time. We try to do it, and we have practically given it up except where we have an order that calls for this material and they insist upon our making it, and we do in order to make the sale of common brick; but otherwise we have abandoned it. So I think it depends on circumstances whether you can do this. I find in Syracuse, which is our principal market, there is a firm making hollow block in large quantities—a splendid, well burned hollow block, 4x12x12, that weighs just a little more than half what our block weigh when they are burned. That puts us in such shape that we can not get in any market except some market nearer home, on account of freight. I do not think our block are any better than those that come from the other place, and it has been an expensive experiment for us. I am in favor of using this material in buildings. I think it is the material that should be used; but my principle in managing a brick plant is to make a product by which we can make the most profit, and for us it is not in making hollow block.

Vice-President Rogers: Question No. 16 reads, "Does piece work pay in the face brick factory?" Is there any one here to discuss this question? If not, we will pass on to the next, No. 17. "Why do not brick manufacturers and dealers more strongly encourage the use of roofing tile and other clay products?" That is a question well worth considering, but no one seems disposed to answer it, so we will take up the next, No. 18: "What is the best fireproof roof for a waste heat dryer?"

C. Steadman: Mr. Andres of Evansville stated that the Lord made clay and that he believed the Lord was on the clay side. The Lord also made stone to make cement of, and there is a proper place for both. Our brick-dryer roofs are made of cement concrete, and I believe that is the proper place for it. The concrete is put on in 16-ft. squares, joints being thoroughly caulked and waterproofed, to allow for the terrific expansion and contraction which takes place in a brick dryer. The roof is then covered with dirt making a crown from the middle to the sides, paved with waste brick, making it fireproof and waterproof, and also stops the enormous radiation and waste of heat through the dryer roof.

Mr. Bloomfield: "We have a waterproof roof on our waste heat dryer. We made two-inch block, 12x16, that we put on thin strips of steel that we put across from side to side. We cover that steel with wire lath first, so as to hold the cement so as to protect it from the gases that come in the drying of our clay. We have found that iron and steel will not last. We do not put the cement there for any purpose of fireproofing, but to keep the gases away from the steel strips. Then we put these burned clay blocks across and cement them together, and we have a fireproof dryer.

Mr. Steadman: What makes it waterproof?

Mr. Bloomfield: We have a roof above that, some ten or twelve feet, making a room which we are getting ready to use for drying tile for roofing purposes. The roof is a common wooden roof, covered with fireproofing.

Mr. Steadman: Your roof will burn and set something else on fire. Fire takes place where least expected. Our roof



Fred Talbot, St. Louis, Mo.

is really fireproof and waterproof, and we do not use cement to protect our iron, but to protect our roof, so you see we are both using cement.

Fred Talbot, St. Louis: We have two dryers. One is built of reinforced concrete, with a heavy roof about 70x160. Try as we could, and use what we might, we could not keep that roof from leaking, so we put a brick platting over the top of it, and put a roof over that, and we use that room to dry our fire clay blocks. We have another dryer covered with roofing tile, and we keep the leaks out of that all right. We have a preparation of some material and rubber cement—I believe it is made in Des Moines—which we melt and run in every joint, and since we put that on we have never had any leaks. There is no extra roof over it at all. We tried it on the reinforced concrete roof, but it would not stop the leak.

Secretary Randall: If there is no further discussion, this really finishes the program for this afternoon. We have a number of letters and telegrams from old-time members which I will read.

Messages from Absent Members.

THEO. A. RANDALL,

Secretary N. B. M. A., Seelbach Hotel, Louisville, Ky.:

I have message notifying me of my election to the presidency of the association. I appreciate more than I can express the honor conferred on me, and will do all in my power for the continued success of our organization. With kindest regards to one and all.
Youngstown, O., Feb. 8, 1911. CHAS. M. CROOK.

THEO. A. RANDALL,

Secretary, Seelbach Hotel, Louisville, Ky.:

I congratulate the National Brick Manufacturers Association upon its silver anniversary, twenty-five years of constantly increased usefulness to a great industry. The publicity campaign began a year ago is work in the right direction. Regret I cannot be with you this year. I know something of Kentucky hospitality.

Please give my best regards to all my friends. I have no doubt this meeting will be the best, because each year the N. B. M. A. grows more useful and important. Will remain here until about the first of April. Enclosed find check for \$3.00 to pay my dues.

Sincerely,

Coronado Beach, Cal., Feb. 5, 1911.

WM. H. HUNT.

T. A. RANDALL,

Hotel Seelbach, Louisville, Kentucky:

Kind regards to all my friends at the convention. Hope you are enjoying yourselves.

WM. CONWAY.

Philadelphia, Pa., Feb. 7th, 1911.

REMINISCENCES AND GOOD WISHES FOR LOUISVILLE BY A CHARTER MEMBER.

MY DEAR RANDALL:

The last convention I attended was at Cincinnati the year of our Lord one thousand nine hundred and four, and I little thought when I left the convention city for Ocean Springs that this little hamlet would be so all-important and satisfying that it could keep me away from our annual meetings so dear to me. It is no place for a young man to stay more than a few weeks, but one of these days you will have reached an age that will reconcile you to rest, quiet and fishing.

A year ago last Sunday I passed my seventieth mile-stone, and



H. O. Steele, Statesville, N. C.

while I can't run as fast or jump as high as I could fifty years ago, I really feel that I get quite as much out of my daily life as I did then. The past year has been a hard one in many ways, and up to a month ago seemed to have added much to my age and infirmities. All last summer I was troubled with a terrible racking bronchial cough and in the latter part of August the hearing of my only good ear gave out almost completely. For more than two months I was under the care of an aurist nearly every day. The doctors all agreed that the trouble was catarrhal and that the best thing I could do was to go South. We came down here November 1, and for two months I grew no better very fast, although the weather was delightful. The cough kept me awake most of the nights and much of the time I could hear with the greatest difficulty. The first week in January was the coldest I have ever seen here, the mercury sinking to 20 degrees above zero. This was followed by our typical winter weather, with the thermometer indicating from 65 degrees to 75 degrees, and all of a sudden my cough was gone and my hearing is the most of the time as good as it has been for sixty-three years. I celebrated my return to normal health and hearing and my seventieth anniversary at the same time, and today and all the days of late I have felt tiptop.

I think I have gone over them with you by letter, but am going over it again as a basis of explanation why, feeling as well as I do and wanting to embrace the N. B. M. A. as a whole and individually as badly as I do, I can't run up to Louisville next week. I made one trip in the first week of February four years ago and it was nearly the end. I have been in Louisville and know that it is just as liable to be cold and disagreeable there as it is in Chicago or places north or east; I know, too, what I went through the first two months of my stay here this time, and I know that I would be taking a great risk to attempt the going even as far north as Louisville at this season. The years before me are all too few to take any chances, and I don't mean to run the risk.

I have a very distinct recollection of the previous Louisville convention, and as I look back I think I got more fun out of that particular convention than I did from any other. You were close enough to me at that time to know just what I was trying to do and how nicely it was done. The private car of members who boasted that they were going to put an end to D. V. P. and T. A. R. running the convention went home subdued and humble, and our candidate for President, dear, grand, honest and able Anthony Ittner, wielded the gavel. It was really the only time I ever mixed politics in the N. B. M. A., unless I except the next winter in Chicago, when I did hold out the olive branch, and I have always been glad that I had a hand in making the President elected in Chicago in 1894.

How easy it is for me to write of the N. B. M. A. in its 25 years of life and usefulness. I had a delightful letter from President Blair urging me to come to Louisville, and I answered him along the lines above. As I write there comes to my mind name after name and face after face of those so familiar in our work. I say our, for there can be no other two members who have worked harder or more harmoniously than you and I. Many of these names are inscribed on the stone that marks their final resting place, and all we now have of them is a blessed memory of what they were. It would be so easy to name many of them, but I do not need to in a letter to you. Then, too, as we look back on some who today are taking very high rank in the fraternity we remember their first advent in short clothes, and it is hard for us to believe that so many years have passed or that we have lived to see the changes that have occurred.

Just before beginning this letter I saw one of the most beautiful sights my eyes ever beheld. "Our Theodore," with his tail spread, and such a tail! Do you remember having sent Mrs. Purington a pair of peafowls? Well, the peacock is still on deck, although he has buried two wives and is without exception the captain of peacocks. He had an accident lately that for a few days looked serious. We are raising a heifer calf, and when it was about three months old he walked up to the spread tail of "Theodore" and got a mouthful of the beautiful tail feathers.

Seymour has just 'phoned that he had "shrimps," and you have been here enough to know that letter-writing can wait longer than shrimps will keep fresh. It is 76 in the shade. The trout, mullet, redfish and catfish are waiting for me (many of them will keep on waiting after I get there), and unless I go now the chances are against my getting bait, as you well know.

With love to all,

D. V. PURINGTON.

WYNDILLHURST, OCEAN SPRINGS, MISS., February 4, 1911.

DEAR RANDALL:

Please find enclosed herewith check for \$3.00, covering my renewal in the N. B. M. A. for 1911. It is with very great regret that I send this check instead of sending myself to the convention. It will be the first one I have missed since 1894, but circumstances are absolutely prohibitive this year, and I cannot avoid the necessity of staying here at Columbus. It is especially bad for me to have to miss the meeting this year on account of the large amount of work I have been doing with the N. P. B. M. A. I hope that by another year it will be possible for us to arrange a meeting of the A. C. S. and the N. B. M. A. in some point of common convenience, and at a date which does not conflict with the opening of the schools which run on the semester plan, as most of them now do.

Wishing you the very best possible success in your convention, I remain,

Columbus, Ohio, Feb. 3rd, 1911.

Yours as ever,

EDWARD ORTON, JR.

DEAR MR. RANDALL:

Herewith find check in payment of dues for this year, and I am very sorry that I cannot be with you at the convention. My regards to the association in convention.

Kansas City, Mo., Feb. 8, 1911.

Very truly,

ROBT. NESCH.

FRIEND RANDALL:

Inclosed please find P. O. money order for \$5.00. Three dollars of the amount dues and two dollars for renewal of the "Clay-Worker," the steadfast friend of the brickmaker.

I won't be with you in the flesh at Louisville. I am saving my trips and vacation days for a trip back to my old home in Scotland, where I intend spending some time this coming summer.

Business in my territory is and has been very good, with fine prospects for a continuance.

With many kindly wishes to you and to the brethren,

I am yours truly,

Milledgeville, Ga., Feb. 4th, 1911.

J. W. McMILLAN.

T. A. RANDALL,

Secretary N. B. M. A. Association:

Dear Sir—Enclosed find P. O. order for \$3.00 in payment of membership fee for 1911. Am not physically able to attend coming convention, yet am well pleased with the conduct of the meetings and the amount of good they are doing for the general cause of brick manufacturers and consumers throughout the nation. Hoping all will be happy at their reunion at Louisville, I am,

Respectfully yours,

Salt Lake, Utah, 1911.

W. S. SIMKINS.

DEAR MR. RANDALL:

I regret very much that I will be unable to attend the N. B. M. A. Convention in Louisville, as I hoped to do. Our superintendent, Mr. Braddock, is, however, now on his way to the convention, and I hope he will be accepted as a substitute. We have had a pretty busy season and have made more bricks than ever before. We will start operations again about March 1st.

With best wishes for a successful convention, I am,
Yours truly,
HUBERT SOMERS. Atlantic City, N. J., Feb. 8th, 1911.

DEAR MR. RANDALL:

Enclosed find check for \$3.00, covering my dues in the National Brick Manufacturers' Association for the ensuing year.

I am sorry I will not be able to be with you during the present convention, but hope same will be successful from all standpoints. I have arranged that our East Liverpool representative, Mr. Harry W. Smith, will stop off at Louisville during the convention, so you will see that we are still interested in the success of your conventions.

With kindest regards, I remain,
Very truly yours,
New York, Feb. 6, 1911. W. MALSCH.

Chairman Bloomfield: Before we adjourn, I desire to appoint the following

Committee on Resolutions.

Marion W. Blair, Indianapolis, Chairman.
C. B. VerNooy, Chicago, Ill.
Samuel R. Busey, Baltimore, Md.
Carroll Connett, St. Joseph, Mo.
A. S. Reid, Newark, N. J.
John Ringle, Wausau, Wis.
P. B. Belden, Canton, Ohio.
C. A. Guignard, Columbia, S. C.
J. E. Schuesler, Buffalo, N. Y.
U. L. Upson, Parkersburg, W. Va.

C. P. Mayer, Bridgeville, Pa.. I move we adjourn until tomorrow morning.

Seconded and carried.

FOURTH SESSION.

Friday Morning, February 10, 1910.

Chairman Bloomfield: The convention will come to order. We will take up the first paper on the program this morning, entitled "Manganese Steel Applied to the Ceramic Industries," by Mr. George Kneisly, of Chicago, Ill., and I am pleased to present Mr. Kneisly to the convention.

MANGANESE STEEL AND ITS APPLICATION IN THE CERAMIC INDUSTRIES.

G. W. KNEISLY, CHICAGO, ILL.

Mr. President and Gentlemen of the Convention:

A composition, the chief elements of which are iron and carbon, composes the major portion of the steel made in the world today, but each year shows an increase in the tonnage of steel resulting from the mixture of iron, carbon and one or more of the following elements: Manganese, nickel, chromium, titanium, tungsten and vanadium. Of these alloy steels, as the product of the various mixtures is termed, manganese steel is by far the most important.

Manganese is best known to the iron trade as "ferro manganese," a compound containing about 80 per cent. of the element manganese. The ore from which ferro manganese is made is mined chiefly in Russia. Through the use of sufficient ferro manganese to produce a steel having a manganese content of 11 to 13½ per cent., with the other ingredients as they should be, a wonderful quality of metal is produced; not, however, until the castings have been subjected to a most careful and thorough heat treatment for the purpose of imparting to them the high degree of toughness for which manganese castings are noted wherever used.

For several reasons the cost of manufacturing manganese steel castings is higher than either steel or iron castings; for instance: The melting stock costs more. The ferro manganese used is expensive.

The molding and coremaking require more care and a higher degree of skill in their preparation, for manganese castings being so extremely hard and tough, cannot economically be altered in shape, once they are made.

Nearly all molds must be dried in an oven before pouring, and all castings must be heat-treated—both of which processes call for the operation and upkeep of expensive furnaces.

In the cleaning or fettling room, where the fins, gates and cores are removed from the castings, there must be installed every conceivable type of grinding apparatus.

Manufacturers of manganese steel realize that on account of the fact that manganese steel castings are practically non-machinable, they must leave the plant in a condition to be placed in service in crushers or other machines without further labor upon them.

Manganese steel has been successfully manufactured for about

twenty-two years. The problem was first solved by R. A. Hadfield, of Sheffield, England. Closely following him came Edgar Allen & Co., Limited, whose plant lies directly across the street from the Hadfield plant. Each of these companies have built up a large and important manganese steel business.

Manganese steel was first made in the United States about sixteen years ago. Out of the large number of those who have attempted its manufacture in the United States, only five or six have been successful owing largely to the limited knowledge of all the features to be dealt with in connection with each step throughout the process.

Specialists of the highest order and a large equipment of specially constructed grinding machinery are essentials.

The Edgar Allen American Manganese Steel Company, with which I am connected, is one of the largest, if not the largest, producers of manganese steel castings in the United States today.

Experience in the use of the metal shows it to be the best so far produced where resistance to an abrasive action is required. One of the first uses of manganese steel castings was in dredge pins. From observation of the life of these pins in dredges the owners of steam shovels asked if they could not secure some benefit if they were to use the material for the lips and teeth of their dippers. It was tried and the results were such that every shovel working on the greatest engineering feat of the age—the Panama Canal—is equipped with manganese steel dipper teeth, dipper lip, latch, latch-keeper, racks and pinions.

Noting the success with which they were meeting in dredge and steam-shovel work, the makers of this alloy steel began to look for other places where a material which could be neither drilled nor machined could be used. The rock crushers were wearing out jaw plates all the time. The new steel was tried. Everywhere they found that it earned more than its cost, giving from four to six times the service that chilled iron had been giving and in addition that the operator was ahead the time and cost of making frequent changes. But the mental relief resulting from a knowledge that the



Marion W. Blair, Terre Haute, Ind.

plant will keep going is a benefit that cannot be capitalized. At Berlin, Wis., the Berlin rhyolite is being crushed. This is the hardest rock in this country that is being crushed in large amounts. In a No. 6 gyratory crusher the operators obtained an average service of one thousand and nine cubic yards of rock from five sets of chilled iron concaves. One set of manganese steel concaves gave them four thousand sixty-three cubic yards of the same stone, or four times as much.

Companies crushing rock and ore all over the country have adopted manganese steel for their jaw plates and in many instances for their roll shells. Many of these companies had their own iron foundry, but tests which they made showed conclusively that the use of this special alloy steel was more economical than to make their own chilled iron castings.

A large amount of the manganese steel which is cast goes into burglar-proof bank safes.

Drilling tests on this steel have shown that it is impossible to secure any appreciable penetration with a machine drill in the very best equipped shops, therefore, the burglar with a small hand drill stands no chance of drilling a hole in a manganese steel safe.

Finding that an alloy of manganese and steel gave them a material which was very resistant to any abrasive action, and which also had great strength, the alloy steel manufacturers began to look for other places where this steel could be used.

Railroad crossings and frogs had up to this time been made of Bessemer rails, planed, bolted together and reinforced. The steel makers advanced manganese steel to the operators of the various railroads, suggesting that the crossings be cast in two or four parts and then joined with splice bars, making a solid manganese crossing with few bolts to work loose. Solid manganese steel frogs were also made and tested in the most severe places. The results of these tests were truly astonishing.

Subjected to the same service manganese steel frogs may safely

be expected to wear as long as eight to ten Bessemer frogs. In some instances they have been known to outwear twenty-six Bessemer frogs of the usual built-up type. It is a significant fact that the railroad companies who have had the longest experience with manganese steel track work are the ones who are today extending their purchases of it, despite the increased initial cost, conclusively showing that its added efficiency is unmistakably manifest.

Different grades of manganese steel were cast and tried out in the tracks of various railroad companies. Careful records of the service given by the castings produced from different mixtures were kept and as the makers noted the requirements of service and regulated the quality of their product according with the result that the service tests proved most gratifying to users and makers, showing up some very remarkable performances.

A great deal of money has been saved by various steel mills, cement mills, brick manufacturers, steam shovel manufacturers and others through the use of manganese steel gears, pinions and racks.

At first it was considered impracticable to use this metal in gearing on account of the difficulty to be encountered in the boring and key-seating of the hub.

The remedy was found in the use of a soft steel bushing which is placed in the mold after the manner of "setting" a hub core. The manganese steel is then poured around it, firmly anchoring the bushing in its place, when the boring and key-seating may readily be accomplished.

One large steel rolling mill writes as follows regarding manganese steel gears:

"We have found that the wearing qualities are excellent and the indications are that they will last from four to five times as long as the ordinary steel casting."

Practically all of the larger steel works of this country are using quantities of manganese steel gears, and the fact that they are placing orders for more shows that they believe in their economy.

Reports as to the life of manganese steel sheavewheels, com-



George O. Berry, Columbus, Ga.

pared with those made of other metals, show a greater life as applied to both the sheave wheel and the rope. This is accounted for in the following way:

When a cast steel or iron sheave wheel is used with a wire cable the latter is continuously cutting tiny sharp particles off the inner sides of the sheave wheel flanges. These become imbedded between the strands of the cable, eventually cutting many of the strands, resulting in the failure of the cable.

A proper question at this point would be, "Will the manganese steel sheave wheel, being hard, wear the cable quickly?" It will not, owing to the great difference in the relative texture of the two metals. The friction between the two is much less, and the groove in the sheave wheel quickly wears smooth and glazed.

The aim of the up-to-date cement manufacturers seems to be "permanent equipment" in all possible places about the plant. Loss of output is a serious matter.

Grinding plates and breast plates for ball mills, gearing of all kinds, conveyor parts and many others of manganese steel have been extensively adopted.

We are now making 30 huge manganese steel gear rings weighing about three and one-half tons each, to be placed upon a like number of tube mills soon to be installed in one of the largest cement plants of the United States. This order was the result of successful showing made by manganese steel gears, which had previously been subjected to severe tests in the same plant.

A cement plant working in the Middle West is using a hammer pulverizer on hard limestone. The superintendent reported to me that while tempered tool steel used in the swing hammers had given a life of four hundred and fifty hours, manganese steel hammers on the same raw material gave a life of seventeen hundred hours.

In the ceramic industries manganese steel is still somewhat of an infant. It has been tried at some points with splendid results, while at other points on clayworking machinery it has not shown a wear comparative with its cost over cast iron.

A feature which must be taken into consideration in using manganese steel is the amount of wear that any casting gives as compared to its weight.

Reports on gearing used on clayworking machines have in every instance that has come to the notice of the writer stated that the wear given had shown a marked saving over gears previously used. One of the largest of the clayworking plants of the East, after an eight-year test, decided to put manganese steel crown gears and pinions on all of their dry pans. Twenty sets were ordered and are now in use in their various plants. Brick companies in the Kansas gas belt have used manganese steel pinions on their dry pans and report that they have already secured over three times the life of iron pinions and that the pinions are not beginning to show wear, while the wear of the crown gear is no heavier, if as heavy, as when iron pinions were used.

A middle western clayworking concern was crushing grout from fire brick in a nine-foot dry pan. They reported a wear of about six months from car wheel iron tires four inches thick. They were induced to try a manganese steel tire two inches thick, which made the first cost of the two kinds about equal. The last time that the writer visited this plant the tires had been in use for nineteen months and were easily good for another year. The tire was examined at that time and was found to be in good condition, not being concaved more than 3-32 of an inch on a ten-inch face. This company is now putting manganese steel muller tires and bottom plates in each of the thirty dry pans operated by them. The fact that manganese steel muller tires wear down evenly means a greater output than would be possible when using chilled iron tires, which quickly wear rough on the face.

Plants making fire brick retorts have used cast iron, forged steel and manganese steel pug mill knives all on the same shaft. They found after extensive tests that the latter was the most economical. At least that is my belief from the fact that they continue to order them, but in pug mill and brick machine knives the amount of material that is worn off must be considered. One brick plant using an auger of our material reported that it gave the same life as white iron; another which I visited in December has an auger in use that is going to give over twice the life of a white iron auger which he secured from the makers of his machine. A zinc plant reports the wear on augers to compare as about 9:4; it is a matter which each plant must determine for itself, the character of the material to be handled by the screw having much to do with the ultimate life of same.

Dry pan screen plates of some designs, where light in construction, show a marked saving where used in the place of either grey iron or malleable iron. Tests are being made to determine whether heavy screen plates of manganese steel will pay. What the outcome will be I cannot say, but feel confident that a saving will be shown.

The fact that manganese steel will bend before breaking assures the clayworker that he will not be troubled on account of breakage, which is frequent in the case of iron screens, resulting usually from the lodging of pebbles in the screen-slots, these pebbles projecting far enough to come in contact with the scraper.

For staves on the rattler for the testing of paving brick manganese steel has shown a better wear than any other material that the committee has been able to find, and they have tried almost everything.

The writer does not believe that standard manganese steel castings conforming to the government requirements in the matter of chemical and physical specifications will cure all the ills of the clayworking plant, but it is his belief that any clayworker who is required to make replacements as often as once a year, whether that replacement be gears, muller plates, muller tires, screens or knives, will do well to try manganese steel. (Applause.)

General Discussion.

Chairman Bloomfield: This is a very interesting paper and is now open for discussion.

Mr. Anthony Ittner: I would like to ask Mr. Kneisly a question. He made no mention of crushers—clay crushers. How about that?

Mr. Kneisly: The roll crushers are what I referred to. We have tried some conical rolls, and the results have not been as pleasing as they might have been. There seemed to be something about the continual pushing along of the material which causes the manganese steel to wear out faster than it does where there is a straight action. Where you have a straight roll crushing we have made some very nice tests, giving four or five times the wear that you get out of iron.

W. D. Richardson: How long does it take to get the manganese steel after you order it?

Mr. Kneisly: Later on, we hope it will be three or four months; just now we can fill the orders within three or four weeks.

Levi Marshall, Horseheads, N. Y.: What is the expense of a large casting like that used on dry pan tires?

Mr. Kneisly: Dry pan plates will cost you about three times what your iron would. I am speaking of the pound price, but the fact that the manganese steel for your dry pan or machine does not command all the weight required. If you can get along with, say, 500 pounds less, naturally it eliminates a

certain amount of cost. A manganese steel tire two inches thick will give you better service and wear than an iron tire five inches thick. The manganese steel tire will be slightly rounded at the edges, while the iron tire will have pieces nicked about the edges from the size of your finger to the size of your fist.

Mr. Mead: In regard to the wearing of the manganese steel muller tires, I understood you to say they wear down more even. Is that right?

Mr. Kneisly: Yes, sir. The case I mentioned in the paper is the Laclede-Christy plant. They had four-inch car wheel iron tires, which were concave to such an extent that it cut down the output of the plant, so they took these tires out after about two months' service and ground that down, getting a flat surface again, but they were through the chill, and naturally the second surface was very soft, so in time they were replaced with manganese steel tires. These steel tires have been on about twenty-two months, and they are concave not to exceed $1/32$ of an inch.

Mr. Marshall: When you remove the worn-out manganese steel will you get more per pound for it than for ordinary scrap?

Mr. Kneisly: No, sir; just about the same. One feature I want to mention is the additional wear you get from manganese steel, especially in brick machine knives, even with steel at 12 cents a pound. If you are buying iron at 3 cents, and some of you are more fortunate, the difference in cost of the manganese steel, even giving you three or four times the wear, makes it hard for us to show up the manganese favorably. The Coffeyville people have manganese steel grinding plates in some of their dry pans that have been in use three and one-half years, and they formerly got seven months wear out of iron.

Mr. Kane: Does this same disposition to wear out under friction make manganese steel unsuitable for the dies of brick machines?

Mr. Kneisly: For dies of brick machines, you appreciate, the material must be machined with emery wheels, and to get into the corners with emery and spindles increases the expense to such an extent that even though they give greater wear, it is not economy to use them.

Mr. Cobb: Have you found in your experience that the difference in weight brought about by the difference in the thickness of the roll has reduced the capacity of the plant?

Mr. Kneisly: I cannot say definitely as to that. The firms using them report that they are satisfied with them.

Chairman Bloomfield: If there is no further discussion, we will proceed with the program. Having had Mr. Gregory's paper yesterday, brings us to "The Manufacture and Testing of Fire Brick," by Prof. A. V. Bleininger, of the Illinois State University, at Champaign, Ill. It is not necessary for me to introduce Prof. Bleininger to an N. B. M. A. convention. (Applause.)

THE MANUFACTURE AND TESTING OF FIRE-BRICKS.

BY A. V. BLEININGER, CHAMPAIGN, ILL.

Mr. President and Gentlemen of the Convention:

All clay products designed to withstand higher temperatures must be manufactured from the so-called fire clay, by which we mean those comparatively pure clays which do not soften at the temperatures involved. It is evident that there can be no sharp line of demarcation between the ordinary buff burning and the fire clays, but that they must gradually shade from one class into the other. It is obvious that red burning clays are necessarily excluded from this class of clays.

In order to differentiate between the various grades of refractory clays an arbitrary classification of clays might be adopted, in which several classes of fire clays are distinguished. No attempt has been made to establish with any degree of authority any such classification of fire clays, and the writer does not care at the present time to go into this subject beyond saying that a No. 1 fire clay should have a softening temperature not below that of cone 32, and in addition should still retain an open structure at this temperature, without any evidence of softening.

The greatest refractoriness is shown by pure kaolin, which corresponds to the composition: 47 per cent silica, 39 per cent alumina and 14 per cent chemical water. After burning this changes to 54.7 per cent silica and 45.3 per cent alumina, all of the chemical water being expelled upon calcination. Refractories made from such kaolins would therefore show the greatest heat resisting power. However, any increase in the content of silica or any introduction of titan acid or of the fluxes will at once lower the refractoriness of the material. By the term fluxes we understand, of course, the iron, lime, magnesia and the alkalis.

The so-called melting point or softening temperature is but an

unsatisfactory criterion of the real refractory value of a clay inasmuch as the viscosity of the mass softening at these high temperatures is so great that even inferior materials do not show the deformation which is necessary to indicate the failing point of the specimen which in the case of a cone is that position in which the apex of the cone touches the tile or other support. Clays, therefore, are very similar to quartz and orthoclase feldspar, minerals which have not been found to possess a definite melting point. Thus, while the determination of this softening temperature is valuable in differentiating between the various grades of clays it does not tell us anything definite as regards their standing up qualities under actual furnace conditions.

In order that a clay possess these qualities it is necessary not only that it be refractory, but also that it show a slow vitrification rate. It must not become dense at low temperatures. To illustrate: a fire clay which softens at say cone 32 but burns to a dense mass at cone 10, is not a first-class refractory. This characteristic is probably most readily determined by means of the water absorption and a curve bringing out this behavior could be readily obtained by burning a piece of clay at several temperatures from, say, cone 4 to cone 20 and determining the weight of water absorbed, expressed in per cent, at these various temperatures. For a high grade fire clay this curve should be pretty nearly a straight line between the above temperature limits.

In summing up the qualifications of a high-grade fire clay, then, we might say, first, that it must show a softening temperature as usually determined above cone 32; secondly, it should show a chemical composition close to that of kaolin, i. e., as low in silica as possible, low in titanium oxide, iron oxide, lime, magnesia and the alkalis; third, it should show gradual vitrification and should not become dense at lower temperatures; fourth, it should show good standing up qualities as determined by subjecting a test piece or brick made from the clay in question to a load test at an average furnace temperature. At the laboratories of the Bureau of Stand-



A. V. Bleininger, Champaign, Ill.

ards these test conditions are a load of 50 pounds per square inch and a temperature of 1,350 degrees C. (2,462 degrees F.).

The process of the fusion of fire clay is usually not clearly understood. We must not only get away from the idea that clay has a well defined melting point but must also realize that fusion begins at an early stage of the burning, if fluxes are present. The more of the latter a clay contains the more will the vitrification temperature be depressed and at the same time the more will the clay soften at the lower temperatures, since vitrification is inseparable from softening. The higher the content of fluxes, therefore, the lower the temperature at which vitrification and softening begin, and the lower finally the temperature of complete softening and deformation. Thus, while a pure clay may not begin to become dense at cone 30, the addition of even 4 or 5 per cent of fluxes may lower the vitrification temperature by 10 or 15 cones. Hence, while in the former case the clay will be able to carry any reasonable load at the average furnace temperature in the latter the material will fail to do so.

With regard to the manufacture of fire brick we might consider this subject briefly from the standpoint of the mixing, preparation, molding, drying and burning.

The ideal fire clay would be a pure clay possessing sufficient, but not excessive plasticity, good working and drying qualities, low burning shrinkage and, of course, maximum refractoriness after burning. However, such a combination of qualities is difficult to find. The fire clays which are available are frequently clays of practically no plasticity and which cannot be worked alone. They show, of course, no drying shrinkage, but a high contraction in volume upon burning. At the same time they are often highly refractory since they correspond closely to the composition of the pure clay substance. Hence, while they are valuable on this account they are troublesome on account of their lack of working qualities and their high burning shrinkage. These clays are known as flint clays and form an important part of the clay resources of Pennsylvania, Ohio, Kentucky and Missouri. They vary in composition and qualities from locality to locality, and, hence, the term flint clay does

not necessarily mean a high grade material. These clays, when mined, are quite hard, of dense conchoidal fracture, but after long storing become softer and show a slight increase in their working qualities. If ground very fine in a tube mill, especially in the wet condition these clays could be made to develop sufficient plasticity to be made into bricks by the slop process.

Again, the fire clays may be clays of the so-called "set" type, which, though like flint clays in being nonplastic at first, are readily made plastic by ordinary fine grinding. The writer has seen such clays from Alabama, which could be manufactured into high-grade products since they have practically the composition of kaolin, and, hence, are exceedingly refractory.

The fire clays most frequently found are of the plastic type, but of inferior refractoriness, approaching more or less the No. 2 fire clays in composition.

From what has been said it is quite evident that it is difficult to find a clay which in itself could constitute a good fire brick body. In most cases, therefore, we are compelled to produce a body consisting of flint clay and bond clay, mixed together in about the ratio of 6:1 for high grade products. In some cases the burning shrinkage of the flint clay is so high that part of it must be calcined or replaced by crushed old fire bricks, called grog. As regards mixing the fire clay it might be said that it is of primary importance to study the formation and quality of every part of the clay deposit so that there is not the slightest doubt as to what part is of inferior or superior refractoriness. If a certain vein or streak is of low value it should be clearly recognized and rejected. On the other hand, if the low grade material is but small in quantity and cannot be plainly recognized it might be possible to render it more harmless by causing it to be mixed uniformly with the entire output of the clay mine so that the average content of the injurious clay is very low. This would mean, of course, a good-sized stock shed, which, by the way, would be an excellent investment for almost every fire brick plant.

As to the proportioning of the flint and plastic clays it might be



Charles T. Harris, New York, N. Y.

said that this should be done by proper mechanical devices so that the desired amounts of the two clays are introduced at all times, thus resulting in a more uniform mixture. It usually is most desirable to mix the ground flint and bond clays.

The customary preparation of the clay mixture consists in dry pan grinding, screening and tempering in the wet pan. Where the bond clay is of good quality this treatment is amply sufficient, but where the quality of the product suffers by the use of an inferior plastic clay a different treatment might greatly improve the resultant quality of the bricks. Owing to the fact that the breaking down of a fire brick is due to its least refractory constituent it is easily seen that the quality of the product may be improved by grinding the plastic clay with some of the flint clay to an intimate mixture which passes quite a fine mesh, say the 20 mesh screen. To illustrate, if a brick body consists of 85 per cent flint and 15 per cent bond clay, the brick could be improved by grinding, say 20 per cent of the flint with the 15 per cent plastic to this fineness and using as the bond these 35 per cent of mixture. The writer has succeeded in improving by this treatment a fire brick which otherwise would have been of low quality. There are now many grinding machines on the market which could do this kind of fine grinding very cheaply and efficiently, and this suggestion might prove of considerable value to plants now struggling with the annoying bond clay problem.

Most of our fire bricks are molded by the soft mud process, either by hand or machinery, and are frequently repressed. For most work this kind of brick is probably the best, though for certain purposes such as gas benches, etc., where the bricks are subjected to the effects of high temperature and pressure the dry press process is to be preferred.

The drying offers, as a rule, no difficulty, however, and need not be considered in this connection. As regards the burning it might be said that the temperature should be carried as high as possible.

It is a well known fact that the burning shrinkage of a clay does not reach its limit with the first burning, but that some additional shrinkage takes place on re-burning, though in decreasing

amounts. Although we are not able to burn fire brick so that no further shrinkage whatever takes place on heating, yet we should endeavor to carry the burning as far as possible. Underburnt fire bricks are very undesirable for many purposes and the burning temperature should in no case be below cone 12. The idea that soft burned fire bricks are as good as the harder burnt is erroneous.

As to the testing of fire bricks the subject might be considered, under the heads of general and special tests. The former involve the questions of refractoriness, chemical analysis and load carrying ability. The latter depend upon the use to which the bricks are to be subjected, involving the action of slag or glass, abrasion by ore; action of caustic lime at a red heat or any or other numerous factors.

Summarizing again the general tests for No. 1 fire bricks it might be said that the bricks should not soften below cone 32, should be as low in fluxes as possible, not over 0.20 RO expressed in chemical equivalents and should be able to carry a load of 50 pounds for square inch at 1,350 degrees C., as practiced in the test used by the Bureau of Standards.

There are as yet no general requirements establishing clearly what properties constitute a No. 1 fire brick and how it differs from the No. 2 material, and the writer would suggest to the manufacturers of fire brick that it might be well to co-operate in setting down certain definitions along these lines, though naturally it is impossible to cover every case of the use of fire brick. This suggestion is made with the idea of benefitting primarily the manufacturer who, in many cases, is not receiving the equivalent of the value of his products and of putting a premium on quality. High grade bricks should be paid for according to their quality.

This question is an important one as may be seen from the current articles in the metallurgical journals in which the question of refractories is constantly brought up. If any specifications are to be drawn up as is being demanded by the metallurgical engineers, let the movement start from the side of the manufacturers in order to avoid the danger of unjust demands on the part of the users which would work harm to the fire brick industry. (Loud applause.)

General Discussion.

Prof. A. V. Bleininger: I desire to say in addition to what I have said that the question of fire clays and refractories needs a great deal of study. A good many factories ought to get together and determine what is a No. 1 fire brick and a No. 2 fire brick, and just what test or analysis each grade will stand, so the man who sells the fire brick will not be up in the air.

Lemon Parker, St. Louis, Mo.: I think Prof. Bleininger has given us a very valuable paper, and as a fire brick man I would say the conditions he mentions have been recognized by myself, and, I presume, by a great many other manufacturers. I think these conditions should be met, and the suggestions he has offered are very good.

Chairman Bloomfield: If the chair may be permitted to say a few words, we had at one time a National Fire Brick Association. We used to get together once or twice a year and have a good dinner and agree to maintain prices, and then go away and cut each other's throats. We haven't any live fire brick association at the present time. Prof. Bleininger's paper is a very valuable one, but as Mr. Parker will bear me out, there are so many uses to which fire brick are put and the conditions vary so that there can be no rule. Some fire brick demand that the material shall be ground very fine, while other conditions demand that it shall be ground very coarse, so there can really be no rule. We had one customer who had 180 recipes for making fire brick just to suit certain customers.

R. L. Frink, Lancaster, Ohio: I have a question I would like to ask President Bleininger. Has there not been a definite test as to the method of grinding relating to the heat test?

Prof. Bleininger: No, no test has been made because I do not think it is necessary. A great deal of work has been done on the size or coarseness of the grog and in regard to reducing the maximum density. Wherever you have maximum density you have the highest heat test.

Chairman Bloomfield: That would depend upon the conditions to which that fire brick was to be submitted. I have seen that as a miner and shipper of fire clays for thirty-three years. There is no rule; the conditions vary so that you have got to find it out for yourself.

Mr. Frink: Would not that very fact justify some formula-tive method of size as relating to the fluxes of the brick, in view of Prof. Bleininger's statement of the fluxes determining the heat carrying capacity?

Chairman Bloomfield: I remember some years ago we were selling to a firm in Pennsylvania fire clay of the best quality. They were lining blast furnaces with them. The blast furnace changed hands and the new owners had a fire clay plant of their own, and they did not propose to buy fire brick when they could make them themselves. The brick they made were con-

sidered No. 1 fire brick, and in less than a month the lining of the blast furnace went down. They are now using New Jersey clay for their fire brick, and yet these same fire brick were No. 1 for other purposes. You cannot classify any certain fire brick a No. 1 brick for all purposes.

Daniel Cobb: Your remarks are very true. I have had some experience in preparing and manufacturing fire brick for use in the construction of furnaces carrying the bullion for gold refining, and my experience in that, coupled with the construction of a cupola for the melting of iron, shows a great difference can be found in the grog alone. If the material is good, there are innumerable ways which you have to adopt to suit the varying conditions to which the fire brick are put. I do not think it is best to lay down any rule at all as applicable to all fire clays. Each one must determine the particular qualities of his brick for himself, and the uses to which they are to be put.

Chairman Bloomfield: If there is no further discussion along this line, we will have the next paper on the program, "Some Properties of Brick and Brick Work," by Major J. E. Howard, of the Bureau of Standards, of Washington, D. C. Major Howard is not unknown to the members of this Association, for he has favored us with some very interesting and instructive papers, and we are glad to have him with us today. (Applause.)

THE INAUGURATION OF SOME STREET PAVEMENT TESTS AND NOTES ON BRICK AND BRICK WORK.

JAMES E. HOWARD, BUREAU OF STANDARDS, WASHINGTON, D. C.

Mr. President and Gentlemen of the Convention:

In co-operation with Mr. Will P. Blair, president of your association, and secretary of The Paving Brick Manufacturers Association, the Bureau of Standards has undertaken some observations on the behavior of street pavements for the purpose of defining the conditions which are present and obtaining exact information thereto. But before entering upon a description of this investigation allow me to present, briefly, a few notes on other matters connected with brick and brick work.

First in regard to Scoria brick.

This kind of brick is being used in the City of Washington for stretchers alongside the street car tracks and for paving the space between them. They are obtained from Middleborough, England; made from blast furnace slag; cast in a rotary casting machine; subsequently annealed, and cost in Washington about \$50 per thousand.

As castings they contain many small blow holes which are most numerous near the top surfaces. When laid they are placed bottom side up. The blow holes do not communicate with each other, therefore the material, as a whole, is nonabsorbent. Red ink does not penetrate it.

There are three distinct shades of color in an individual brick. At the immediate surface a grayish blue, next a dark blue zone, while the body of the brick has a greenish blue color. The specific gravity varies with these shades of color, being lightest at the surface and heaviest in the body of the brick.

In the body the specific gravity is 2.982, which is equal to a weight of 186.1 pounds per cubic foot; a heavier brick than one of burnt clay.

Tests show the brick to have a compressive strength of

When tested on side.....	19,470 lbs. per square inch.
	14,940 lbs. per square inch.
	17,770 lbs. per square inch.
	21,510 lbs. per square inch.
When tested on end.....	10,030 lbs. per square inch.
	12,900 lbs. per square inch.

Next presenting a few specific gravity determinations on brick from different parts of the kiln, supplementing those results which were placed before you at an earlier convention, on the well known fact of the decrease in density of the material as the hardness of burning is increased.

TABLE NO. 1.

Kind of brick.	Location in kiln.	Specific gravity.	Weight per cubic foot, pounds.
Common...	Green brick....	2.682	167.4
Common...	Top.....	2.680	167.2
Common...	Middle.....	2.63	164.1
Common...	Middle.....	2.577	160.8
Common...	Arch.....	2.543	158.7
Face.....	Green brick....	2.695	168.2
Face.....	Bottom.....	2.653	165.5
Face.....	Middle.....	2.62	163.5
Face.....	Middle.....	2.69	162.2
Face.....	Top.....	2.575	160.7

The face brick were burned in a down draft kiln.

It will be noted that the difference in specific gravity between the green brick and the hardest brick of the same clay ranged from $4\frac{1}{2}$ to 5 1-5 per cent.

Now in regard to the use of these results. As an index of porosity, the sp.gr. of the material taken in connection with the weight per cubic foot of the intact brick is a very reliable factor. The percentage of total voids can be closely judged of from the weight per cubic foot of the brick. The question presents itself whether

it would not be a satisfactory substitute for the absorption test to specify the weight per cubic foot which the brick should possess. Is it defensible to report the voids by the common test by immersion knowing that the water may not reach all of them and furthermore accrediting the material with only one-half its real porosity by stating the results in terms of weight, instead of by volume.

NEXT AS TO THE HYGROSCOPIC CHARACTER OF BURNT CLAY.

Wood exposed to the air is constantly changing in weight, due to its gathering up moisture or imparting it, according to changes in the humidity of the atmosphere. Relatively, brick appear to absorb but little moisture in this manner.

Two tables will be presented, one showing results with different kinds of wood and the other with ground brick and small pieces of broken brick. The wood samples gained in weight from four and one-half to six per cent., the ground brick gained .2 per cent., while the broken brick only .06 and .07 per cent. That is in round numbers the wood samples gained from 20 to 60 times as the brick samples; from which it would seem that brick is not naturally a damp material for building purposes.

TABLE NO. 2.

MOISTURE ABSORBED BY DIFFERENT WOODS.

Kind of Wood.	Per Cent of Moisture.
Poplar	4.9
Pine	5.5
Maple	5.5
Cypress	6.1
Oak	4.5
Mahogany	5.3

TABLE NO. 3.

MOISTURE ABSORBED BY BRICK.

Kind of Brick	Per Cent of Moisture.
Ground material from common brick..	.2
Small fragment	.06
Ground material, from face brick....	.2
Small fragment	.07

The samples of wood were exposed to an atmosphere of 80 per cent relative humidity, the samples of brick 85 per cent.

A few remarks on another phase of the subject before describing the pavement tests.

A diagram has been prepared showing the working stresses of the different building materials, under the New York Building Code.

Under Building Code, City of New York.

	Working Load Compression per sq. in.	Working Load Ultimate Strength.
Steel	18,000 lbs.	$\frac{1}{8}$ d
Cast Iron	9,800 lbs.	$\frac{1}{8}$ d
Brick Pier	Laid in 1:1 Cement Mortar. 250 lbs.	$\frac{1}{20}$ th
Brick Pier	Laid in 1:3 Cement Mortar. 250 lbs.	$\frac{1}{12}$ th
Brick Pier	Laid in 1:4 Lime Mortar. 111 lbs.	$\frac{1}{7}$ th
Granite	1,000 lbs.	$\frac{1}{15}$ th
Portland Cement Mortar, 1:1.	230 lbs.	$\frac{1}{20}$ th
1:2:4 Concrete	280 lbs.	$\frac{1}{8}$ th
1:2:6 Concrete	208 lbs.	$\frac{1}{6}$ th
Long Leaf Pine	460 lbs.	$\frac{1}{6}$ th
Spruce	350 lbs.	$\frac{1}{6}$ th

The allowable working stresses under this code, and those of other cities of which many are based on the New York laws, show an underrating of the constructive value of brick and brick work. The code recognizes brick laid in 1:3 cement mortar and in 1:4 lime mortar, and limits the working stresses to 250 pounds and 111 pounds per square inch, respectively, for brick so laid.

In the case of steel and cast iron the permissible working loads are about one-third the ultimate compressive strength of the materials, but for brick work it amounts to only one-seventh to one-twelfth the usual compressive strength displayed by piers laid in the above mentioned mortars. This is not all, when hard burnt brick are laid in a 1:1 cement mortar the crushing strength may be not less than twenty times the allowable working load of the code.

And even this may be exceeded. A brick pier was recently tested at the Pittsburg laboratory of the Bureau of Standards which displayed a crushing strength of 6,250 pounds per square inch, or 25 times the allowable working load of the above mentioned building code. More should be said about this pier. It was made of wire cut, Kushqua brick, laid on edge with a hollow core, making a pier $11\frac{1}{2}$ inches square on the outside, with a $6\frac{1}{4}$ inch core. It was 7 feet $9\frac{1}{2}$ inches high, laid in 1:1 cement mortar and tested when 25 days old. The total crushing strength of this pier was 582,480 pounds or 291 tons. Its strength, 6,250 pounds per square inch, on the net section of the brick work, places it at the head of the list of brick piers thus far tested.

But other strong piers of a series of tests have been laid up and correspondingly high results will be looked for.

REFERRING NOW TO THE STREET PAVEMENT TESTS.

These tests are being conducted in the same manner as those on other engineering structures by the Bureau of Standards, such

as bridges of large span, the structural members of tall buildings, and the shells and other parts of steam boilers. The method employed consists of the careful determination of measurable changes in dimensions, general and local, which take place in all structures, resulting from the loads which they sustain or by reason of changes in temperature. The same methods of study and analysis are being applied to the subject of street pavements as those which have been used to demonstrate the strength and durability of permanent structures in iron and steel.

Probably there is no greater engineering problem of today than that which pertains to road or street pavements. It is a problem of unusual economic importance.

Information has been acquired in the past as to how it is best to use iron and steel and what the limiting stresses are beyond which it is not safe to go. We are now engaged in developing information of this class in reference to pavements. How the conditions of the heaviest traffic may be successfully provided for. This necessitates the most careful inquiry into the behavior of the materials which are used, and also the behavior of the pavements themselves regarded as engineering structures.

The manner in which this is being done consists of establishing certain reference marks in the pavements, the conditions of which are initially noted, and subsequent remeasurements of the same under other conditions of temperature and loads.

The reference marks themselves are small pieces of bronze wire inserted in drilled holes and cemented in the brick. The upper ends of the wires have small counter-sunk holes which center and fix the length of the strain gauge so called, an instrument for measuring the minute changes in lengths which take place. Under favorable conditions differences in these gauged lengths so small as one ten-thousandth of an inch may be detected.

A few degrees difference in temperature will make differences in the gauged lengths which are expected to be measured. The effect of change in temperature in different parts of the roadway taken in longitudinal and in transverse directions will each be measured. The general slope or crowning of the street will be noted and changes in the same looked for under different thermal conditions observed at different seasons of the year.

The effects of wheel pressures, the maximum depression which occurs and the distributive capacity of the pavements will in turn be noted. The inquiry, in fact, is one directed toward ascertaining those changes in shape or dimensions which are constantly going on, noting where maximum and minimum effects are found and determining with precision the magnitude of those changes.

Proceeding in this manner it is expected to eventually learn what constitutes durability and permanence in pavements in the same way as we now judge of the safe working loads in a bridge. Also to learn how to further increase the capacity of the pavement for successfully meeting greater service requirements than those which are now commonly found.

Since changes in temperature and changes in load are each accompanied by corresponding changes in form or dimensions it is the purpose of these observations on the pavements to ascertain over what range such changes in dimensions may take place without permanent injury to the roadway, when a zone of danger is being approached, and clearly define in measured terms what happens.

A number of lantern slides will be presented illustrating the inauguration of this interesting work on that magnificent pavement, the Motor Speedway of the city of Indianapolis. (Applause.)

General Discussion.

Chairman Bloomfield: Major Howard has given us a very valuable paper, and we will be glad to have discussion on same at this time.

BUREAU OF STANDARDS.

W. P. Blair: In connection with that paper, there is a matter I would like to bring up that is hardly in the line of discussing the paper, and yet it has to do with the paper itself. You have been shown by this paper and the lantern slides a little of the effort that is being put forth in our behalf by the government. The bureau was established as a result of our continued advocacy for help on the part of the government in research work that would benefit the clay industry. As you perhaps all know, the last Congress granted the petition that we have presented to them from time to time for a good many years. We owe a vote of thanks to the American Society of Mining Engineers for their assistance in this matter. I know in every case where I was called on to go before the committee of the House or the Senate, insisting and praying and begging for the establishment of this bureau, I always found by my side the presence and influence of the American Society of Mining Engineers. They assisted us greatly in the establishment of this bureau. I think in appreciation of this effort and concession on the part of the government, and in appreciation of the work this bureau proposes to do for the clayworking industry, that every time any member of this Association visits the city of Washington or Pittsburg, he ought to walk in and take off his hat, and see what the government is doing for us.

I was somewhat pleased with the pictures Mr. Howard showed. I did not know he was going to show any pictures of the Indianapolis Motor Speedway, and I want to say for your information that that is the speedway that was constructed under the supervision of the National Paving Brick Manufacturers' Association, because it was an opportunity that was afforded us to exploit to the world the possibilities of a properly constructed brick pavement. The history of that speedway, which may be of some interest to you, is this: At the time of the first races the track was a bituminous macadam track, fifty

feet wide and two and a half miles around. At the first races, which I myself attended, there were seven people killed. I myself saw Barney Oldfield come around on that newly finished, and, as they thought at the time, elegant bituminum track, and rout out a place as big as my leg. The promoters of the speedway came to us, almost out of fear that they would be indicted for murder, and wanted to know if there could not be some relief afforded them by the construction of a brick surface on that speedway. That conference resulted in the National Paving Brick Manufacturers' Association assuming the building of that track, and since it has been finished a number of the world's records have been broken. In addition to the races that have taken place there, I will say that almost every day for the last couple of years the manufacturers of automobiles from all over the country send their automobiles and their drivers to that track for practice, and in all that time only one death has occurred, and that was in no way due to the track, and no serious accident has happened in any of the races. This speedway has attracted wonderful attention from all over the world on account of its merit. Barney Oldfield at one time, in a 200-mile race, lost one of his tires, and the audience saw that tire roll away from the automobile and roll up against the bulwark erected on one side of the track. This happened just after he passed the grand stand, and he went all the way around before



Making Depression Observations at Indianapolis Speedway.

be stopped at the supply pit and got another wheel and went ahead in the race, and all the while that immense audience was craning their necks, expecting to see him killed any moment. I talked with him afterward, and said, "Why did you incur such a risk of your own life?" and he replied, "Why, Mr. Blair, that was a brick track; I was safe." (Applause.)

Mr. W. H. H. Rogers: I move a vote of thanks be given Major Howard for this splendid paper.

Seconded by Mr. Mead and carried.

Chairman Bloomfield: Mr. Robb is down on the program to lead in the discussion of this paper, and we will be glad to hear from him.

Mr. J. W. Robb: I was very glad when Mr. Blair took my place on the program, and have been wondering why the Secretary would put so common a brick as myself on the program to discuss such a scientific paper. However, I want to thank Major Howard for his work in this line, and I also think it is the duty of this Association, and especially the paving brick manufacturers in this Association, to encourage more work along this line. Until about five years ago practically nothing had been done in a way that would bring results and information as to the real conditions, so that we might know as to our own business, but the National Paving Brick Manufacturers' Association was organized in 1905, and at once began an investigation not only of their own material, but of the way of using

it. We still need very much of this research work done, and need scientific work done along the line that Major Howard has been doing. The paving brick manufacturers of this country represent an investment of several millions of dollars. It represents good roads and good streets; it represents scientific and safe construction. Paving brick is the only real paving material that is permanent. Nothing else will stand the test that brick has. The people put down a very expensive street, and at the end of seven to nine or ten years they expect to resurface it; but if they put down a good brick street and it fails anything under twenty years, they condemn it. Brick paved streets cost less than any other streets, and we should all of us encourage the government to make more thorough research, as well as encourage our Association to do more along this line. (Applause.)

Mr. Anthony Ittner: I am not in the vitrified street paving brick business, but I have taken a great interest in street pavements, and have been very deeply interested in those engaged in the business. While I am on my feet, I want to refer back to our first Philadelphia convention, perhaps some twenty-two years ago, when street paving brick—I mean vitrified brick—were just beginning to come to the front, before the paving brick men had conventions of their own. I was not interested in the industry any more than I am today. I may in the future



Making Strain Measurements at Indianapolis Speedway.

associate myself with these people and become interested in the manufacture of street paving brick. The reason I gave for not going into the business then was because it was a new thing and I saw the difficulties in the way of establishing a trade in this country. I was something like Josh Billings during the war—he was willing to sacrifice all his wife's relations on the altar of his country. I was willing to sacrifice all my fellow-associates until the time would come that they could get a foothold. I was looking ahead; I was somewhat acquainted with the legislation work of the State and the Nation, and I knew something of the manipulations that were necessary in order to get a foothold in almost anything that was new, and I did not want to have anything to do with the preliminary work along that line. But now, coming to my point: At the Philadelphia convention there was something said on the floor about vitrified paving brick. During the discussion there was a gentleman from my city, I cannot now recall his name, who said that by a combination of certain building brick clays he could make a first-class street paving brick. Well, I sat there in my seat and listened to him, and I got up after he was through, because there is a saying that "silence gives consent," and if I remained silent I would be looked upon as indorsing the statement, and I said that in my opinion no more foolish statement could be made by mortal man than he made on that occasion. My opinion is that you cannot make a silk purse out of a sow's ear, and it would be just as difficult to make a vitri-

fied street paving brick out of any mixture of building brick clays as it would be to make a silk purse out of a sow's ear.

I am reminded of another statement I made at that convention. I was present a few days ago at the Paving Brick Manufacturers' session and heard the brick men talk, and I stepped up to the presiding officer and whispered in his ear that I would like to have the opportunity to say something before they closed, but there were two meetings that they run together, and, of course, I did not get an opportunity to speak, but they were discussing a subject that I had suggested to them twenty-two years ago, and they were suggesting the feasibility of adopting the suggestion that I had made on that occasion, and I felt a little proud that my judgment was being vindicated, and that was this: I told them at that time that the man engaged in the manufacture of street paving brick, who would send an article out from his plant that was not perfect, was the worst enemy to the industry. I told them furthermore that it should not be required to have a municipal inspector to inspect the vitrified paving brick, but that that work should be done at the brick plant by the manufacturer before the brick left his plant, because the man at the plant would know more about a street paving brick than perhaps nine-tenths of the inspectors in the various cities, and I know also that these inspectors can be manipulated on certain occasions, because they are human, and I have rubbed up against humanity enough to know how weak some of them are. They are not "all wool and a yard wide." I understand that the suggestion was not adopted at this meeting, but it may be adopted at the next, when they get farther along.

I suggested another thing at that meeting, and that was that a street paving brick be laid in the street at an angle of 45 degrees with the curb, so that the tire of the vehicle, before it would get off of one brick, would be on the other, and there would be no concussion, as there would be if the brick were laid at acute angles with the curb. The rounding of the edges of two brick laid in juxtaposition, and the joint that may be put between them, will make perhaps a distance of five-eighths of an inch, and with the wheel of the vehicle going from one edge to the other, there is a concussion like the triphammer. In laying the brick at an angle of 45 degrees to the curb, this condition will not maintain, because the wheel will be on the forward brick before it leaves the hindmost brick. Mr. Blair said a few years ago, "This is not necessary, for we have got to laying our brick so uniformly level that it is not an important feature. This method of laying the brick herring-bone at the intersections of the street is all right." Those of you who have observed, will find that the roadways at the intersections of the street are not worn as much as they are in the street proper between the crossings. These are the things I spoke of at that convention twenty-two years ago. Another point I spoke of, I did not bring out clearly a moment ago. I said any one who is going to establish a plant for the manufacture of paving brick, vitrified paving brick, the first and most essential feature for him to look into is to see if he has the proper stuff, the proper shale. If he has not the proper material he cannot make good brick. You have got to know your material, and I would not be content with the analysis of one chemist; I would not put up with the analyses of half a dozen; I would get the analyses of dozens in different parts of the country, and I would send samples to different brickmakers. I would send it in small quantities and have them burn it and test it before I would build a paving brick plant. As I say, when I was in that meeting of paving brick manufacturers, the other day, I felt a little proud, and it was natural that I should, because the things I had suggested so many years ago were being discussed there, whether it would be wise to adopt it now. Brother Blair is a level-headed man, but my judgment differs from his. I always look up to him, but when he says that when you have your brick as nice and smooth and level as this floor, it is not necessary for the brick to be laid at an angle of 45 degrees to the curb, I differ with him. (Applause.)

Marion W. Blair: In regard to Mr. Ittner's proposition to lay the brick at 45 degrees to the curb, let me just call attention, please, to one or two points in that connection. I will admit and agree with Mr. Ittner that the wheel is longer on any one individual brick if they are laid at 45 degrees to the curb, but, on the other hand, while you increase the length of the brick in the direction of the traffic, you increase the length of the joint. If you cross the 45-degree line it is longer than when you cross it at 90 degrees. It is impossible for two things to be in the same place at the same time, and the wheel is never on two brick at the same time. It is never longer on one brick than simply to get off of the brick onto the other. It cannot be in two places at one time. It cannot get off the brick it is on

until it gets onto the brick it is going on, and you have a longer line and a bigger joint to cross with brick at 45 degrees, and you have that joint filled full of something. If you have a sand filler, you would have a wider opening between your brick, and have a more worn condition, than when laid at right angles to the curb.

Mr. Yates: While I have a very tender regard for Mr. Blair and a deep respect for his knowledge of the paving brick business, I believe there is something in what Mr. Ittner said some twenty-odd years ago. I laid a crossing herring-bone fashion, some years ago, and I saw it not long since, and it is the best bit of paving I ever laid since I have been in the paving brick business. So far as the wheels of the vehicles wearing the brick, I do not take much stock in that. It is the caulks on the horses' shoes that wear the brick, and not the wheels.

W. P. Blair: I readily see that this subject is of particular interest to the paving brick people, more than to our other members, but I do feel like suggesting one or two other things in view of Brother Ittner's statement; and, by the way, I can pay him a larger compliment than he has paid me. He is a wise man, and that wisdom has covered a life of a good many successful years, and the men who cover so many things cannot know as much about them as the men who cover few things. Now, one objection in laying the brick at an angle of 45 degrees is the closures at the curb and the sanitary conditions that would obtain. The closures next to the curb, when brick are laid at an angle of 45 degrees, are very difficult to make, and



Lemon Parker, St. Louis, Mo.

can never be made very sanitary or beautiful. Another thing is this, and it involves a general proposition that is interesting, and that is, in street construction we strain at things inconsequential and overlook the things that are essential. We are able to construct brick pavements today that are perfectly uniform of surface, where the brick have laid in place all the time during years, and have remained in place all the time during a period of twenty years, and are as perfect as when first put down. I call to mind one pavement so laid, where 5,000 teams pass over the brick pavement every twenty-four hours, and Prof. Baker, when he prepared his work on "Roads and Pavements" nine years ago, stated that that pavement showed not more than 1/64 to 1/32 of an inch in wear. He was on that pavement this summer, nine years after he had made that statement, in company with other eminent engineers of this country, and one of them said to him, "Prof. Baker, what difference in the condition of the street is there now and when you examined it nine years ago?" And Prof. Baker, in the presence of all those engineers, said, "I cannot contradistinguish any difference whatever." There was not the slightest difference in its surface wear, and any man who would see that pavement today would readily concede that it will be there one hundred years from now, and subject to the same traffic through the entire one hundred years. It is these essential things that are necessary to go into and become a part of a brick pavement for economy and permanency. I do not care whether the brick are laid at an angle of 45 degrees or any other angle, but if laid on the

proper uniform two-inch sand cushion and the proper foundation, with the cement filler properly applied so as to fill all the interstices, you have a street, even though the brick are indifferent, that will outlast any other pavement.

Mr. Ittner: Mr. Marion Blair spoke about the wheel would not be off the forward brick before it got off of the rear brick. If he is correct in that, then my theory fails, but I must make a test of that before I will be satisfied. Take a tire that is two inches wide, and there are very few of them less; some of them are three or four inches: if the tire two inches wide would not be on the forward brick, if it would reach it at an angle of 45 degrees with the curb, before it got off the rear brick, then I am mistaken. If he is right in that particular, my theory amounts to nothing.

Marion Blair: I grant there is a position or point before a part of the weight of the tire is in the line, and the weight is very apt to come at a point on that line, but the entire weight of the wheel might just as readily come on the forward as on the rear brick and come at one point on its edge. If it does that, the effect is just as bad as though it would strike a square blow. That is not the case in a properly filled brick street, for there is no change from joint to joint whatever, and there is no difference between the surface of the cement joint and the surface of the brick. I defy any man to go to a properly constructed street and shut his eyes and put his fingers on the pavement, move them about and stop and tell without opening his eyes whether they are on brick or cement.

Mr. Ittner: I would like to see that street.

Mr. Elisha J. Kane: Mr. Ittner has in mind a worn brick street, such as are only too common, where the cement filler has worn out or given away. Cement does not wear like brick; we very commonly find streets with three-eighths of an inch between the brick, and that is probably what Mr. Ittner refers to. Many ignorant people think that brick streets are safer for slipping horses on account of that slight depression, and, as a matter of fact, if that depression was general the danger of horses falling would be greatly increased. In such a street the caulks of the horses' shoes would be more likely to catch on the brick where laid at an angle of 45 degrees, so if there is anything to that, that would be as much of an offset as the other.

J. W. Robb: I have a suggestion to offer, a sort of a compromise to Mr. Ittner. If you will go to any intersection where the brick are laid herring-bone, you will find that pavement bearing double the traffic and you will find that intersection better than any other part of the street. The difficulty is, Mr. Ittner, in the construction or building of a street, to keep your lines reasonably straight in building the street at 45 degree angles.

Chairman Bloomfield: We will take up the next on the program, which, as I understand, are the questions for general discussion.

Secretary Randall: As a matter of sentiment, if nothing else, I would dislike to see the next number on the program pass, without reference to Mr. Ashley, who was to be present and read a paper before this convention. He was taken ill a few days ago and died. Some of his associates are here and desire to introduce a resolution.

R. C. Purdy, Columbus, Ohio: The resolution in regard to Mr. Ashley is in the hands of the Resolutions Committee, but at this time I wish to say, as a personal friend and one well acquainted with Mr. Ashley, I feel the loss possibly more keenly than most of you. If you had known Mr. Ashley better, or if you will but review his work in ceramics, you will come to a very keen appreciation of this man, who, at the time of his death, was preparing a paper to be read at this convention. He was stricken a week ago Sunday and died the following Saturday. On Monday following those of us close to him had the unfortunate privilege of attending his burial—a privilege in that it afforded an opportunity of giving testimony, as it were, of our appreciation of Mr. Ashley.

Questions for General Discussion.

Secretary Randall: The gentleman who was to follow Mr. Ashley in the discussion of the subject of his paper is not present, so we can pass it up and take up the first of the questions for general discussion for this session.

"How Can We Prevent Getting Soft Brick in the Bottom of Round Down-draft Kilns?"

Mr. Ittner: I think perhaps I can give some information on

that subject, or give a suggestion that will be of value to some. We at our plant now are installing a stiff-mud machine to make brick to take the place of where the salmon brick come in our up-draft kilns. Where the salmon brick come in our kilns, we found, other things being equal, without any reference to the character of clay being used in the manufacture of our product, which is the dry clay method, that the brick which are made plastic, either stiff or soft mud, are easier burned than the dry clay brick—that is, without making any change in the character of clay that we are going to use for that purpose. In addition to the brick which are made by the plastic process being easier burned than brick made by the dry press process, we propose to make the brick we used for this purpose to take the place of salmon brick of clay, because we find that shale is burned with a much less degree of heat than our dry clay brick. My son Warren is informed along this line; I do not see him now, or he could give you the detail. But I will say we have made small quantities of these brick of shale and put them in the bottom of our down-draft kilns, three, four or five courses, as the case may be, and set the same number of courses from the top, and then we get the brick all thoroughly burned. We have three classifications of brick in St. Louis—merchantable, ordinary hard and red, and strictly hard and red. The merchantable include the salmon. Those brick we make of shale, instead of being salmon brick, we can send them to the strictly hard red job.

Mr. W. P. Blair: That is a very interesting question, but it involves a secondary question that answers the question itself, and I would like to have somebody respond to the secondary question. We know very well that you can get well-burned ware in the bottom of a down-draft kiln, if you get the heat there, and I want some one to tell us how you get it there and hold it there, just the same as on top.

Mr. Ittner: That requires an explanation. I think what I said somewhat covers that feature that Mr. Blair speaks of, and that is this: it takes, under the same condition and under the same circumstances, more heat to burn our dry clay brick manufactured by the dry clay process than it does to burn a brick in that same kiln made by the plastic process. That would answer his question.

Mr. Eisenhart: Suppose you made all plastic brick—what then?

Mr. Ittner: I would say this: knowing that it did not take any more heat to burn the plastic brick than it does to burn the shale brick made by the plastic process, that in getting the heat down there in the bottom of the down-draft kiln, you might injure the brick above, and vice versa, getting the heat up there in an up-draft kiln, you might melt the brick below. I would not know just what remedy to suggest.

C. P. Mayer, Bridgeville, Pa.: The thought struck me when this question was read that somebody wanted to know how to burn the brick in the bottom of a down-draft kiln, hard—the thought struck me, turn the kiln upside down and burn the top last. Since that cannot be done, we have to apply another remedy. In the first place, it is out of the question with some clays or shales to try and burn the brick at the bottom hard, or vitrified. There are some shale brick, if you set them thirty-three high, as we do, and undertake to vitrify them through to the bottom of the kiln, it would simply squash the lower courses, if you close off your draft, and be a clinker when you get done. For that reason the first point to settle is whether your clay or material will permit of burning hard or vitrified at the bottom of the kiln. I want to say for the benefit of the men here that our material between the point of ordinary vitrifying and squashing is only 60 degrees. Often we get beyond the heat necessary to vitrify, and when we do we have a lot of second-hand paving block. I believe we are only one of a few to burn paving brick to the bottom of the kiln, set thirty-three high. I have resorted to a new feature in the burning of block. Instead of burning and melting and getting out the ware in a plastic or squashed condition, from the top and from the bottom, we have adopted the plan of burning up and down. First, we burn a down-draft kiln the same as you burn yours. Then after we have burned it to a certain settle, we reverse the fire and burn from the bottom, and by that process catch the lower brick all right. I made a statement one time that we had shipped 98 per cent. No. 1 paving block out of our kiln, and the fellow looked at me and said nothing, but what I interpreted his face to say was, "You are a liar." We have done this, and we can

prove it—but we don't always do it. (Laughter.) I want to say that if the people who burn their brick in round down-draft kilns could arrange their kilns as we arrange our kilns, and when they get it burned from the top sufficiently, they can reverse the fire and burn from the bottom, they could accomplish that purpose. I want to call attention to one of the features we have added to our kiln. The last kiln we built, I can stand erect under the floor of the kiln. There is a reason for that, and that reason is, to begin with, we can run along for a long period without taking out the sand which filters down through the perforations of the floor. The kiln is so constructed that the heat not only reaches the bottom of the kiln, but must pass down 20 inches below the floor before it can get into the flue and escape. I have noticed in some plants that some of the kilns have only 20 inches between the floor and the earth, and it is a great mistake. The cooling off of the bottom of the kiln has its influence, that when you come to force that draft when you want to get the heat to vitrify. I haven't seen one kiln that they did not have to set from four to six courses from the floor of the kiln, that they couldn't vitrify. Besides, you avoid the annoyance of the rain and seepage water which comes in under the kiln. I do not pretend to know much about round down-draft kilns, but square down-draft kilns are on the same principle. This is our experience, and I cheerfully give it. Make the space under your kiln floor higher, prevent your



D. Warren De Rosay, Corry, Pa.

draft from getting away from you until you get it below where it has done its work, and most of the trouble will be overcome.

Mr. Ittner: Mr. Chairman—

Mr. Mayer: Mr. Ittner is an old war horse; the first convention I went to at Philadelphia, he gave me the laugh, and I want to say to him, don't you do it again. (Laughter.)

Mr. Ittner: I don't propose to. My opinion is that the square or oblong or round down-draft kiln is all the same in principle, and I did not think in my talk it was necessary to bring that out. I want to say that our kilns are oblong, and I take it for granted yours are the same principle as the round down-draft kiln. But I really got up to speak about reversing the draft and the burning of these lower courses that produce salmon brick. Our kilns were especially built for reducing the draft, and we found by reversing the draft and burning on the up-draft that in many instances we melted these lower brick together. If we could have burned them perfectly and had them come out whole, we would have been on "Easy street," but these brick in the lower eight courses were broken in two, three and four pieces, and I have always explained it by the cold air rushing in the furnace and coming immediately in contact with these brick, which were at a red heat, and we dispensed with it, for we had piles of bats on our yard, and, of course, we considered salmon brick better than bats. We quit burning on the up-draft and continued on the down-draft and continued to get salmon brick, and now we are planning to get rid of these soft brick in the bottom of the kiln by setting these plastic brick, which burn easier in the bottom courses.

J. H. Mead: There is one point in Mr. Mayer's remarks that I do not understand. What kind of a kiln has he got? How can he start the fire and burn the top for a while by down-draft and then turn and burn from the bottom up?

Mr. Mayer: We use a Wilson down-draft kiln, and the reversible draft feature was a feature we added ourselves, and it is nothing more than an arch thrown at base of the flue that carries the gases from the kiln after they pass down. That arch is sealed up when we burn down-draft, and when we go to burn up-draft, we seal the fire chambers of the kiln. We burn a while up-draft and then we burn through this arch at the bottom of the flue, and while doing that we close the dampers. The question has been asked me a number of times, "How can you hold your heat?" It is sometimes a matter of concern, and sometimes when we put in the dampers we still have too much escape for the chimneys, and in that case we just pour a bucket of sand in the chimney, which seals it over in the damper flue, and we only give it as much draft in burning off as will prevent the fire from coming outward instead of inward. Our kiln floors and flues being so constructed with that 20 inches below the floor, we get a kind of a damper, in which we assimilate the heat which lays there and soaks into the brick at the bottom. Our burner once said he was "soaking" them, and he holds that heat there until the material at the bottom becomes sufficiently heated to become vitrified.

Mr. Mead: What kind of fuel do you use?

Mr. Mayer: We use natural gas. (Laughter.) We have



C. H. Frank, Columbus, Ohio.

just burned our first kiln with coal. Natural gas is getting to be a luxury. We have our own wells, and we have concluded it would be more profitable to sell the gas and burn with coal, which is abundant at the plant. We have burned our first kiln with coal since I have been here, and my son writes me that they got the required settle, equal to what we had got with natural gas, without burning up at all, but if we do not get it satisfactory without burning up, we will change our method.

Mr. Steadman: At what settle do you change your draft?

Mr. Mayer: We do it by measure. When our kiln settles seventeen inches, that is as far as we go, then we reverse, and settle it three inches more at the bottom.

J. M. Jenkins, Montgomery: We have round down-draft kilns, and we improve our draft by setting the first six courses two on two, and the rest of them five on two. We set the brick thirty-two courses high, and get a settle of seven inches. Another good thing is not to have the bag wall too high—not more than four and one-half to five feet.

M. R. DeFrance, Vanport, Pa.: Our kilns are 28-foot kilns, round down-draft, with ten furnaces, six stacks, and a 30-foot kiln with twelve furnaces. We burn in these kilns building brick, vitrified and flashed. We vitrify the brick to the bottom of the kiln. All of these stacks pull on the center of the kiln, and the flue allowed to two stacks is four feet from the bottom. The other four stacks each handle one-fourth of the flue, and these flues are only two feet from the bottom. After the watersmoking is done, dampers are put in in all the stacks

except the two that pull the center, and these dampers remain in until the heat shows almost to the center of the kiln. Then the dampers are taken out of the other stacks and the heat radiates from the center, where the draft is already created, as well as coming in from the sides through the bag walls, and thus we get all brick vitrified that are set.

Chairman Bloomfield: The discussion of this question has really covered the next question, which relates to the same matter, so we will pass to No. 26, "Is There Any Way to Eliminate or Lessen the Amount of Smoke Emitted from a Down-draft Kiln When Burning with Soft Lump Coal?" As no one seems to care to discuss that question, we will take up the next, No. 27, "What Percentage of First Cost Should Be Written Off for Depreciation of Brickmaking Plants?"

Mr. Ittner: About 50 per cent. (Laughter.)

Chairman Bloomfield: This finishes the program for the morning session. As I understand it we are to take up this afternoon's program and try to finish in one session.

Secretary Randall: The first paper on the afternoon program is "Continuous Compartment Kilns and the Common Method of Burning Brick," by Wm. Butler of San Francisco. Mr. Butler is not present but he has sent his paper to be read for him.

THE CONTINUOUS COMPARTMENT KILN AND THE CONTINUOUS KILN.

BY WM. A. BUTLER, SAN FRANCISCO, CAL.

Mr. President and Gentlemen of the Convention:

The ordinary continuous kiln or the kiln known as the Hoffman Kiln was imported into this country from Germany, where it has had an unprecedented success.

With the soft mud and stiff mud method of brickmaking the Hoffman Kiln was without a peer. But in the "up-to-date" brickyard, or rather, let us say, in brick factory economics, the Continuous Compartment Kiln occupies a position far above any kiln or class of kilns for variety of clayware, low cost of fuel, economy of space with increased capacities and large percentage of No. 1 burned goods.

The Continuous Compartment Kiln differs from the ordinary continuous kiln inasmuch as each division or section is permanently divided from the others, and the division walls have small openings, preferably at the bottom of the kiln, through which heat may pass from one compartment to another, under the control of the operator. A feature of the construction of the compartment kiln is that the arches spring from the division walls, and the heat travels across through the kiln, instead of longitudinally with the kiln, as in other continuous kilns.

When there are not as many compartments built as will have a capacity of a chamber of burned goods each day, the battery of compartments is called a "Semi-Continuous" kiln. Of course, as the word "semi" implies, the kiln is only half or partly built, or the system only half or partly approaches the results obtained with the complete continuous kiln.

The advantages of the Continuous Compartment Kiln over the ordinary continuous kiln are:

First—The Continuous Compartment Kiln can be built for a far larger burning capacity per day than other continuous kilns.

Second—Any and all kinds of clay-manufactured goods that can be burned in the down-draft kiln are burned in the compartment kiln with a saving of time, labor and fuel.

Third—The Continuous Compartment Kiln is especially adapted to the "up-to-date" system of conveying the bricks direct from the machine to the kiln, whether of stiff mud, soft mud or dry-press, and drying them as well as water-smoking them and burning them in the kiln, thereby eliminating an expensive drying system, cars, rails, dry-houses, this method being more simple and more effective than the "Unit System."

With regard to the first article, of the larger daily capacity of the continuous compartment kiln over the ordinary continuous kiln, suppose we take the largest size that the Hoffman kiln is built, which will be, say, an arch of sixteen feet. I dare say that this size may be increased a little, but for the continuous expansion and contraction of the arch and walls, one end of the kiln having a high temperature while the other is comparatively cool, besides the tunnel being usually built of common building bricks, this span is about the practical limit.

Now taking sixteen feet for the largest width of tunnel, and thirteen feet for the crown height of the semi-circular arch, we will say for the sake of argument, that the fire will travel at the rate of sixteen feet per day. So that the largest daily capacity of the Hoffman kiln will be equal to the number of bricks contained in a space roofed with a semi-circular arch sixteen feet wide and thirteen feet high, having a length of sixteen feet.

Of course, we are speaking of an arched kiln, as any kiln of the continuous type without an arch has a continual and uncontrollable waste of heat. The largest size Hoffman kiln having sixteen divisions of sixteen feet each, with a width of sixteen feet will be 70x160 feet, out to out. Now, to increase this capacity, say double it, it will be necessary to add 256 feet more tunnel, or to add 128 feet to the length of the kiln, making the total length of the kiln 288 feet out to out, to be operated with two independent fires. This kiln requires an exceedingly large space, allowing twenty additional feet for the enclosure.

A Continuous Compartment Kiln of the size of the single Hoffman, viz: 70x160 will have a daily capacity of nearly double the latter and by adding to the width we can increase the capacity to five or more times, as desired.

As the fire travels across a sixteen-foot compartment, the wider the kiln the larger the capacity.

I will liken the two kilns to a line of soldiers. The Hoffman kiln represents a space so small that the soldiers must walk in single file, while the Continuous Compartment Kiln has a space so wide that the soldiers may walk five abreast.

A kiln of the latter type whose size is 185 feet square will have a daily capacity of five times as much as a Hoffman Kiln 70x160 feet.

It is obvious, therefore, that the Continuous Compartment Kiln is more self-contained and the larger capacities are far easier controlled in this kiln than in any other kiln.

Regarding the second article, the Continuous Compartment Kiln can burn any and all kinds of clay-ware, with the exception, of course, of the finer grades of terra cotta, etc., which are burned in muffle kilns. There is no doubt that the principles of the continuous kiln can be applied to the construction of a continuous muffle kiln, and it is only a question of time when the continuous muffle kiln will supercede the present muffle kiln.

Nearly all new plants now being erected for the manufacture of dry pressed bricks, paving bricks, hollow ware, etc., are being equipped with a continuous compartment kiln. This kiln has been so thoroughly demonstrated in burning all kinds of ware that it has long since passed the experimental stage.

The said kiln is adapted to any and all kinds of fuel from producer gas to coal screenings.

Furnaces that require pre-heated air to accelerate combustion, and as a matter of fact there is no kind of furnace that is not vastly improved by the use of pre-heated air for combustion, the said air being drawn from the atmosphere and heated by radiation without the loss of any of the elements necessary for combustion, or the addition of any elements which would retard, or would be detrimental to combustion, are in the highest degree of development in the Continuous Compartment Kiln.

With producer gas there is less loss of heat after the gas has once reached the kiln furnace, than in any other kind of industrial furnace; however, as most producer gas fired kilns require the best grade of coal in order to reach the highest efficiency, there are other methods of firing that will seriously compete with it. Coal screenings, without being dropped among the ware, may be burned in coking furnaces and operated from the top of the kiln with a far greater economy of fuel than can be obtained in any other kiln or furnace. Oil fuel is also a serious competitor of coal-gas firing kiln, as oil can be piped direct to the kiln and atomized with compressed air without gasification loss.

Last but not least is pulverized coal, which may be ground from screenings, slack or lignite that is very low in carbon. Low carbon coal may be either gasified in a producer of the "Hirt" type, such as is used in a plant at Leetsdale, or the pulverized fuel may be sent direct to the kiln furnaces and burned in the same manner as oil, thus dispensing altogether with the producer and its initial losses which we may safely say are at least 25 per cent. The loss incurred with the producer is in the heat required to convert solid carbon into gaseous carbon; also there is also a slight loss in convection.

A noteworthy fact in regard to the burning of pulverized coal in rotary cement kilns is that the amount of air required for combustion is practically the theoretical, whereas with producer gas in the kiln the amount of air is in excess of the theoretical quota. It is, therefore, to be seen at a glance that a suitable self-contained pulverizing apparatus, which may be moved as desired supplying air and coal at the same time to the burning compartment, can be operated with less labor and far greater economy than the gas producer. One pulverizing apparatus can supply fuel for burning 200 bricks per diem. A kiln having a daily capacity of 200 bricks would require less than one ton of pulverized fuel per hour.

Concerning the third article of the adaptability of the continuous compartment kiln to the method of drying bricks in the kiln, the bricks are conveyed from the machine direct to the kiln by means of a belt or rope drive, and are set in the kiln in the order in which they are to be dried, water-smoked and burned.

That there is plenty of heat to dry all the bricks that the kiln can burn is a demonstrated fact.

Right here in San Francisco, on two different brick works may be seen compartment kilns with dryers directly above the kiln drying the bricks with the escaping waste heat. Of course, this system requires a conveyor to the top of the kiln from the machine, dryer cars, track, gravity elevator for lowering the loaded cars, also suitable heavy construction above the kiln to sustain the weight of the drying bricks, etc. A case in point to prove to the skeptical that with the proper arrangement the bricks may be taken direct from the machine to the kiln and dried without the aid of any outside heat.

Now look at a well known gas-fired kiln, for instance, and you will find enough heat escaping from the cooling ware to dry the bricks with a proper arrangement of heat extracting flues, etc.

Such a system with a large fan will extract all the heat and will cool the kiln regularly and more thoroughly than opening the bottom, sides and top of the kiln for this purpose.

Exhaust steam heater men tell us that they simply use a waste product to dry the bricks, but is not the driving of exhaust steam through a labyrinth of coils a waste of power, and is not power wasted a waste of fuel?

The system of drying bricks in the kiln is more economical and more efficient than the "unit system," being less expensive to install, costing less to operate, and requiring no open-topped or removable-topped dryers or kilns.

If the bricks to be dried in the kiln are of tender clay requiring slow drying, there should always be a few extra compartments to allow more time for drying.

Now let us say that our compartment admits of setting the bricks thirty high, and our bricks from the machine will stand ten high without "marking" or going out of shape, we always have three compartments which are being filled and are in the following order at the end of each day's work: One will be one-third filled, one will be two-thirds filled and the last will be all set and bricked up, so that one compartment is ready for burning on each and every day.

When the bricks are set in their order in the first two compartments, the openings are closed with a wooden door provided for the purpose, heat is turned on from the large waste heat conduit, allowing just the proper amount of heat to gradually dry the bricks, so that the moisture will be evaporated, or that the bricks will sustain the additional weight of another setting of bricks ten high when required to. If the bricks will stand only five high, it is a matter of the setters moving from one compartment to another, returning when the set bricks are firm enough to stand another setting.

There is no question but this system can be adapted to suit any kind of machine brickmaking.

With the soft mud system the bricks may be taken direct to the kiln on pallets, stacked on the floor of the empty kiln, or on the bricks in the next kiln, as the case may be, until the bricks are firm enough to stand handling, when they are set in place. The bricks for the closing or last setting will have been conveyed to the top of the kiln a few days previously, so that when the kiln is ready to receive the last installment, the bricks are taken from pallets stacked on top of the kiln and passed through openings in the crown of the kiln.

I venture to say that with the coming of electricity as a cheap power, the use of steam will be dispensed with.

Where oil fuel is used with steam as the atomizing agent, it will be replaced by compressed air. Compressed air helps to sup-



Wm. A. Butler, San Francisco, Cal.

port combustion, while steam besides condensing, carries inert gas or air that simply atomizes and heats the oil-fuel, occupies space but does not help combustion as far as supplying air for combustion is concerned.

In conclusion, therefore, I will say that the coming brick factory will be one operated entirely by electricity, and having a compartment kiln of the continuous type, in which the bricks will be dried and burned to the maximum degree of excellence with the minimum amount of fuel. (Applause.)

Secretary Randall: The discussion on this paper is to be led by Mr. Daniel Cobb of Jacksonville, Fla., who has kindly prepared a paper on the subject.

CONTINUOUS SYSTEM OF BURNING.

BY D. COBB, JACKSONVILLE, FLA.

Mr. President and Gentlemen of the Convention:

My thanks are due your able secretary for his kindness in inviting me to attend this convention, and lead the discussion on continuous compartment kilns, and the common methods of burning bricks.

If I could have been allowed to make my choice I would have much preferred to attend before you as a pupil and not the school-master, but having no choice in the matter will to the best of my ability give you my experience and methods of working continuous kilns.

The paper read by Mr. Butler covers a great deal of the ground in its particular form. Wonderful and great changes have been brought about in the burning department since the introduction of this system, which at the present time is apparently in its infancy, and little understood by the majority of brick manufacturers, owing, I believe, to the large capital outlay as first cost, but here I would

point out to you that when compared with other kilns, their cost and the cost of general repairs spread over a number of years that properly constructed continuous kiln heads the list in economy in fuel and also in cost of maintenance of repairs generally.

That is not the only reason, but in actual labor cost to operate the continuous kiln is always the cheaper.

In the smaller varieties of continuous kiln one man and one boy can easily work one of these giving an output of from 20 to 40 thousand per day of twenty-four hours. Of course, you will understand that in addition to the labor mentioned a night burner is required, but with the larger double fired kilns, having a capacity up to 100,000 per day, building size, it is not necessary to increase the skilled labor, head burner, but only the labor necessary to assist him in placing the coal and also in feeding when necessary.

The double fired kiln is certainly away ahead of others in labor cost per 1,000. In some cases I have known this to be as low as 10 cents per thousand, and fuel cost in one particular instance an average yearly cost in fuel of 15 cents per thousand. This, gentlemen, is in a district where the clay deposits contain a large amount of carbon or mineral oil; where the combined output of the district is upwards of one million per day the whole year through.

The chief features of this system are as follows:

First—You have a properly constructed building built in the best possible way and according to the best known principles of building construction.

Secondly—The flues should be of ample area to convey to the chimney all gases produced and escaping to the chimney.



D. Cobb, Jacksonville, Fla.

Third—The chimney should be so constructed of sufficient height to create a draught of from five-eighths to three-quarters of an inch on a water gauge, and equal in area to convey the water-laden, and other gases to the atmosphere without choking the flues at any place in its travel thereto. It is here I find engineers have erred in laying out the flues too small when it is known that on the semi-plastic system that each brick contains nine ounces of water of combination and that a chamber which will hold 25,000 brick, when filled, showing that you have to evaporate approximately some 12,000 pounds of water from each chamber. Not so with the tunnel or naturally dried brick going to the kilns. It is here where the engineers have erred by building the same sized flues for both systems. Now it can be seen that the kiln working successfully is burning. Tunnel dried bricks have proved a failure when put in to burn, the semi-plastic bricks going to the kiln direct from the machine.

Now the chief points are those mentioned. These apply to all designs of continuous kilns, those with chambers running across or at right angles with the kiln, and also the straight arched kiln with party walls dividing the kiln into separate chambers, and last those kilns which run longitudinal and have no divisional walls.

It is this type of kiln I favor, being easier to construct and operate.

Here, gentlemen, I will call your attention to the printed matter on continuous kilns to be found in the table in the Exhibition Hall.

If you will take up this and study it you will at once see illustrated an up and down draught continuous kiln of my own design,

where the water smoking flues are separate and distinct from the burning flues, and also the chimney is in from two chimneys, one inside the other. You will also notice there are no outside underground flues, which invariably cause trouble in wet weather, and the only flues below floor level are the cross flues leading to the bottom of burning flue.

For water smoking provisions are made by the use of wrought iron pipes prepared in sections easy to handle; these in turn are connected together to make a complete connection between the cooling chamber and the chamber to be water smoked.

This series of pipes are so constructed that they sleeve into each other, making almost an air-tight connection. When connected to ascertain the temperature of the waste heat that has been taken out of the cooling chambers and conveyed to the water-smoking chamber the operator simply places his hand on the outside of the pipe, or in dealing with very tender clays a thermometer can be inserted into the pipe and the temperature ascertained correctly.

If the ingoing gases which are entering the kiln through the outside rows of feed holes or within 30 inches of the bottom are found too hot a valve is provided at the end of the conveyor pipe to admit the outside cold air and reduce it to the desired temperature. One of the chief features of this system is its use on any top-fired continuous kiln.

In lighting up this class or system of kilns it is necessary that provisions are made to fire up the kiln at the bottom, and with a compartment kiln temporary furnaces are arranged at the division walls; but with the open arch kiln a temporary wall must be built some 24 inches away from the first blades in the setting and the setting so arranged as to set back some 12 inches to prevent the brick from falling into the fire holes.

The firing is continued until a good red heat reaches the fourth chamber away from the starting point, firing as already has been done down from the top feed holes to assist the starting up fires at the bottom.

When four chambers are under full fire the bottom fires are allowed to die out gradually, so that the cooling may not affect the quality of the burnt goods. This completed, the operator then devotes his whole time to top firing.

The fuel found best suited for top firing is a very fine dust coal that will gasify instantaneously, coal that gives a red ash and is free from dross-forming qualities such as sand and clay.

In successful operation we have two conditions of draught. On the forward or water-smoking chambers the draught works two ways—the hot air gases going down and the water-laden gases going upwards into the wrought iron pipes and thence into the steaming flues.

That part of the kiln which is under fire should be so arranged that it has a down-draft draught at the points nearest the down-draft flues, but the damper must be so arranged that the draught does not pull down on those chambers under full fire. Here you have a very strong up cast, caused by the atmospheric pressure at the back of the fires.

To get the best results in quality and quantity it is necessary to fire almost continuously even at the rate of four times per hour, and with the draught properly arranged it is possible to travel 30 to 40 feet per 24 hours, or, in other words, to burn two chambers per day on a single-fired kiln and four on a double-fired. Quality and quantity cannot be obtained here if in the hands of an inexperienced operator, but requires the same practical handling as is found necessary in burning the finest class of pottery in the world.

This, then, gentlemen, is the most modern and most economical method of burning not only common bricks, but facing, ornamental and paving bricks, fireproofing and irrigation tiles, with Roman, Pain and Krosely tiles, and by the use of the waste heat, free from sulphur, the scum-forming and discoloring matter caused by the use of sulphur-laden gases escaping from the fires in the form of smoke, we have in the continuous kiln the most economical system.

Ordinary fine dust coal of the soft quality is well suited for burning common good, but a better class of coal free from sulphur for the fine products.

These kilns can be constructed to burn with coal, wood, producer or artificial gas, but the day is not far distant when timber will no longer be available for burning brick. The use of crude oil will in my opinion, when better understood, become almost universal, especially would its use be more general, but owing to its high cost it cannot compete with wood and coal, now generally used throughout the world.

In many districts through which the writer has traveled the continuous kiln has simply revolutionized the trade, and had it not been for the introduction of this system a great many firms would have had to close their doors owing to the fact that prices would not permit them to continue in the old system of burning. (Applause.)

Chairman Bloomfield: The next on the program is "Lessons in Experience in the Brick Business," by E. P. Elzey of Parkersburg, W. Va.

LESSONS IN EXPERIENCE.

E. P. ELZEY, PARKERSBURG, W. VA.

Mr. President and Gentlemen of the Convention:

The old axiom, "Experience is the best teacher," still holds good, and that other trite saying that "lessons at the price of experience are long remembered" is yet proving its truthfulness.

I presume there are few people who have not received a part, and oftentimes the better part, of their education in life and business from "lessons in experience," and it nearly always obtains that lessons so learned are of such a striking and positive character that

the possibility of forgetting them is remote. Such lessons are demonstrated in a practical manner, and, unlike teachings in theory, there is little if any room left for doubt—there seldom remains the opportunity for debate—and we hesitate to make successive attempts at changing the results of such-wise proven certainties, but accept the outcome whether to our liking or not.

However much the business man, and especially the manufacturer, in general, has learned from theory and observation, we believe his most practical education has been from contact and experience, and especially do we believe this to be true of the manufacturer of any line of clay products. His lessons are often expensive lessons in experience, and he realizes, more, possibly, than manufacturers in any other line, that successful manufacture is begotten of evolution rather than revolution. Methods and means for the making of clay wares are more often improved than are new processes adopted, and this comes from experimenting until the methods and means are improved to the point of producing best results. The clay products manufacturer has to work out his problems in an individual manner; other things being equal, the paramount proposition for his solution is the adapting of means and methods to the successful working of his raw materials, and this is no small proposition, for while he may have the entire perfected recipe of his neighbor manufacturer, he often finds that such recipe is of little use to him; his raw materials ground, screened, tempered, pugged, and further processed by borrowed methods, are often sadly disappointing in results, and it is a matter of experimenting to discover the methods that will bring him the results desired.

The labor, thought and expenditure incident upon such experimentation is often appalling, yet there can be no success until he has proven results from experience, and the clay ware manufacturer, after all this, has only reached the point where other manufacturers begin. When he knows how to work and process his raw materials he must even then learn that success depends upon two essential things, unalterable and indispensable; he must have

The best and most efficient plant, including labor and

The best trained and most positive sales organization possible.

The first to manufacture the product, the other to dispose of it. The combined expense of the two, deducted from the returns, will be the marker of financial progress, and the satisfaction his products give will be the means by which to measure his ultimate success. To reach these two essentials there is but one way—one means; the manufacturer must know his product—know it from the raw material to its final purpose—know what he wants—know what the consumer wants, or, what is sometimes better, know and know positively that his wares are such that the consumer can be convinced they are what he wants. To know his goods he must know every detail and process in their manufacture; he must know not only the *modus operandi*, but he must know the why of the *modus operandi*. He must be able to detect the slightest inefficiency or deficiency in manufacture; he must know how to correct and overcome dereliction of machines and men; he must be intelligently acquainted with the uses of his product; he must be able to prescribe to the artisan and suggest to the architect, and this requires detail knowledge and understanding begotten of experience. He must not despise or ignore the smaller things, for his fondest hopes will be realized or forever crushed in the care and attention to the many details in manufacture.

The manufacturer must absorb theory and science and carry practicality on his finger tips. He must be a machinist, a mechanic and an engineer; he must be able to act and to direct; he must learn from his humblest employe and be able to instruct his directorate board; his life is not long enough to learn all these things in schools, so he must learn from experience.

I doubt if the producing side of the manufacturer requires more ability than does the reducing side, as I have heard the selling department styled, and I think there is as much to be learned in experience from selling as from making. To illustrate a particular point, which is often the manufacturer's bugbear in selling, allow me to refer to a personal "lesson in experience" which is indelibly stamped on my mind, and which was no less than that of a sound genteel thrashing handed me by a smaller boy on the playground at school; for weeks I weighed and debated the humiliating affair, and I confess that it was a sore acknowledgment when I was forced to admit that my size and boasted prowess were of so little avail as to allow me to be thus humbled by one whom I had always regarded as not being in my class. I realized that further substantial proof of my right to authority and leadership was going to be a strenuous, if not a doubtful, proposition; my right of prestige on the playground was effectually questioned, and it appeared to me that my whole future was at stake. To reinstate myself to my former undisputed position was the problem, and, eventually, I solved it; solved it in a way that left no room for doubt; not by wreaking wrath on that small boy, Oh! no. I picked out the biggest boy in that school, and, on small provocation, waded in and restored and re-established my standing in a convincing manner; it was a case of do or die—go to the front or take a back seat and stay there.

After growing older I have found that some of the lessons learned in that experience were ideally applicable in business life. I have learned that the unexpected often happens, and that the smaller fellow is prone to jump in and prove his mettle—prove his right to consideration as a factor in business—and he oftentimes does it so effectually that our regard for him reaches the point of admiration. How many times have many of us used all our business ability and ingenuity to combat the resources of equal forces, only to find in the end that the smaller fellow had picked the plum while we were playing at tug-of-war with those we considered worthy our attention; and how many hours have we spent in figuring out how it was done. How many days have we deliberated and planned to make a scoop that would prove our sagacity and more strongly

establish our business position; and this ambition was only achieved when we had successfully plucked the laurel from the bigger boy. This is a practical illustration of business development, and while we talk of friendly business relations and tacit understandings we realize the truth of the adage that "every tub must rest on its own bottom." And while we are magnanimous enough to admit that we have to consider the prestige of the bigger boys, we often ignore the smaller ones, and our wrongly assumed positions sometimes lead us into predicaments that are the humbling means of causing us to realize that their energetic and honorable achievements demand their recognition as worthy factors in the business world.

These are but "lessons in experience," and are learned at a cost that is not only humiliating but oftentimes financially retrogressive as well. The manufacturer who eventually arrives is the man who early realizes that his easy office chair is the place for reflection and not for direction; he can there receive and consider the reports from the conflict, but he must marshal and direct his forces from their midst; his presence must inspire and his orders convince. When his untiring efforts have gained standing and preferment for his concern he must not then cease his vigil, but be equally prepared to combat the rear attack as to assault the stronger forces that confront him. He is not to stand in the rear to drive, nor in the front to lead, but rather in the midst to counsel and direct.

Indicative of the great future for the brick manufacturer is the wonderful interest being taken in every detail of the business; the deep thought and study evinced can only result in improved conditions, and the last twenty years have been an era of unprecedented development and wonderful improvement. The modern manufacturing plant now rises where a decade ago a string of ramshackle sheds marked a brick works. The hit or miss dry-weather methods have given way to scientific, proven systems, which accurately meet the individual requirements of the particular raw materials and finished products.

I have much pleasure in saluting your achievements, and deem



E. P. Elzey, Parkersburg, W. Va.

it a special honor and privilege that the magnanimity of your organization allows workers in kindred products to become associated with you, and believe that such broadness of spirit will materially assist the mutual advancement of all clay products.

We believe the brick manufacturer is over modest in the claims for his product, and his timidity has been the cause of inferior products securing recognition as a considerable factor in building operations. Should he not be a little more aggressive and learn a "lesson in experience" from those who by advertising alone have sold substitutes for his better goods? He should reflect, and all around him he can point to virile examples of the superiority of his product, and art and history and literature will only evidence the truth of his strongest claims.

No metal or material has ever stood the test of time and the transforming actions of nature and the elements except burned clayware. The massive granite walls and great pillars of Solomon's famous temple have long since crumbled into dust, their form and texture being only known through the recordings of history, while the earthen vessels and tablets (burned clayware), made and inscribed by the artisans of Arabia and the artificers of Egypt, contemporaneous with Solomon's time, are even now being unearthed unharmed and intact. Centuries of time, with wind and storm and fire and flood, have only covered them with the shifting sands, and, from the inscriptions and characters on this ware, history itself is authenticated or proven in error. What better evidence of the superiority of brick is required? The test of time has proven their worth; they stand alone as an enduring material, and those who use brick are most happy in their experience. (Applause.)

Secretary Randall: The discussion on this paper was to have been led by Mr. Victor Cushwa, of Williamsport, Md. Mr. Cushwa has been detained at home by a death in the family. The next paper has not materialized either, "Tariff Du-

ties Between the United States and Canada and the Effect on the Brick Business," by Mr. L. S. Kendrick of Saginaw, Mich. Mr. Kendrick wrote that he had collected some data pertaining to this subject, but that he was unable to attend the convention. Mr. Horace Ittner of Prince Albert, Saskatchewan, Canada, who is on the program to discuss this paper is present and we will be glad to hear from him.

Tariff Duties Between the United States and Canada.

Mr. Horace Ittner, Prince Albert: This is my first attendance at a convention of the National Brick Manufacturers' Association. I came down here from Prince Albert, Saskatchewan, came early, intending to stay late and I am enjoying the convention and the benefits which I have derived have far exceeded my expectations. I should say, I was enjoying myself very much, until some one called my attention to the fact that I was on the program. That is where Mr. Randall erred, for I do not know anything about this subject. I may say that I live on the banks of the Saskatchewan River, about 400 miles above the boundary line. We are situated just on the edge of the agricultural district on the south and the timber district on the north. We have lumbering, fishing, fur and agricultural industries. I find myself in a very unpleasant position. I have never had the pleasure or opportunity of addressing such a large audience before, so I am not able to think connectedly, but I wish to say before I sit down, that I would like to have a convention of the National Brick Manufacturers' Association meet with us in Prince Albert next year. (Laughter and applause.)



Ross C. Purdy, Columbus, Ohio.

Marion Blair: For the information of those desiring to know something on this subject, I will say that there is now before Congress a proposed treaty with Canada, and in that treaty the National Paving Brick Manufacturers' Association has secured a reduction in Canadian tariff of 25 per cent., that is 25 per cent. of the former tariff on paving brick into the Dominion of Canada, and it will be well for the members of this National Brick Manufacturers' Association to exercise their influence upon their representatives in Congress, and have that much of the treaty at least ratified. From the newspaper reports Congress is going to have to have pressure brought to bear to have any of that ratified, and I think a motion would be in order for members to communicate with their Congressmen by telegram or otherwise, urging the ratification of that treaty, which means considerable in money and the benefit of more market to manufacturers of this country. There are two paving brick manufacturers in Canada, and the market for paving brick is being rapidly developed.

Chairman Bloomfield: The next number on the program is the report of the Committee on Technical Investigation by Ross C. Purdy of Columbus, Ohio, to be illustrated by lantern slides.

REPORT OF COMMITTEE ON TECHNICAL INVESTIGATION. DRYING OF CLAYS.

By ROSS C. PURDY.

Mr. President and Gentlemen of the Convention:

It was two years ago that we had a reorganization of your technical committee, and as a result of which reorganization I was elected permanent secretary. On assuming my duties I called for

a consultation of the committee members, the result of which was a determination to continue the work which Prof. Orton and Mr. Richardson had been pushing with vigor for two years. We have now spent the equivalent of 360 days of one student's time on this one topic and have to confess that we are now only at the threshold of the problem. We find that there are so many more factors which affect the drying peculiarities of clays than we had originally considered or even thought of, and these factors are so numerous and each play so important a part that we are now confronted with the very difficult task of correlating a large mass of data. When you stop to consider that we are working on a variety of clays, no two of which are alike in their physical, chemical and mineralogical characteristics, and that the factors which are largely effective in one clay are likely to be of minor consideration in another, you will appreciate our hesitancy in giving you at this time any positive conclusions.

Some one has likened clay to an old maid's handbag because it contains a large variety of things, and that in it you may expect to find most anything. Clays certainly are as varied as are the handbags of old maids, not only in appearance, but likewise in their contents. Carrying this ludicrous simile further, we express another truth when we say that the contents of neither clays nor of old maids' handbags can be determined from their external appearance.

It is the height of absurdity to claim that because clays look and feel alike that they necessarily have the same drying properties. Clays cannot be tested by any "finger and eyeball" method ever devised, nor by aid of the microscope, nor by the more intensely scrutinizing test, chemical analysis. Aside from the actual tests in a dryer we have no direct way of determining with surety just how a clay will behave. And why? Simply because we cannot ascertain exactly the mineral contents of a clay nor the degree of fineness and stage of disintegration of these minerals, to say nothing of determining the character of that very finest of clay particles which some try to make us believe is colloidal material. If there is such a thing as a scientific tree, we all certainly are up in its topmost branches when we tackle the problem of determining of what a given clay is composed.

Now, how are we going to make a scientific study of the problem of drying when we are so at sea as to what our clays really are? We cannot do else than to draw analogies from the many observations made on clays and soils and make such tests as would give us indirect evidence of the cause of the differences in drying behavior of the clays. Thus we must go on blindly and yet with such foresight as can be obtained from a study of many kindred investigations. This we have done to a very large extent and have found some very valuable relations between the data obtained.

In our study by analogy we begin with the history of clays. As a definition of clay we are safe in saying that clay is a rock, and, further, that clay is an aqueous rock because its constituent parts were produced by chemical changes from pre-existing rocks through the action of percolating waters. We can subscribe to the words of Merrill when he says:*

"These rocks are composed of more or less hydrated aluminous silicates admixed in almost indefinite proportions with siliceous sand, various silicate minerals in a more or less fragmental and decomposed condition and calcareous and carbonaceous matter. In their last consolidated form they are best represented by the common plastic clays used for brick and pottery manufacture. Such, although alike in their general physical or even ultimate chemical nature, have widely diverse origins. In fact, the term clay, like silt, indicates physical condition rather than chemical or mineralogical composition, and it may perhaps be defined as an indefinite admixture consisting largely of more or less hydrated aluminous silicates and free silica, with lesser amounts of iron oxides, carbonate of lime and various silicate minerals, which in a more or less decomposed and fragmental condition have survived the destructive agencies to which they have been subjected. It includes residual products of any or all forms of rock degeneration, and which may or may not have been reassorted through the agency of water. The oft-repeated statement that kaolin forms the basis of clays, or that clay is impure kaolin, is an unfounded assumption. Kaolin is a residual deposit from the decay of feldspathic and other aluminous rocks, while the ordinary brick and the clays are residual aluminous deposits resulting from the decay and leaching out of soluble constituents from a variety of rocks."

THE ZEOLITES.

"Of the several minerals which interest us in the problem of drying, the zeolites are, without doubt, the most important. They are altogether secondary minerals, resulting from chemical changes taking place in pre-existing rocks, and indicate the first or deep-seated stages of rock decay. In a more or less perfect condition they have been assumed to occur in clays, having been derived from the rocks, or having formed during the process of rock decomposition, or in the clay itself. It is thought possible that those constituents of a clay which, on analysis, are found to be soluble, as the term is ordinarily used, may, in part at least, have once existed as zeolites."

THE UNDECOMPOSED SILICATE MINERALS.

Of the undecomposed silicate minerals we know very little other than that a variety of them occur in nearly every secondary clay, in all possible proportions and degrees of fineness. If very fine, fine enough to become a factor in the retardation of escaping moistures under our drying conditions, they no doubt are in a more or less perfect stage of decomposition, and thus adding to the total clay substance. If the accessory minerals are present in larger grains they will have the same effect as did the non-plastic brick

*Pp. 117 and 118, Rocks, Rock Weathering and Soils.

dust in Prof. Orton's experiments,* the finer particles filling the pores and the coarser particles weakening the bond, thus making safe drying practically impossible when either the fine or the coarse non-plastic particle predominates.

CARBONATES AND OXIDES.

The crystallized carbonates and coarse-grained oxides, as a rule, have nearly the same effect on drying as the silicates, while the non-crystalline, pulverant and finely precipitated carbonates and hydroxides greatly retard the escape of water.

Since it is plain that some of the minerals hinder and some facilitate the escape of water from clays and since mere difference in size of the grains likewise have an effect, we quite naturally inquire for the reason. And since these effects are purely physical, we have our fruitless study of the constitution of clays and turn to our physics for an answer. We must get sound on the mechanics of water movement in clays before we can hope to reach the fundamentals of the drying problem.

ADSORPTION AND FLOCCULATION.

The question of adsorption and flocculation is a very large study, one that has engaged the attention of chemists for several decades. None have given us more valuable data and applications of his findings concerning these properties and their effect on clays than our own late Harrison E. Ashley. I take very great pleasure in the knowing that one of our own fellow clayworkers has won a remarkable place among scientists and technical investigators because of his work on these.

By adsorption we mean the retention of soluble salts. Purification of polluted water by filtration through soils is a well-known example of this. If a clay be blunged up with a dilute salt solution a part of the salt will be held by the clay in some such condition as to resist leaching out by hot pure water. Flocculation: Whether the adsorption is more of a physical than chemical phenomenon we do not know. Whatever the phenomena may be, its effects may be measured with a high degree of accuracy, and one of these effects is flocculation.

Imagine a lot of loose grains having no common bond, then think of these loose grains collected and held into little pellets by some solution or gum, and you will have a very fair notion of what is meant by flocculation. Flocculation is the drawing and holding together of fine particles just as are the soil grains which the angle worms pass through their body when burrowing into the ground.

Now, some salts flocculate and others do just the opposite, i. e., they flocculate the grains. We would like to dwell on this subject of flocculation and are doing so in the report which we are preparing for publication, but this is not the time to discuss such intricate physical-chemical propositions, hence I hurry on to the effects of these adsorbed salts and of this flocculation phenomena.

We find the effects of adsorbed salts and of flocculation in—

1. Surface tension of the water between the clay grains.
2. Rate at which the clay will absorb water.
3. Rate at which the clay will allow evaporation of the water.
4. Total capacity of the clay for moisture.
5. Cohesion and adhesion of the clay particles.
6. To some extent the size of pores from which and through which the water can evaporate.

We have accumulated data on these points for several clays and are showing very instructive relations between these as bearing on the peculiar drying behavior of each of the clays thus tested.

A recital of our findings at this time would be too severely tedious and the significance of the data could not be appreciated without opportunity of giving them close study.

FINESS OF GRAIN.

In our fineness of grain determinations we destroy, as far as possible, these floccules which we find occurring in clays, thus obtaining a quantitative statement of the amount and volume of the actual mineral grains.

From the specific gravity and porosity data we have obtained the volume occupied by the floccules, which, when considered in conjunction with the fineness of grain data, gives us a clew as to the effect which the manner and extent of pugging has on drying behavior of clays. We have found instances in which the clay has been pugged too much and in others where not pugged enough to insure the safest drying. In each we have found that severity of pugging must be regulated to the ease with which the cementing bond of these floccules can be dissolved and destroyed, as well as to the ultimate size of the mineral grains.

Some of the problems which we are undertaking in connection with the fineness of grain and flocculation studies are: Should the clay be thoroughly steamed, or pre-heated and then steamed, before pugging, or should the clay be pugged directly without preliminary treatment, and if so, should it be pugged with hot or with cold water in order that the clay shall be in the best condition for safe drying? On these questions we are not prepared to announce an opinion. We mention them that you may know the nature of our work and the use which we make of the data on the mechanics of water movement in clays.

STANDARD LABORATORY DRYER.

The work which I have so briefly outlined above and which we now have well in hand is wholly of a technical nature. The practical phase of our work has been the development of a standard laboratory dryer in which clays could be dried under controlled conditions.

The dryer which we are now using is the fourth one we have built. We believe that in it we have a dryer which could be built by any experiment station, office or laboratory, and in which con-

sistent results will be obtained, giving in all cases comparable data.

One of the main reasons why our literature contains so little practical data on drying is that until now we have had no laboratory dryer in which we could dry full size bricks under controlled conditions. We hope that we now have not only the means of obtaining significant data, but actually have the data with which we can intelligently discuss the problem of safe drying of clay wares.

The progress we have thus far made has been at the cost of very persistent work, not only on the part of the present holder of your scholarship, Mr. Ira Sproat, but by Mr. W. D. Richardson, Prof. Orton and two former students, as well as by myself. We have and are pushing the work as rapidly as possible and hope that before another convention we will have published an instructive pamphlet on the subject of safe drying of clay wares.

One of the most interesting facts which we have developed is that the more rapidly the brick are dried the less will be their drying shrinkage, and that this want of shrinkage is not due altogether to cracking of the brick, but mostly to the fact that the mass is made less dense. (Applause.)

Mr. Kane: Have you made any microscopic examinations of the drying of these different tests? I should be inclined to suspect that those dried in the higher temperature might show that the material was denser close to the outside and not so dense on the inside.

W. P. Blair: If you have a high temperature then the rupture between the clay particles accounts for the lack of shrinkage?

Mr. Purdy: We note that when dried at a high temperature the bricks show minute ruptures throughout the mass and also that the particles are not drawn together so closely.



J. Fred Smith, Omaha, Neb.

W. P. Blair: So while you get maximum shrinkage drying at a low temperature, you will get less rupture of your clay?

Henry O. Robinson, Green Ridge, N. Y.: As I understand the description of the dryer, the slow and the fast drying determines to a certain extent the merits of the brick as regards the quality and density, but the matter which interests me considerably, is the relative economy in drying, in the matter of amount of heat best applied to your brick to dry it to a satisfactory basis for burning, and in that consideration we can depart somewhat from the technical exactness in the quality of the brick. That is, practical experience in the manufacture of brick, should determine what brick are good enough to sell. It follows the line of this technical investigation, that if we dry our brick too rapidly, they become damaged to such an extent that they are not salable. At the same time, there is a practical economy evident in the drying of brick, at as high a temperature as the brick will stand, and be salable. For instance, we at one time, some years ago, dried brick at an initial temperature of more than boiling point often going as high as 250 degrees Fahrenheit. The result of drying at such temperature was immediately apparent in the destruction of many brick by cracking. We were trying to get too much out of the dryer, which I think is the condition that will generally arise when we have a dryer, not bearing in mind a certain lack in circulation with the temperature of the fan 225 degrees and the inlet at the tunnel of 210 degrees. Our clay is not clay it is sand, but the point was that we came to the highest point clay would stand, and at that even in a

*P. 100, Vol. II, A. C. S.

general way was our greatest economy in fuel. If we dried at a lower temperature, 150 degrees, we made better brick but no more salable brick, only in a scientific definition, and it took us longer and used more fuel. Then there is a large factor in the amount of circulation through the brick. I think that the same thing will apply in any process of using fuel. There is a relation between the circulation and temperature. Considering the high relative heat entering tunnels—I speak of tunnel dryers because that is what I have in my mind—there is a marked practical consideration in the temperature which is best for the outlet. I suppose it will be a temperature relative to the inlet temperature and the humidity of that outlet air which is most unreliable, assuming a temperature of 70 degrees on the outside, and an initial heat of 210 degrees. We frequently have in the outlet tunnel a heat of 240 degrees. What I wanted to get at was a definition of what with a certain initial temperature in the dryer, would be the most economical. It is apparent that we can go to extremes. I did not understand from the slides and from Prof. Purdy's explanation that there was a measure in this drying test. The heat of the air in its initial application to the brick, or the heat of the air in its exit, or the humidity at this point, and I say in a practical way a determination of these factors would be of great interest to me and I think to many others. Possibly in speaking, I have overlooked some points I had in mind to bring out, but in a general way, it is how to dry the most brick to a practical state of dryness with the least amount of fuel,



Carl Cappel, Pittsburg, Pa.

notwithstanding as I say that this description of drying of clay bears largely upon the perfection of the drying point, and perfection of the brick at the same time. I say that the brick that are good enough to sell are good enough to make, and so the factor of economy of drying the brick is determined by the amount of heat it takes to dry the brick. I would ask the Professor to give us this information.

Mr. Purdy: We have planned to undertake the study of the tunnel dryer, but have not done so as yet. We have devised methods of making these studies and have gone so far as to calculate a hypothetical case. The tunnel dryer, however, is only one of the many kinds we are working on.

Mr. Kane: In these determinations, have you taken any curves on progressive increasing the heat? As for instance, the drying of some clays commences at 75 degrees and is completed at 125 degrees, while other clays dry differently.

Mr. Purdy: We have not made that determination.

Alfred Yates: Mr. Purdy has certainly given us a very valuable paper and deserves great credit for it. There is a point relative to the plasticity of clays I would like to have explained—when the clay takes less water, is that from the composition of the clay or the structure of the clay?

Mr. Purdy: It is a combination of both. In the plasticity of clay we have to deal with a large number of factors. When we begin to play one factor against another to determine which is the most important factor, you have somewhat the same thing you would have if you were trying to see how many combinations you could make with one hundred different numbers.

Mr. Yates: I was brought up by the "rule of thumb," and I would like to know the reason of the chemical change that takes place in the weathering of clays. We know the result of the weathering, but I would like to know the cause of that plasticity. It depends on the length of time it is exposed to the atmosphere. There is a chemical change takes place and changes every year of exposure, and I would like to know the cause.

Mr. Purdy: Our proposition is safe drying of clay wares, and to have safe drying in some instances, the clay must be weathered. The greatest effect of weathering of clays is that of mechanical disintegration and the effect next in importance to this is the loosening of the cementing bond which holds the mineral grains in floccules. The dissolving out, or at least the getting into solution of the salts which have been the cementing bond will develop plasticity, provided that the salt is not allowed to drain away to any great extent. Increase in plasticity, due to weathering, is more largely a physical rather than a chemical process.

Mr. Yates: I move we return a vote of thanks to the Committee on Technical Investigation for the report rendered to this convention.

Seconded by several and carried.

Questions for General Discussion.

Chairman Bloomfield: This brings us to the first of the "Questions for General Discussion," on the afternoon program, No. 33, "Is there any material that can be put in the clay in making dry-press brick that will change the color of brick during burning?"

Mr. Ittner: I will give what little experience we have had in that line. We have a clay that is known as a common building brick clay, spoken of as yellow clay, which in the natural way produces a red brick. At one time there was a demand for a chocolate colored brick, and to burn this chocolate colored brick we got pulverized manganese and mixed a certain proportion, about two ounces to one brick, and in that way we got chocolate colored brick. We have never experimented with any other color but that. You can get your brick darker or lighter according to the amount of manganese you put in.

Chairman Bloomfield: Mr. Yates can tell you how certain minerals can be used.

Mr. Yates: If you will take your chemicals and dissolve them and run the water through your pug mill you can get the various shades. The lighter the clay the easier it is stained.

Electricity for the Brick Plant.

Chairman Blomfield: The next question, No. 34, reads: "Should not the N. B. M. A. prescribe a standard system of ascertaining the cost of production, running expenses and selling price of brick?" That is quite a question. Is anyone willing to tackle it? If not, we will take up the next, No. 35, "In a brick-making plant, operated by electricity, which is the more practical plan—each machine driven by a separate motor, direct connected, or motors driving countershafts for single machines or groups of machines?"

Mr. Yates: We have a gentleman here who is posted on that question. I see Mr. R. C. Penfield looking at me, but I can only speak from practical experience. Back in the early days, in running two machines, we used to run the clutch from the main shaft, but the vibration was too great; and if the clutch fails to hold there is a tremendous crash, and there is a tremendous loss.

R. C. Penfield: In the use of electricity for driving clay-working machinery, the most economical method is to attach to each machine a motor by means of a flexible coupling, as that eliminates the friction of the belt. If you have a countershaft and transmit the power from your prime motor by means of a lineshaft, you will lose considerable power. The most economical way is to transmit it directly from the generator to the motor.

Mr. Purdy: I would like to ask Mr. Penfield how he would put the motor on the machine that had a variable load. Can he put direct connected motors on a machine with a variable load?

Mr. Penfield: Certainly. Any motor properly connected will run at a uniform speed, no matter what the load, consequently when the excess load comes, the power in your motor

is correspondingly increased temporarily, and yet the speed will not vary.

Mr. Purdy: On machines which have constant load, the motors might be direct connected; but with variable loads, we found it more economical to have the machine belted from the motor. Each machine had its own motor, but where we had a variable load, we put a belt between the motor and the machine. We found this to be the most economical when considering all things, such as wear and tear as well as power and original cost.

W. R. Cunningham, Bucyrus, Ohio: Our observation of connecting motors with machinery has been this: We find we have to classify the machinery into three classes—the one driven by the engine; the second is where the motor drives the machine by belt; the third is direct connected gearing, or flexible coupling. When you connect it directly, it requires a large motor, because that motor must take care of the conditions surrounding. The belts will vary or slip if the load gets too great; and it is not necessary to have quite so large a motor. On the other hand, when the motor drives the entire plant overload at the machines will vary, and so does not require as large a motor; but you will lose from fifteen to thirty-five per cent. in friction when you run from a motor connected the same as you would an engine with shafting, belting, etc. When you connect it direct, you overcome all that friction. The great trouble in the past with direct connected motors is that they put in small motors. The electric people were largely responsible for that, but since we have been putting in larger motors we find the direct connect motor the most economical.

Chairman Bloomfield: Mr. Chambers, did you wish to say something on this question?

J. H. Chambers: Mr. Cunningham has touched on the point I had in mind, but perhaps I can emphasize it a little; and I want to point out that brickmaking machinery is often put to the necessity of stopping while under full head, therefore it has to start under full load. Having then individual motors for each machine, you must provide size necessary to take care of that surplus load while starting. I think you will find the cost of installation for motors will be very much less, if within reasonable limits you will drive one or two or three machines closely grouped, driven by a motor large enough to take care of all the machines, then the overload is taken care of. The big bugaboo of electrically driven machines has been overloading simply because the power is wrongly applied. If you will use a mechanical engineer in the placing of your motors, you will not have this trouble. You will not eliminate it all, but you will eliminate it enough to pay. When you get to a certain point, put in another motor.

Chairman Bloomfield: The man who asked that question has certainly food for thought, and we will take up No. 36, "In burning brick in open up-draft kilns, with coal as fuel, which is preferable—have fireboxes on the outside of the kiln and fire two eyes from each box, or fire direct under the arches?"

J. Fred Smith, Omaha, Neb.: I have tried the one arch in the fireboxes, two-eye fireboxes and three-eye fireboxes, but the best results have come from the two eyes with the fireboxes on the outside.

Mr. Purdy: I have followed this proposition on a good many yards, and I have found that what is advantageous on one is not on the other. In some cases you want to fire direct into the arch; in others into a firebox on the outside; in some other cases you want to fire not only in fireboxes on the outside, but you had best have a combustion chamber between the firebox and the kiln chamber proper. You must consider not only the kiln, but the fuel to be used. You cannot lay down any single rule that will work universally.

Chairman Bloomfield: I think Mr. Purdy has answered that question thoroughly. This brings us to the last question, "What is the average wages paid bricklayers in various parts of the country?" I think it will be hard to answer that question here. The next on the program is the report of the Committee on Resolutions, of which Marion W. Blair is chairman.

M. W. Blair: We have a resolution which we think should be given precedence. It refers to Mr. Ashley, and should be adopted before the other resolutions are adopted.

In Memoriam.

"Since, by the inexorable decree of Providence, there has been removed from our midst, in the prime of his life, Mr.

Harrison Everett Ashley, a ceramist in the Bureau of Standards, a man of the greatest probity and integrity of character, of tireless devotion to the cause of science as applied to ceramics, modesty and eagerness to help his fellowmen, Be it

Resolved, That we express our sense of the loss, we as well as the entire clay industry, have sustained by the removal of this fine character, and that this expression be incorporated in the minutes of the Association and communicated to the bereaved family of our departed friend."

I move the adoption of this resolution.

Prof. Purdy: I second the motion and suggest that we adopt it by a rising vote.

Motion carried by a rising vote.

M. W. Blair: I have another resolution which we think it would be well to consider separately. It comes as a recommendation from the National Clay Machinery Manufacturers' Association. This, if acted upon, should, we think, be adopted aside from the usual routine of resolutions, as it is strictly a business proposition.

Freight Classification of Clayworking Machinery.

"WHEREAS, The Clay Machinery Manufacturers' Association has appointed a committee to endeavor to secure from the railroads a definite and proper classification for clay-working machinery to the end that lower and more equitable rates be secured thereon, and

"WHEREAS, The said Clay Machinery Manufacturers' Asso-



J. Howard Chambers, Philadelphia, Pa.

ciation has instructed its committee to secure expert assistance and has authorized an expenditure of \$250.00 for this purpose,

"Now, Therefore, Inasmuch as the members of the National Brick Manufacturers' Association are directly interested in the results desired to be obtained,

Be It Resolved, That the N. B. M. A. appoint a committee to co-operate, and that the said committee be authorized to expend a like sum of \$250.00 jointly with the Machinery Manufacturers, or so much thereof as may be necessary, said committee to make its report to the National Association meeting at its next annual convention."

Chairman Bloomfield: What is your pleasure in regard to this resolution?

J. H. Chambers: In order to get it before the House, I move its adoption.

L. W. Penfield: I second the motion.

R. C. Penfield: I want to speak on this resolution. At the meeting of the machinery men the question of freight rates was discussed, and it was discovered that we have no classification for clay-working machinery, and on repairs and supply parts, they charge any price they care to; and we would like to see a proper classification obtained, and so we provided a fund to see if we could not secure a proper classification. So, after a machine is shipped we can refer to the record and see that you get your machinery at the least possible cost, and this resolution has been drafted; and if you would like to assist in securing this classification, we want you to vote for the resolution. I understand that the Association has the money.

Marion W. Blair: It appears to me that this Association should be as economical as possible in the disbursement of the surplus. We have been a long time accumulating a surplus, and if on this committee we could have members appointed whose duties are in the general direction of this resolution, in connection with other association work, it would be of considerable advantage. We have members of this Association who are members of the traffic committee of the National Paving Brick Manufacturers' Association, and therefore, I move as an amendment to this resolution, that the president appoint this committee of three, and that one of the committee be a member of the same committee of the National Paving Brick Manufacturers' Association.

Mr. Randall: I second the motion.

C. P. Mayer: Before you vote I want to say this: I happen to be one of three companies that tried to regulate the freight on paving brick. The National Paving Brick Manufacturers' Association came to our relief, and from the amount of money they spent (I am mighty glad they did relieve us) I think if you go into the question of regulating rates you will have to spend several times the amount of the Association's surplus.

W. P. Blair: Having had a little experience with the Interstate Commerce Commission, I would say that \$250.00 would not allow you even to smile at the Interstate Commerce Commission.

Mr. Penfield: There is nothing said about going before the Interstate Commerce Commission. The idea is to secure



R. C. Penfield, New York, N. Y.

a classification. We have no rate classification. Now you do not have to go before the Interstate Commerce Commission to get a classification; you go before the rate commission. The matter has been taken up with some promise of a decision. The Classification Bureau wanted to find out what kind of machinery clayworking machinery is. We sent our catalog and explained the matter, and I believe the very modest sum that has been voted by our Association of \$250.00, and that backed by a like amount, would result in our getting the classification. Other machinery is classified, but ours is not; and the result is in many cases brickmakers are obliged to pay a great deal more, especially on less than carload lots than they should pay. It would seem that a great big Association like this could afford to pay \$250.00 to get a classification of their products and know what they are going to pay. Of course, if you are not willing to, then it is not worth the effort on our part. It is nothing to the machinery manufacturer. We are trying to get it for the brick man.

Chairman Bloomfield. The discussion now is to be confined to the amendment of the resolution, which is with reference to the appointment of committee.

W. P. Blair: Upon that question it is a little hard to discriminate and draw the line. Personally, I do not care anything about that, and really I feel incompetent so far as that is concerned to make clear to you the conditions that are involved in that proposition. The Interstate Commerce Commission is against a classification absolutely. All their rulings point that way.

Chairman Bloomfield: I will now ask you to vote on the amendment.

The amendment was adopted.

Elisha J. Kane: On the main question I would like to express disapproval of it. We will gain very much more if the individual members who are here will take up this question with their division freight agents so as to have it brought up through the railroads. Anything that comes to the railroads in a hostile manner, as it were, will be fought. But a mere helpful suggestion will be taken up readily. I am in both businesses—a little railroad as well as brick—and I know from experience that the friendly suggestions which come up in that way, that are suggestions to our division freight agents, met with much more approval, and are usually given attention.

W. P. Blair: Mr. Kane is right, and for this reason I know the Interstate Commerce Commission is absolutely against anything like what the proposition calls for, and have decided against that line time and again. The sympathy of the railroads of this country is along the lines as suggested by that resolution, and the matter has been thoroughly thrashed out in all its phases and importance. In theory it sounds very well, but to adopt the English idea of "poor pen, poor pig," regardless of whatever it is. I have been present at the argument before the Interstate Commerce Commission, begging and praying for a classification, and they are against it, and about one of the strongest arguments that can be put against them is to get them to overrule themselves. Perhaps one of the best illustrations I can give you is that of the cut-glass manufacturers in the vicinity of Pittsburg. The fine cut glass that goes from Pittsburg to Kansas City, Mo., has to pay a high rate of freight, but the glass that goes into the ten-cent stores of Kansas City gets a much lower rate by reason of the classification. And now there is an argument before the Interstate Commission that the cut-glass rate from Pittsburg to Kansas City should be the same as the cheap glass which is sold over the counter at the ten-cent stores. It is not that the idea back of the resolution is wrong; I think it is right; I think there is justice in it, and if the Interstate Commerce Commission maintains its present attitude in reference to this matter, it will destroy many of the local industries of this country, because they are forced to pay an excess freight because of the condition of classification. This is such a live question and such an important question that other associations in this country are not only spending this minute five hundred dollars, but hundreds of thousands of dollars, trying to do the same thing that this resolution seeks to do. I believe that five hundred dollars will be but a drop in the bucket toward any influence toward carrying out this resolution, and it will be a waste of money as well as of time, and I am not in sympathy with the resolution itself.

Mr. Ittner: It seems to me that Mr. Blair has not got the right grip of the resolution. He associates this with the Interstate Commerce Commission, and Mr. Penfield states that it has no connection whatever. The suggestion put forth by Mr. Kane is a most appropriate one, and I think it most plausible. The committee might be created, but let it appear independent, unless it be that the committee might urge the members to take up the matter with the division freight agents.

Mr. Kane: The payment of \$250 will not amount to anything; we can accomplish more as individuals.

Mr. Penfield: Mr. Ittner has stated the case perfectly clear; the fact is, we have no classification, and it is to secure this classification that we are working.

Mr. Blair: Are you of the opinion that it is possible to get a classification from a railroad at this time?

Mr. Penfield: Certainly. They classify before they make any rate.

Mr. Blair: I think with that suggestion I can make myself a little more clear. Whenever they make a classification, that is not done by the railroads, it has to go to the Interstate Commerce Commission for approval.

Mr. Kane: I do not think the members generally understand how this is done. There is a book gotten out, called the Official Classification. Every kind of article is printed in this, and when any article is offered for shipment, the agent looks in his book to see what class it belongs to. I think Mr. Blair is confused a little. They have what is called a committee on rates, which makes rates on a special class of goods. This is not what the Interstate Commerce Commission is opposed to;

it is merely to have one of the items in the official classification specially mentioned as clayworking machinery. A gentleman here says he is too modest to speak, or he would have spoken in favor of this resolution, but I want you to understand that I am opposed to it. The gentleman to whom I referred says he sells piano wire screens. Some repairs were ordered for the screen, and when he went to ship it the agent asked him what it was, and then got out his official classification book and fumbled along until he came to fine pianos and charged him the rate for pianos. There was no rate on clayworking machinery, as there would have been if clayworking machinery had been in the official classification. My point is that there is no use in taking \$250 of the money which Mr. Sibley has so industriously saved for us, when the same thing can be accomplished if we will take the time to suggest it to our freight agents. They will attend to the rest.

Mr. Penfield: If you can accomplish anything by all you gentlemen speaking to your freight agents, we certainly ought to have that done, but in my humble opinion you will not get any action by the members working individually. We are not going into this with any hostile intention; we are simply going after information and pointing out the fact that we think a large industry like the clayworking industry, shipping many thousand carloads of freight a year, is entitled to a classification. So far as the committee has taken the matter up, they have been met very pleasantly, and we have no reason to believe we will not get results. In order to have it carried on systematically, provision was made to have some funds on hand in case the committee needed money. If you do not want to make the effort to get your goods classified so that it will have some regularity, why, we certainly are not going to busy ourselves to do it for you. It is a small amount of money to invest, and it may not be spent at all. I hope the motion will prevail.

Fred Talbot: Mr. President, I do not think this question of freight rate on clayworking machinery concerns the National Association at all. It is up to the machinery men to protect their customers. It is their duty to get the freight traffic managers together and come to some understanding. Mr. Penfield stated plainly, "We don't care; you pay the freight." Well, we do pay the freight. We sell most of our stuff f. o. b. our factory, but we endeavor to get the best rate possible for our customer, and it is the duty of the machinery men to protect their customers and go after the railroads and get a proper rate. (Applause.)

Mr. Penfield: To show the brick manufacturers that we are interested in the matter, we have made an appropriation and are trying to get the rates down, but if you are not willing to help, that is another matter.

C. P. Mayer: I am of the same opinion as Mr. Talbot, that the machinery men ought to attend to this matter themselves, and not feel that it is up to us to take it up. We take it up in our business; we do not expect to have our customers to do it.

The question was put to the house and carried.

W. P. Blair: I would like to ask for a division of the vote. I think there were a number of gentlemen who hesitated because they did not know just what they were voting for. Do I understand that if we voted for the resolution that we voted for the \$250 out of the treasury?

Chairman Bloomfield: As much of the \$250 as the committee deems fit to use.

Mr. Kane: We voted to pay as much as the Clay Machinery Association; that is, we pay dollar for dollar.

Chairman Bloomfield: The chair has decided that the motion has carried. Of course, you have a right to appeal from the decision of the chair and leave it to the house, but the chair is under the opinion that he is under the strict parliamentary law.

Mr. Kane: I would suggest that Mr. W. P. Blair be appointed on that committee.

Chairman Bloomfield: The chair is very glad to appoint Mr. W. P. Blair, Secretary of the N. P. B. A., as one of the members of that committee.

Mr. Blair: I do not know as I am eligible under that rule at all. While I have been a member of the traffic committee of the N. P. B. A., that committee has not been appointed as yet. It is one of the committees left for the President to appoint later on.

Marion Blair: With your consent Mr. Chairman, I will read the rest of the report of the Committee on Resolutions.

REPORT OF COMMITTEE ON RESOLUTIONS.

Whereas, It has been the pleasure of an all-wise Providence to bless this, the Twenty-fifth Convention, with unusual success and good fellowship;

Whereas, This success is but a reflection of a prosperity enjoyed during the past year by the members of our organization, our neighbors, our cities, our states and our country; and,

Whereas, Our Government and our people have been free from the discouragement attendant upon public disaster, panic, plague and foreign complications; therefore, be it

Resolved, That we do return thanks for these and other blessings.

Resolved, That we do thank the representatives of the hospitable city of Louisville, and through them the people and the great State of Kentucky, whose pride she is, and whose interest she represents, for the hearty welcome and entertainment we have enjoyed.

Resolved, That we thank our brother craftsmen of the Brick Club of Louisville and the officers of the same, upon whom have fallen the details of the splendid arrangements for our comfort, welfare and pleasure during our sojourn in their midst, and extend to them our heartfelt wishes for prosperity in the days to come.

Resolved, That we pledge our hearty individual and united support to the affiliated bodies of this organization:

The Building Brick Association of America.

The National Paving Brick Manufacturers' Association.

The American Ceramic Society.

We regret the conditions which have prevented the meeting with us as a body the American Ceramic Society, and which have pre-



W. D. Gates, Chicago, Ill.

vented them from enjoying the benefits and privileges of this meeting. We urge upon its officers that future meetings, in so far as possible, be so arranged that we will not be deprived of their attendance, support and co-operation, from which we have benefited in years that have passed.

Resolved, That we further urge the hearty co-operation and closer working understanding in the matter of publicity for clay products through our genial secretary, Mr. T. A. Randall; the secretary of the Building Brick Association, Mr. Parker B. Fiske; the secretary of the National Paving Brick Manufacturers' Association, Mr. Will P. Blair, and Mr. George H. Tefft, the secretary of that younger organization, the Western Clay Products Publicity Bureau, which is without the fold of the N. B. M. A. in name only.

Resolved, That we urge upon the members and officers of each of these organizations their hearty co-operation in the proposed clay products show to be given in Chicago in the year 1912. That the officers effect as much publicity for this proposed show as is possible. That the attendance at the convention which is said to be held at the same time, shall mark a rallying point in the history of the clay products industry. That our membership, our patrons, our friends will rally about the standard of the N. B. M. A. and lay before the people of the American continent the advantages of clay products for whatever use they may be applied over any other material which has been or may be proposed.

Resolved, That it is the sense of this convention that we do appreciate the aid which is proposed to be given the clayworkers of this United States in the solving of technical problems by the Bureau of Standards. We believe our membership should furnish the working force in this Government bureau every facility in their power of raw material and finished products for experimental research work, that we may derive benefit from these investigations, that we may better know our products, their weakness, their strength. We believe that the aid which is to be extended by this bureau will prove a benefit and a source of satisfaction not only to the members of this organization and other clayworkers who are

not members of this organization, but also to the general public, and result in carrying out the policy of conservation of the natural resources now being agitated.

Resolved, That it is with extreme sorrow and regret that we record during the past year the death of three of our prominent members—G. S. Perdue, Firebrick, Ky.; John H. Gray, Chicago, Ill.; Harrison Everett Ashley, Pittsburg, Pa.

Resolved, Since by the inexorable decree of Providence there has been removed from our midst, in the prime of his life, Mr. Harrison Everett Ashley, ceramist on the Bureau of Standards, a man of the greatest probity and integrity of character, tireless devotion to the cause of science as applied to ceramics, modesty and eagerness to help his fellow-men, be it herewith

Resolved, That we express our sense of the loss we as well as the entire clay industry have sustained by the untimely removal of this fine character. That this expression be incorporated in the minutes of the Association and communicated to the bereaved family of our departed friend.

Resolved, That we regret the untimely illness of our beloved President, Mr. Charles M. Crook, Youngstown, Ohio, which has prevented his presence at this convention. Each and every member of this Association has missed his presence, his encouragement and his help, which in the past he has given so freely. We trust and hope for his speedy recovery to complete health and extend to his family our sympathy in their trial and our best wishes for restored happiness and contentment.

Whereas, The Clay Machinery Manufacturers' Association has appointed a committee to endeavor to secure from the railroads a definite and proper classification for clayworking machinery to the end that lower and more equitable rates be secured thereon; and,

Whereas, The said Machinery Manufacturers' Association has instructed its committee to secure expert assistance and has authorized an expenditure of \$250 for this purpose;



R. D. Lindsay, Denver, Colo.

Now, therefore, Inasmuch as the members of the National Brick Manufacturers' Association are directly interested in the results desired to be obtained, be it

Resolved, That the N. B. M. A. appoint a committee to co-operate, and that the said committee be authorized to expend a like sum of \$250 jointly with the Machinery Manufacturers, or so much thereof as may be necessary, said committee to make its report to the national association meeting at its next annual convention.

MARION BLAIR, Indiana,
C. B. VER NOOY, Illinois,
S. R. BUSEY, Maryland,
C. CONNETT, Missouri,
A. S. REID, New Jersey,
JOHN RINGLE, Wisconsin,
P. B. BELDEN, Ohio,
C. A. GUIGNARD, South Carolina,
J. E. SCHUESLER, New York,
U. L. UPSON, West Virginia,

Committee.

Secretary Randall: I move the adoption of these resolutions entire, and that the Secretary be authorized to give same out for publication at once. They are largely of local color—that is, referring to local entertaining and matters of that sort, and so should be given to the local press at once.

Hervey Haigh: I second the motion.

Anthony Ittner: Just one word in regard to a matter I

have not had an opportunity of bringing out during our stay here. It is in a measure personal, and yet it is to the question. We are now complimenting the local brick manufacturers in these resolutions, the citizens of Louisville. To my knowledge this is the first banquet in the twenty-five years of the Association that we have had with us both the Mayor of the city and the Governor of the State, and they remained with us throughout, and I regret it did not occur to the committee that they might have mentioned it in the resolutions.

Another thing I wish to speak of, Kentucky gave to me my life partner, and for that reason I feel grateful to Kentucky, and I want this thing to go on record. Eighteen years ago I was unanimously elected by the Louisville contingent of the brickmakers to be President of this body, and it was the first time in the history of the Association that its President was selected from another city than that in which the convention was held. (Applause.)

M. W. Blair: The committee adopts Mr. Ittner's suggestion in regard to the Governor and Mayor.

Chairman Bloomfield: I will ask you to adopt these resolutions by a rising vote.

Motion carried.

Secretary Randall: This, Mr. Chairman, brings us to "Miscellaneous Business," which is anything any member may have to offer for the good of the convention. We have finished our program; one or two papers have not been read, but they will be published in full in the printed report, and you can read them at your leisure. The attendance at the sessions has been gratifying, even up to this late hour. We are very grateful to the Louisville committee, and the success of this convention, both in attendance and spirit, is such that I judge we will want to return to Louisville again in the near future. We have certainly had a royal good time. The attendance of visiting brickmakers is the largest in the history of the Association.

We have a number of invitations from cities desiring to entertain the convention in 1911, including Richmond, Va., Milwaukee, Wis., and San Francisco, Cal. Mr. George Schwarz, of Milwaukee, has a letter and a telegram, both received since he reached Louisville, from the Citizens' Business League of Milwaukee, authorizing him to extend the Association an invitation to meet there next year. All of these will, of course, be referred to the Executive Committee and receive considerate attention.

NATIONAL BRICK MANUFACTURERS' ASSN., LOUISVILLE, KY.:

Dear Sirs—We hereby extend to the National Brick Manufacturers' Association a most hearty and cordial invitation to hold their next convention in San Francisco. On behalf of the people of this city we wish to assure the delegates and their friends a most royal welcome.

The proverbial hospitality of the "City by the Golden Gate" has been enhanced by the demands made upon it in the rebuilding of a splendid modern city. The wonder-working energy which has brought about results of such deep interest to all observers, will only find additional field for its exercise in taking care of and providing entertainment for the delegates of your association and their friends.

Climatic conditions, and the many natural wonders so near to San Francisco's door, will prove items of additional interest to prospective visitors, not to mention those famous attractions within San Francisco herself. All these things we wish to place at your disposal, feeling that if this point be selected and visited, it will prove one of universal satisfaction to all.

The railroads have granted for the National Educational Association Convention, to be held here, a rate of \$62.50 from Chicago and \$50.00 from Missouri River common points, and we presume that they will grant your organization the same rates. We can also assure you of low hotel rates and low rates for sight-seeing trips around San Francisco and the Bay, and ample hall accommodations for holding conventions.

Trusting that your association will select San Francisco as their next meeting place, we are,

Cordially yours,

SAN FRANCISCO CONVENTION LEAGUE.

Felton Taylor, Secretary.

San Francisco, Cal., Jan. 26th, 1911.

Chairman Bloomfield: Before we adjourn I want to thank you all for your hearty co-operation, with which you have enabled me to fill the high position to which I was elected on this occasion as your presiding officer. There being no further business, I declare the convention adjourned, subject to the call of the Executive Committee.

THE ANNUAL BANQUET.

Clever Speeches by the Governor of the State, the Mayor of the City and Other Witty Toasters, Make the Event a Memorable One.

"O, then it's open order, an' we lights our pipes an' sings,
An' we talk about our rations an' lots of other things."

HAD THE BEAUTIFUL dining room of the Seelbach Hotel been made for the occasion, it could not have better accommodated the N. B. M. A. banqueters, who just filled it comfortably. Three hundred plates were laid, and there was no room to spare. The floral decorations were beautiful, and so were the ladies. Their escorts looked a brave and happy company, so it was little wonder that the toasters spoke as if inspired, and their eloquence and wit fell upon appreciative ears. An orchestra discoursed appropriate music, and, between courses, popular songs were sung by a sweet-voiced Kentucky belle, the banqueters joining in the choruses lustily. The menu was excellent and it was served admirably; it is seldom a dinner is served so well to so many. To properly prepare and serve such a dinner is a task, the magnitude and difficulties of which few understand. Perhaps it is enough that the participants are satisfied. When cigars and cigarettes were served contentment was reflected from every face.

MENU.

	Blue Point Cocktail	
Celery	Mints	Olives
	Essence of Chicken, a'la Royale	Almonds
	Spanish Mackerel, Maitre D' Hotel	
	Potatoes Parisienne	
	Bouchee of Sweetbread, a'la Gourmet	
	French Peas in Cases	
	Roast Spring Chicken, au Cresson	
	Asparagus Hollandaise	
	Hearts of Lettuce and Tomatoes	
	Brick Ice Cream	
	Assorted Cakes	
Camembert		Roquefort
Cigars	Demi Tasse	Cigarettes

Toastmaster Tyler: Ladies and gentlemen, Mr. Randall came down here some weeks ago and put this high post of honor in my hands. I told him I thought he might get an older man; I knew he could get an abler one, for I wanted to enjoy myself in my own way; but he insisted and so I accepted. Last Sunday night, or rather Monday morning, my door bell rang. I piled out of bed and went down, and there was a special messenger, with a special delivery letter from Mr. Randall's office, putting everything in writing that I would have to say here tonight. I have it here in my pocket and I am going to keep it there; I'm not going to use it at all. I know you have been greeted and welcomed to our city by our honored Mayor, but I want to take this occasion to extend you all a hearty Kentucky welcome, and hope this will be only one of many visits you will pay us, for we Kentuckians always like to have you with us.

A Voice: A little louder, please.

Toastmaster Tyler: Whoever that is in the back of the room, it reminds me of the man who was preaching a sermon, and some one in the back of the room said, "A little louder, please," and the minister said, "When the good angel Gabriel comes to blow the trumpet on the last day there is going to be some fool who will holler, 'Louder!'" (Laughter and applause.)

A Member: Was that a put-up job?

Toastmaster Tyler: No, it was not, but I want to thank the gentleman who said "Louder," for it helped me out nicely. (Laughter.) To get down to our program, the first speaker

of the evening is our honored Governor of Kentucky, Augustus E. Willson, who will speak to us on the subject, "Mortal Clay."

"While in the web and woof we'll find
Choice thoughts with which to store the mind."

(Applause.)

MORTAL CLAY.

BY HON. AUGUSTUS E. WILLSON, GOVERNOR OF KENTUCKY.

Mr. Toastmaster, Ladies and Gentlemen:

All of you have been welcomed to Louisville and that is a right generous slice of Kentucky, but after all, it is only a slice, and the Governor represents the whole part, and for the Commonwealth I welcome you and accord you a cordial greeting. I am glad you came, and I want to say our hats are off to you, and we are glad you are here. I have made many addresses of this kind to so many people, that it ought to be dead easy, but I give you my word of honor, I never start one of these things without having an ague fit, and if you notice my embarrassment, and trouble, just let the kindly human sympathy go out to your



Toastmaster Owen Tyler, Louisville, Ky.

brother in trouble, and know that his trouble is not that he has to speak to you, but that it is to try to express a welcome that he is not big enough to express. (Applause.) Our favorite toasts about Kentucky is,

"Not the oldest, nor yet the youngest State,
Not the oldest, nor yet the poorest,
Not the largest, nor yet the least,
But take it all in all, for men and women,
For flocks and herds, for fields and skies
For happy homes, and loving hearts,
The best place outside of Heaven
The good Lord ever made."

And that is the way we want you to feel about Kentucky. Every once in a while when we are happy, and we get happy sometimes in Kentucky, you will hear a Kentuckian modestly confess, that Kentucky is God's green earth, and has the best men and the most beautiful women and the dearest homes in all the world, and he feels that way about it. He is in dead earnest, but those of us who have the chance to greet an assembly like this, either here or elsewhere in our country, come to realize that an American is an American wherever you find him, whether in Kentucky or any other State. (Applause.)

We talk about our mothers being the dearest looking and our girls the prettiest, but here you bring to us American mothers and American girls from other states, and I give you my word on the honor of Kentucky, I could not tell but that you're all from Kentucky. (Applause.) You cannot tell at a meeting like this, unless you know the road you come, if you were brought through asleep or blind folded, whether you were in Louisville or Indianapolis, or Cincinnati, or Chicago or Atlanta, for so alike are these American people, north and south, east and west. I am proud of it, and proud to welcome you here. (Applause.) We like you well enough to make Kentuckians of every son and

father, mother and daughter of you. Won't you stay? If you can't stay forever, stay a week, two weeks, stay over Sunday and go to church. (Laughter.) The parson says "hallelulah" to that, and his church is the nearest.

I was to talk about "Mortal Clay." I picked the subject myself and then forgot all about it, until I got here this evening. When I selected the topic I thought I would make this particular clay immortal by the kind of speech I would make, and when I got here I happened to think, Kentucky had one immortal Clay and that was enough. (Applause.) When I was a boy—now ladies, that was not so everlastingly long ago (laughter), when I was a boy, the one thing the other fellows could say that made me happier than any other thing they could say was that "he is a perfect brick." I always wanted to be a perfect brick, but never could. I run with some brick that were pretty good, but I never could get up to the highest grade. I never was a hydraulic brick. (Laughter and applause.)

Now, I didn't get up here to tell stories; I wanted to say a word about your working together. I am not an old man, but I can remember the time when it seemed to me a great many of the most important business men of the world, lived on the principle they did in the middle ages, when each important man had a castle surrounded by a moat, over which there was a drawbridge, which was lowered occasionally that they might ride forth and raid innocent travelers. They seemed to think the way to do business was to retire in a corner like the spider with the fly and catch them in a web so that nobody could get their customers. That was the feeling, and it seemed to me that there never was a more unnatural, unwise and unhappy spirit in the trade, and it has come to me with each of these successful gatherings like these of splendid American men and splendid American women, how the world is progressing, how it is getting wiser, better and happier all the time. I am not a pessimist, I am an optimist. I believe in my people, and I believe they are getting better. No longer in their work do men hold themselves



Hon. Augustus E. Willson, Governor of Kentucky.

apart from others, but they meet together in associations like this; instead of living in caves and secret places in which to draw their customers, they come out in the open, in God's sunlight, on the broad plane of quality and fair play and honest trade, and tell the world what they have. They are not afraid to let their rivals in the business see what they are doing. Everyone, friend and competitor, can know and see what you are doing and what you are making. We are all associates in business together, we are all friends and working together. There is not a brother in this association that all of you cannot learn something from. (Applause.) Each of you can learn something from the other, and you are not showing any foolish confidence or credulity. You are showing manly, friendly, good business sense that carries men forward in the world, and I congratulate you on this team work. I was telling Dr. Webb an illustration of the latest team work that occurred at Versailles, when they were starting in a crusade for a new Y. W. C. A. building.

We are very glad you are here, and I hope you will be very glad you came to Kentucky, and that you will have such a good impression of our town and of our State that you will want to come again and again. Don't think that Kentucky is a state of violence and unfriendliness. Kentucky is a state of warm-hearted, true Americans, just as faithful and true as there are in the world. We care for you and extend to every man who comes here to do business as cordial a welcome as if you were going to reside with us. We don't think Louisville is perfect, but we do think it is one of the best places in the United States to do business in, and above that one of the dearest places to live in, where we live comfortably, happily and reasonably at less expense than most of the cities in the country. Our people don't care for sudden excited booms, but a good healthy growth of a sensible, sturdy business community. So we welcome you as business men, may you come again, come often and stay a little while or a long while, just as you please. (Loud applause.)

Toastmaster Tyler: There is a young man on this program whom I had the pleasure of meeting only just yesterday, but he came to me tonight and said: "I wish you would arrange it so that I can speak and get through with this, my maiden speech. I want to be in a position so that I can listen to the others and enjoy my evening." I am going to favor this young man and introduce him to you now. He is going to speak on "Good Fellowship," and his name is Charles H. Bryan, of Detroit, Mich.

"He'll show it as an asset,
Not an iridescent dream."

(Applause.)

GOODFELLOWSHIP AS AN ASSET.

BY CHAS. H. BRYAN, DETROIT, MICH.

Mr. Toastmaster and Brother Bricks:

In my humble opinion, no other speaker upon the list of speakers and none who may be called upon this evening could possibly have a more difficult task than mine. I am asked to estimate the financial worth of good feeling, to put a price in dollars and cents upon courtesy, to reckon up the asset worth of sympathy, kindness and good nature. Could anything be more difficult? Can we weigh the impulses of the heart in our scale pans? Can we distill them in the alembic of commercial worth and test them with the re-agents of our mercenary computations? At first thought, it seems to be an unworthy and impossible thing to do. Goodfellowship, on the one hand, and putting a price upon that goodfellowship upon the other, seem to be as opposite as the poles. Goodfellowship ceases to be goodfellowship when it begins to calculate what this smile will yield and what that kindly word of cheer will realize in dollars and cents.

At the same time, however, we notice that this man, of perhaps mediocre ability, forges rapidly to the front, that he has countless scores of friends who are always ready to help him, that he is extricated, as if by magic, from numberless difficult situations, and that he is able to reap the largest measure of success and satisfaction out of life, while that man, of equal or perhaps superior ability, has his commercial and social sky constantly overcast with lowering clouds, that every man's hand seems to be against him; that, when trouble comes, there seems to be no sympathetic ear in which he can pour out his troubles, no friendly heart to whom he can apply for sympathy and counsel. And we notice that the sole difference seems to be that the first man is liked and the second is disliked; and, when we begin to probe and analyze, we find that the first man is liked because he is likeable, that he is genial, kindly, sympathetic; while the other man is disliked because he is austere, stern and forbidding. And because this convention of the Brickmakers of the United States has assembled to consider methods of success in all the different branches of our art and how to avoid failures along the avenues of our effort, I think I can realize why the builders of this program of toasts have selected this topic for your consideration; and I feel greatly complimented, after all, at being selected to talk on this subject, for I believe that the personal equation is the largest factor in success or failure in any branch of business; and I am highly pleased that this topic, of all topics, should be assigned to me.

Now, what do the committee who selected "Goodfellowship" as a topic mean by goodfellowship? What kind of good fellows do they have in mind? There are different kinds of good fellows, just as there are different kinds of brick. We have brick that are good brick all the way through, solid brick, well burned brick, brick that will stand the assaults of time, sustain the burden of pressure of the imposed superstructure and resist the strain and torsion which most brick have to sustain. On the contrary, there are brick that, on the surface, seem to be well burned, solid brick, but the compact, well burned surface is thin and shallow and the core of the brick is soft and porous. Moisture soon gets in; it freezes and expands; the brick swells and cracks; and, when the time of stress and strain comes, that brick, if not already rejected, proves unequal to the strain, and the building is weakened by its presence.

It is just so with good fellows. How many times have you been introduced to a fellow who greets you with a bright warm smile, whose outstretched hand grasps yours in the friendliest kind of effusive greeting. For a moment or two, perhaps for an hour, a day, or a week, you think he is the price of good fellows. But, by and by, it may be, you find he lets too much moisture in, that the moisture destroys his usefulness and takes away his good character as a brick. It may be that this effusive, cordial manner of his is the thinnest kind of veneer, that he is not sound at the core, that he is selfish, cunning and treacherous. I take it that those are not the kind of brick the making of which this Association advocates, neither is that the kind of good fellows that you gentlemen want to encourage or that the committee had in mind when they selected the quality of goodfellowship for discussion by me.

Oh, what warmth and cheer and help and health and hope there is in the right kind of goodfellowship! How it warms the cockles of the human heart to get into the atmosphere of such good fellows! How the worn, weary pilgrim, staggering, fainting, as he blindly surges onward along life's dusty highway, is strengthened and encouraged and cheered when he meets one of these true good fellows.

How much of human achievement is founded upon the encouragement of some such good fellow! A man is lying dead drunk in the summer sun on the sidewalk of a thriving city's busiest

street. The flies have settled in swarms upon his bloated, discolored face. A dainty, refined girl comes tripping along the street—a royal good fellow she. She takes out her dainty lace handkerchief and spreads it over the face of the unconscious brute. When he awakens from his drunken stupor, he finds this dainty, fragrant handkerchief over his face. Shocked and ashamed, he forms then and there the resolution to do and achieve; and, in later years, William Wirt, attorney general of the United States and a candidate for president, is not ashamed to own that he owes all that he is to that single act of feminine fellowship on the part of the lady who afterwards became his wife. Another drunkard crossing one of London's slippery, muddy streets stumbled and would have fallen had it not been for a roughly dressed man, in workmen's smock, who catches him as he falls, and grips his hand in a cordial hand clasp, saying, "God bless you, my brother," and then hurrying on to his waiting home. That single act of human goodfellowship saved to the world its most eloquent advocate, its greatest temperance lecturer, the great John B. Gough. (Applause.)

The right kind of goodfellowship pays the largest kind of dividends. It yields superlative returns in comfort and self respect. It gilds one entire sky with golden, rosy light. It dispels the dark clouds of discontent and gloom. It outlines even the dark horizon of grief and trouble with the golden border which makes us forget the darker center. In business, it is the most invaluable asset that I know anything about. You do not need the written contract of the true good fellow. His promises do not have to be committed to writing to be as good as gold. Men trust him. Men respect him. Men give him large contracts, although in other hands, those same contracts would be worthless, because of their inadequate pecuniary responsibility. But, with these good fellows, we know that the confidence which other men repose in them is worth many thousands of capital.

Competitors work willingly and cheerfully with a royal good fellow. They could not if they would, and they would not if they could, descend to disparagement and slander as they would be glad to do were he not a good fellow, for men do not dare talk to one's friends disparagingly of him for they would make enemies rather than converts to their cause.

The true good fellow is honest, cordial and sincere. He is not swift to promise because he knows that it is sometimes difficult to perform. But he is always swift to perform that which he has promised. The tongue of the true good fellow is swift to admit the virtues even of his opponents and competitors; "and when it can not praise, is chained." The true good fellow is swift to vindicate the character of those absent ones who are traduced. He need be none the less a keen and sturdy fighter for his own, but he always fights clean and fair. He never strikes below the belt. He carries with him a clean and wholesome atmosphere which is a moral tonic to all who meet him; and, when he has left our presence, we are forced to say to ourselves, if not to others, "There goes a royal, loyal, clean, sincere good fellow—a brick." (Applause.)

Toastmaster Tyler: That was pretty fair for a debutante. (Laughter.) Mr. F. W. Fitzpatrick, Washington, D. C., was to respond to the toast, "The Future,"

"Discerns no farther than his nose
In what the future may propose."

Mr. Fitzpatrick has unfortunately been detained at home, but we are fortunate in having with us tonight a good minister, Dr. Aquilla Webb, of this city. He has consented to tell us what he knows of the future. I do not know whether it will be on the same line with what Mr. Fitzpatrick would have told us or not. (Applause.)

THE FUTURE.

BY AQUILLA WEBB, LOUISVILLE, KY.

Mr. Toastmaster, Ladies and Gentlemen:

I was not aware until I came into the room that I was to speak on the future. I feel myself a great deal like the minister, who was to have spoken to his congregation. Like my friend who preceded me, he had his manuscript, but he rode horseback on his way to church, and when he reached the church, he reached into his pocket to get his manuscript and in his excitement he searched through his different pockets and found it was gone. He heaved a sigh and said: "Friends, when I started to church I had a sermon, but I have lost it and we will have to depend upon the Lord this morning, but we will have something better tonight." (Laughter and applause.)

I will try and make my speech so that it will not have the criticism that came to a minister of whom I heard. He was a manuscript speaker, and spoke at great length. He exchanged pulpits with a friend one day. Now, he had some dogs at home, and they got into his manuscript and eat part of it up. Well, he preached awhile and finally stopped and said: "Friends I had my sermon all prepared, and we have a dog at home which ate part of the sermon, so I will have to stop." When he was through and started out of the door, one of the elders put his hand on his shoulder and said, "My friend, has that dog of yours got any puppies? I would like one for our preacher." (Laughter and applause.)

Speaking of dogs, reminds me of something that occurred one time. I have always been a great admirer of dogs, and I was surprised when I went to show the Governor a picture I have in my watch, he showed me a picture of a dog in his watch. I knew we were kin—he says it is a dog-gone good watch.

(Laughter.) I had a very fine St. Bernard dog and I raised some puppies. I was anxious to have a prize winner, a dog that would take a blue ribbon, so I selected one of these puppies and took him to New York. He was about eleven months old and I had taken him to Philadelphia to show him in the first show before taking him in the New York show. And we had to cross the Erie Ferry in order to take the Pennsylvania Ferry, and when I got on the Erie Ferry a fellow got on there, and judging from my experience in Kentucky, he was not from Kentucky. There he was rather full, and he said, as he came over and looked at the dog, "That's a fine dog you got." Well, he was a handsome fellow. He weighed 196 pounds and measured 36 inches at the shoulder. I said, "Yes, go on." And he said, "That's a fine dog," and I said, "O, you go on away from here." He said, "I'll give you \$25.00 for that dog." I said, "You go on away from here, I don't want to sell the dog." And he said, "That's a fine dog, I will give you \$50.00 for him." I said, "Now, go on away from here and don't bother me." He said, "Is that dog cross?" I said, "No, that dog is not cross, but I don't want to talk to you." After a while he said, "What would you take for that dog?" I said, "I wouldn't take a thousand dollars for him." He said, "Good Lord, you are as full as I am." (Laughter.)

I have not been in Kentucky long, but I was not here long before I found the Kentucky spirit, and the best illustration I can give is to tell another dog story. You know when a minister first strikes a town, everybody is going to entertain him. Consequently I had an invitation out the second day after I reached Kentucky. We were going out the River Road with one of my parishioners and as we got on the car I noticed a pointer dog—I think he was a pointer, he was setting. (Laughter.) A little fellow had this pointer setting there and there was a young man on the car about my size, a fine looking young man. (Laughter.) We had not gone very far when another man got on and accidentally stepped on the dog's tail, and the fellow who did not own the



Chas. H. Bryan, Detroit, Mich.

dog, said "Look out where you step." And he said, "I will step where I please." And he said, "You will not step where you please," and he knocked him down. And I said, "Hurrah, I am in Kentucky, I have arrived." And I was glad to know I was in a land where a bluff didn't go. That is what I like about Kentucky. It is a wonderful thing to meet men who are not bluffing, and whenever a man says a thing, he has got to march right up to it or take his medicine quick, and even if I am a minister, I like that spirit because I believe there is a little too much bluffing in this world. That is one thing about Kentucky—she does not bluff. She says she has the best whiskey and—there are some who tell me it is so. (Laughter.) They tell me they have the fastest horses, and I believe it is true, though they do not allow a minister to go on the race track in Kentucky. They say they have the handsomest women in Kentucky, the hip pockets are the biggest, and cylinders revolve the quickest in Kentucky and from my experience, I believe it is so. Now when that man said "louder," I thought we in Kentucky seldom find it necessary to say "louder," because we have the biggest lungs and the biggest head (Mayor Head) in the country, here in Kentucky. The fellow crying out "louder" makes me think of the fellow making a speech and a fellow kept yelling "louder." A man in front turned round and said, "Can't you hear this man talk?" And the other fellow said, "No." And the man in front said, "Well, you are in luck." (Laughter.)

Now there is one thing a minister has the right to do. He has the right to take his text and go everywhere in the world and preach his gospel. My text is "The Future," and I think of a great many things in the future, and before I close I want to give you a little prophecy. As I told you the other day, we have in our Mayor the future governor of Kentucky. There is another thing I may serve notice to you, to scatter over the country, so it will not come as too great a surprise—that the next vice-president will be none other than Governor Willson. (Applause.) There are some other things I think for the future

that I wish might come true. I have the church called the Big Red Church on the Corner, and I tell you it is a dandy, and I think of that church and the work here in the city, and I tell you how I could make a success in the future in that church. If I could get Mr. Randall as my assistant and have a machine that would turn out a thousand brick a minute, and have Mr. Randall sit in the gallery and fire these brick at the men who went to sleep while I was preaching, I think I could have a great success. (Laughter and applause.) I might be like the fellow who was a minister and had a son. It was in the early summer and this little fellow went to church. The apples were about as big as marbles and he filled his pockets full of these little green marbles. His father was another one of those manuscript preachers, and he noticed men jumping every once in a while all over the audience and presently he noticed that Johnnie was throwing apples from the gallery, and he said, "Johnnie, Johnnie, what are you doing?" Johnnie said, "Never mind dad, you do the preaching, I will keep them awake." (Laughter and applause.) I have just thought if I could have a man with the energy and resourcefulness of Randall to stay in the gallery and fire brick or something else, just so he would keep them awake, what a great success we would have. There is another thing about the future that is very certain. We are today in all lines of activity studying how we can best work and best grow. The man today who is succeeding has come to realize that his success is not in doing the spectacular and unusual thing, but in doing well what others are doing poorly. The man who undertakes and succeeds by some make-shift, some trick, has only a short course to run. But the man who is working successfully, who is doing his honest and level best, is not only paving the way for success in his business, but he is certainly paving the way into the New Jerusalem. He is paving the way today for the New Jerusalem to come down out of Heaven and dwell with men, and this is the encouraging thing. I cannot help but see these things as a minister of the Gospel of Christ today, that as we go out among



Dr. S. W. Stratton, Washington, D. C.

men and associate with men in business and see how business is being conducted, that men are not trying to succeed by trick, but is thinking and working his head as well as his hands. It is a great encouragement to us, and when we face such men who sit down in pews, the men who understand the making of a good brick, we know that here is a man who will understand and appreciate the man in the pulpit, who is doing his honest best to put the very best into the building he is trying to construct, and the future of this architect is depending entirely upon the way you are working through the day. We know we can get the men to come into the church on the Sabbath day and sit there and listen to us, but unless they are willing to put religion into their business, unless that some religion becomes a part of their business, all that we say will be in vain. We cannot hope to fill the church of God on earth and bring the Kingdom to pass, unless you are honest and conscientious yourselves. We are finding today as we are trying to solve this question, it is not alone a question of sin in the individual, it is the sinning by combination that is bothering us. If we can get men to be honest in their combinations and in their trusts, a great work is done. We can rejoice ourselves that, having done their best during the week, they can come into the Church of God on Sunday and sing and rejoice as honest men before God, and this is the forecast that I can bring to you. This is the vision I believe the ministers of the Gospel have today. The vision of men who are honest in their business, and trying to do the best that is in them. If we can do this, we need not worry much about creed; we need not worry so much about denomination. I cannot for the life of me tell to what denomination you belong, but as I looked at your faces in the room above yesterday and as I look into your faces tonight, and see what has been in your business marked on your faces, I believe that this is one of the associations that is helping to realize the Kingdom of God here on earth. I want you men to feel that if you conduct your business to the very best of your ability, you are

helping to make more secure the foundations of our Nation and helping to establish the Kingdom of God on earth. I bid you welcome; I rejoice that you have such an association, and rejoice with all my soul that we can meet together. There is one final thing I want to say to you men, that if Kentucky has a reputation of having so much liquor, that in my experience in this city and throughout the State, it is one of the greatest states that I know anything about for serious-minded, industrious, honest men who mind their business. To me it is the greatest state I have ever been in, save my own native state, to which I bow allegiance tonight, one of the greatest states of the Union—the state of Ohio—that has produced some of the jewels of this nation. So I bid you welcome tonight and rejoice with you that you are studying how to put character into brick. (Loud applause.)

Toastmaster Tyler: I think we all owe Dr. Webb a vote of thanks for the good talk he has given us. I do not know what Mr. Fitzpatrick would have told us about the future, but I think what Dr. Webb has given us every one can take home with him. The next speaker of the evening is Dr. S. W. Stratton, of the Bureau of Standards, Washington, D. C. He will talk to us on "Life's Standards."

"Adding a tribute heaping o'er
To the good things that have gone before."

(Applause.)

"LIFE'S STANDARDS."

BY DR. S. W. STRATTON, WASHINGTON, D. C.

Mr. Toastmaster, ladies and gentlemen, not being either a Governor, nor a minister nor an editor, but simply an every day scientist, I am afraid I cannot entertain you in the way I have been entertained. I notice that the subject given me is "Life's Standards." I thought at first it was a subject for a minister, not for a scientist, then I noticed it was not "Standards of Life," but "Life's Standards," and surely the standards that enter into every transaction, every business transaction, every operation of manufacture should be called "Life's Standards."

In a vault at Washington, in which is kept the original copy of the Act of Independence is a piece of platinum which is very rarely taken from that place except to compare with it a few standards used by the Bureau of Standards in comparing the standards of manufacturer. There has not been a commodity changed hands, scarcely a business transaction taken place of any account that it has not taken its measure by this one piece of metal. In the same vault as this piece of metal we put the most stable metal we know, so every bit of commodity bought or sold, every piece of manufacture, every mile that is measured, goes back through the standard of manufacture to this single piece of metal. Has it ever occurred to you that in other cases, we have the pound, and the yard stick, in the measurements of heat and light, and electricity, and almost every branch of physics. They are as essential to the operation of every-day life as the pound and the yard stick, every bit of electric current that is generated or bought or sold depends on the pound and the yard stick used in electrical measurements, and so on. In the early days the Government recognized only the two pieces of metal, and it has only been in recent years that the Government recognized the great necessity of these other pound and yard sticks. Other governments recognized this long before. Germany, France and England have all established great institutions, with laboratories with hundreds of employees, and established these very yard sticks and manufacturers' standards that we have. We are not only considering the standards of this sort, but standards that enter into the computations of engineers, and many other cases that are as important and as essential as the ordinary standards with which we are familiar. Today in one of the lectures in the convention hall I heard British Thermal Units mentioned. The British Thermal Unit is a splendid example of the yard stick or pound; it is used in heat measurements, a standard that must have a uniform value and be there for all mankind. These foreign governments have established these institutions, and manufacturers go to them for all things. There is no manufacturer today who does not depend for his success upon standards of some sort. They are beginning to establish standards of quality as well as quantity, so that when a certain material or property is mentioned it will be known the world over, and these standards are fast becoming world-wide.

Our own Government, while it has been very advanced in establishing other lines of scientific work, has been very backward in establishing this line of work, which is of particular importance to our manufacturers. Our Government expended thirteen million dollars a year in order that the farmer might know better how to till the soil and improve his product as it were. Spends a million dollars a year in Bureau Fisheries; two or three million a year in the Coast and Lighthouse service, in order that our ships may be properly cared for; a million or two on the Geological Survey, and so on. But only a few thousand dollars towards improving the methods of our manufacture. Certainly this branch of our country's interests deserves more expenditure on the part of our Government, and I am glad to say that things are fast changing in that respect. The Government has established a Bureau of Standards and is supporting it very liberally, and the time will come when this country will have an institution similar to that of foreign government, where our manufacturers can go for life's standards. I thank you. (Applause.)

Toastmaster Tyler: We have with us this evening a man from our neighboring State, Indiana. He is going to talk on "Just Anything."

"A little this, a little that;
A bad built chimney's like a bat."

What all this means Mr. J. M. Hoskins, of Terre Haute, will tell you. I had the pleasure of having him tell me a few of his "Just Anythings" yesterday. If he can make good tonight as he did yesterday, he is a good one. (Applause.)

JUST ANYTHING.

MR. J. M. HOSKINS, TERRE HAUTE, IND.

Mr. Toastmaster, Ladies and Gentlemen:

You know this is new to me; I fear I am up against it. Honestly, I have sat here and have been so intensely interested in these brilliant speeches, that I really forgot I was on the program; I did, and that is the truth. But here I am, and I suppose I have to do something. (Laughter.) This speech-making business is entirely foreign to my nature. I never was built for speech making. I never made one in my life. When I first learned I was on the program for this evening, I thought the best thing to do is to go to my best friend and talk it over. I didn't know anything better to do, so went to my best friend on earth, Mrs. Will P. Blair, and said to her, "What am I going to do; you know I can't make a speech?" She said, "Now Jimmie, you just take my advice, and read them a few letters you have on the booze question, that will certainly suit some of the Kentuckians, perhaps all of them; and you know that most of our people will be pleased with it. And what pleases us, ought to please them." So, now people, if it don't suit you, I will still be here tomorrow; but don't criticize Mrs. Blair too much.

TWO VIEWS ON BOOZE.

It seems that Col. Robert Ingersoll was not much of a booze fighter, but he liked the warming influence of some good whiskey when he could get it. He was making a lecture tour through the State of Kentucky one time, and while down here he found a whole barrel of real ripe old whiskey that just suited his taste, and he had it shipped home to himself; and when he got home he said, "Bob, this is too much whiskey for any one man to have, so send some of it to some of your friends." So Bob sat down and made a list of friends to whom he might send some of his choice whiskey. Among the list was Dr. Buckley, a Methodist minister, an old school friend; and Bob thought he might like some of that good whiskey, so he sent Dr. Buckley a gallon jug and wrote a letter.

MY DEAR BUCKLEY:

I send you some of the most wonderful whisky that ever drove a skeleton from a feast or painted landscapes in the brain of man.

It is the mingled souls of wheat and corn.

In it you will find the sunshine and the shadow that chased each other over billowy fields. The breath of June, the carol of the lark, the dew of night, the wealth of summer, and autumn's rich content all golden with imprisoned light.

Drink it and you shall hear the voices of men and maidens singing "The Harvest Home," mingled with the laughter of children. Drink it deep and you will feel within your veins the beautiful starred dawns, the dreamy, tawny dusks of perfect days.

For 40 years this liquid joy has been confined in staves of oak, longing to kiss the lips of man. Your friend,

ROBERT G. INGERSOLL.

Dr. Buckley got this jug of whiskey, looked it over, and, without even removing the cork to see what a beautiful bunch of joy he had, shipped it back with the following letter:

MY DEAR BOB:

I return to you some of the most wonderful whisky that ever brought a skeleton into the closet or painted scenes of lust and bloodshed in the brain of man.

It is the ghosts of wheat and corn crazed by the loss of their natural bodies.

In it you will find a transient sunshine chased by a shadow as cold as an Arctic midnight, in which the breath of June becomes chilled and the carol of the lark gives place to the foreboding cry of the raven.

Drink it and you shall have woe, sorrow, babbling, wounds without cause. Your eyes shall behold strange women and your heart shall utter perverse thoughts.

Drink it deep, and you shall hear the voices of demons shrieking, women wailing and worse than orphaned children mourning the loss of a father who still lives. Drink it deep and long and serpents will hiss in your ears, coil themselves about your neck and seize you with their fangs.

At last it "biteth like a serpent and stingeth like an adder."

For 40 years this liquid death has been confined in staves of oak, harmless there as purest water. I return it to you that you may put in your mouth that which will steal away your brain, and yet I call myself your friend.

BUCKLEY.

(Continued applause.)

Ladies and gentlemen, I thank you. I thank you very kindly indeed. With apologies to Mr. S. W. Gillilan, the editor of the Success Magazine, I will give you a little poem which I am sure you will all appreciate. It was written by Mr. Gillilan himself.

WATCH YOURSELF GO BY.

Just stand aside and watch yourself go by;
Think of yourself as "he" instead of "I"—
Note closely, as in other men you note,
The bag-kneed trousers and the seedy coat.
Pick flaws, find fault, forget the man is you,
And strive to make your estimate ring true.
Confront yourself and look you in the eye—
Just stand aside and watch yourself go by.

Interpret all your motives just as though
You looked at one whose aims you did not know.
Let undisguised contempt surge through you when
You see you shirk, O commonest of men!
Despise your cowardice; condemn where'er
You note a falseness in you anywhere.
Defend not one defect that shames your eye—
Just stand aside and watch yourself go by.

And then, with eyes unveiled to what you loathe—
To sins that with sweet charity you'd clothe—
Back to your self-walled tenement you'll go
With tolerance for all who dwell below.
The faults of others, then, will dwarf and shrink,
Love's chain grow stronger by one mighty link—
When you, with "he" as substitute for "I"
Have stood aside and watched yourself go by.

(Loud applause.)

Mr. Blair suggests that I give you one of Riley's poems. They are all so good that I hardly know which one to select.

THE TREE-TOAD.

"Seur'ous-like," said the tree-toad,
"I've twittered fer rain all day;
And I got up soon,
And hollered tel noon—
But the sun, hit blazed away,
Tell I jest clumb down in a crawfish hole
Weary at hart, and sick at soul!"



J. M. Hoskins, Terre Haute, Ind.

"Dozed away fer an hour,
And I tacked the thing again;
And I sung, and sung,
Tel I knowed my lung
Was jest about give in;
And then, thinks I, ef hit don't rain now,
They's nothin' in singin', anyhow!"

"One't in a while some farmer
Would come a-drivin' past;
And hed hear my cry,
An stop and sigh—
Tel I jest laid baek, at last,
And I hollered rain tel I thought my th'ot
Would bust wide open at ever' note!"

"But I fetched her!—O, I feteher her!
'Cause a little while ago,
As I kindo' set,
With one eye shet,
And a-singin' soft and low,
A voice drapped down on my fevered brain,
A-sayin' 'Ef you'll jest hush I'll rain!'"

(Laughter and applause.)

Toastmaster Tyler: I think we can thank Mrs. Blair for the selection she made for Mr. Hoskins. The gentleman who was to respond to the toast, "Our Better Selves," meaning "The Ladies"—

"Ah! This is a toast for a Louisville glass!

The ladies forever—wife, sweetheart and lass!"—

was our esteemed townsman, R. W. Brown, who is unavoidably

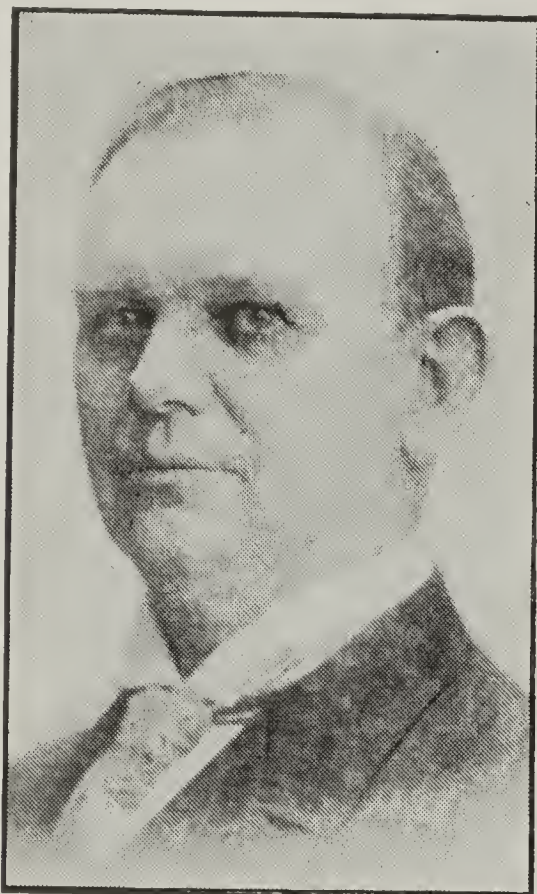
absent. In his place I am going to call upon Mayor Head, whose privilege it was to bid you welcome to our city. Now tonight I am going to ask him to say a good-bye word to you, and I know he will do it with regret. (Applause.)

MAYOR HEAD'S ADDRESS.

Mr. Toastmaster, Ladies and Gentlemen:

They always call on me unexpectedly to fill in for someone else. However, I have listened here with a great deal of pleasure to the magnificent speeches we have heard and the music, and the beautiful poetry of Mr. Hoskins. It is always a pleasure to listen; and while I have no speech in manuscript, I trust I won't get into the shape that the New York policeman did. A preacher told me this story, and it must be all right. (Laughter.) I get nearly all my jokes from the preachers. You have heard Dr. Webb, and you know what kind of stories the preachers tell. There was a gentleman in the great city of New York, and he wanted to find the Emergency Hospital, so he went up to an Irish policeman by the name of O'Riley, who had not been on the force very long, and asked him where it was. Now O'Riley really did not know where the Emergency Hospital was, but he did not want to give himself away, so he said: "You go one square that way, and then go up two squares, and you will come to Mike O'Brien's saloon. You go in there and invite Mike out on the outside and take a drink with him, and when you get through your drink, you say to Mike that every blasted Irishman ought to be sent to Jerusalem, and when you wake up you will be in the Emergency Hospital." (Laughter and applause.)

Mr. Toastmaster, the more I look at these good people, the



Hon. W. O. Head, Mayor of Louisville.

"gladder" I am they came to Louisville. We have had a great many conventions here, but I do not think we ever had one to excel this excellent body of people. We are glad you came. I am doubly glad you came, because I have not heard a single man croaking or knocking, or talking hard times. They are all talking prosperity and progress, and I find our business men are catching the spirit. Mr. Toastmaster, if we could get these good people to stay another week, we would have a boom in Louisville, I am certain. (Laughter.)

I am reminded when I look over this vast assembly of another Irishman who fell out of a tall building, and he hit the telegraph

wires and the awnings, and finally hit the ground. They thought he was dead and sent for his good wife, and she came and put her ear to his heart and heard it beating, and she said, "He is alive, the good Lord was with him." Pat opened his eyes, and said, "If the Lord was with me on that trip, He was going some." (Laughter.)

In looking over this audience, this bunch of live wires, as I believe they are, I think the trade or organization that passes them will be "going some." (Applause.) For in reading history they tell us the brickmaking business is a very aristocratic one, and goes back seven thousand years. The great king Nebuchadnezzar was a brickmaker and put his name on the brick; and they tell me the brickmaking business was discovered down in Babylon somewhere and has come on down to the present day. It is one of the oldest trades I suppose there is, and they certainly have got good live wires in it if this is a fair sample we have here. It may be interesting to know that one of the first houses built out of English brick was built in this county. We are glad that we do not have to go to England for brick, but that we can get them in the U. S. A., for that is the kind of brick we like to use.

In speaking of the Englishman, I am reminded of an old story; probably you have all heard it, but I will tell it anyway. One of the beautiful Southern ladies was touring Europe, and an Englishman fell in love with her; and I rather like that Englishman in some ways, and in some I do not, but I do not want to reflect on any nationality in telling this story. Well, the Englishman followed the young lady home, and everything was progressing nicely and Uncle Eph was sent to show him over the plantation and show off all the beautiful things they had. Uncle Eph showed him the beautiful cattle. "Very nice," said the Englishman, "but not so nice as we have in England." Uncle Eph showed him the cotton fields. "Very nice, but not quite so nice as we have in England." Then he showed him the fine horses. "Not quite as good as we have in England," said the visitor. They went turkey hunting, and they killed an immense big gobbler. Uncle Eph thought he had him there. He looked at the gobbler and said, "Very nice, but just about like our black birds in England." This was too much for Uncle Eph; he could not allow the South to go down, so he hit upon a plan. He had caught a big snapping turtle and was going to have him for soup. I do not know whether you brickmakers know much about snapping turtles, but when I was a barefoot boy down on my father's farm, I wandered down to the creek, and I met one, and he shook hands with my toe, but he never knew when to turn loose. (Laughter.) Uncle Eph knew about the time this young man would retire, so he got this turtle and went to his room, and about the time he thought he was coming up, he took Mr. Turtle and put him in the bed and carefully covered him up. The Englishman jumped into bed and the snapping turtle grabbed him, and out of bed came the Englishman, yelling with pain and fright. Uncle Eph went running into the room and said, "What is the matter?" The Englishman said, "What is this awful creature?" Said Uncle Eph, "That is an American bedbug. Can you beat that in England?" (Laughter and applause.)

Now, ladies and gentlemen, Mr. McNees, who responded to my words of welcome yesterday afternoon, referred to the line of the North and the South having been obliterated. I heartily agree with him. We know no North, we know no South. This is one great country we live under one flag. The New England States are all right, the Central States are all right, the West is all right, and we in the Southern States are sailing on smooth seas with the good ship of progress and prosperity. If you need our help, we will throw you the life line, because it is the Stars and Stripes forever. (Applause.)

Toastmaster Tyler: I think it would be very fitting and appropriate to close the evening by singing "Auld Lang Syne." Governor Willson will lead us in singing.

"Should auld acquaintance be forgot
And never brought to mind?
Should auld acquaintance be forgot,
And the days of auld lang syne?"

"For auld lang syne, my dear,
For auld lang syne,
We'll tak' a cup o' kindness yet
For auld lang syne."

C. A. Bloomfield: Three cheers and a tiger for the Governor, and Mayor, and the brickmakers of Louisville.

Governor Willson: God bless you all. There are not enough Kentuckians to give you the cheers we would like to.



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*J. C. Adams (1890-91) Indianapolis, Ind.

*W. H. Alsip (1894) Chicago, Ill.

*W. H. Brush (1897) Buffalo, N. Y.

*C. P. Merwin (1889-93) Berlin, Conn.

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*Deceased.

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 T. Bishop.....Louisville, Ky.
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 A. R. Campbell.....Tottenville, S. I., N. Y.

- George W. Weaver.....Utica, N. Y.
 James B. Crowell.....Walkill, N. Y.
 G. B. Mentz.....Walkill, N. Y.
 J. H. Mead.....Warner, N. Y.
 Harold Copping.....Waterford, N. Y.
 D. S. Hildebrand.....Asheville, N. C.
 J. E. Carson.....Charlotte, N. C.
 R. A. Brown's Sons.....Concord, N. C.
 E. A. Poe.....Fayetteville, N. C.
 F. P. Marshall.....Greensboro, N. C.
 W. E. Jeffrey.....Rocky Mt., N. C.
 J. C. Steele & Sons.....Statesville, N. C.
 Red River Valley Brick Co. Grand Forks, N. D.
 McCausland Bros.....Akron, O.
 Robinson Clay Products Co.....Akron, O.
 The Alliance Brick Co.....Alliance, O.
 Alliance Clay Products Co.....Alliance, O.
 W. R. Cunningham.....Bucyrus, O.
 F. L. Hopley.....Bucyrus, O.
 Fred S. Naugle.....Bucyrus, O.
 R. O. Perrott.....Bucyrus, O.
 C. B. Sharer.....Bucyrus, O.
 The Bonnot Co.....Canton, O.
 The Canton Pressed Brick Co.....Canton, O.
 Metropolitan Paving Brick Co.....Canton, O.
 A. A. Oldham.....Canton, O.
 F. P. Nickerson.....Carrollton, O.
 George E. Anders.....Cincinnati, O.
 J. M. Blair.....Cincinnati, O.
 C. E. McCammon.....Cincinnati, O.
 L. Mendenhall.....Cincinnati, O.
 Pursell & Grand.....Cincinnati, O.
 J. B. Stanwood.....Cincinnati, O.
 Suer & Bros.....Cincinnati, O.
 Donnelly Wever.....Cincinnati, O.
 Atlas Car Mfg. Co.....Cleveland, O.
 J. W. Candler.....Cleveland, O.
 Cleveland Brick & Clay Mfg. Co.....Cleveland, O.
 Robert J. Dawson.....Cleveland, O.
 Deckman-Duty Brick Co.....Cleveland, O.
 Dover Fire Brick Co.....Cleveland, O.
 Wm. H. Hunt.....Cleveland, O.
 Bert J. Graham.....Cleveland, O.
 Fred G. Langner.....Cleveland, O.
 Murray Brick Co.....Cleveland, O.
 J. F. Leonard.....Cleveland, O.
 Ohio Ceramic Engineering Co.....Cleveland, O.
 Ohio Clay Co.....Cleveland, O.
 Quisser-Bliss Co.....Cleveland, O.
 F. H. Robinson.....Cleveland, O.
 Sawyer Belting Co.....Cleveland, O.
 C. B. Stowe.....Cleveland, O.
 J. M. Adams.....Columbus, O.
 F. Henry Angell.....Columbus, O.
 W. O. Copeland.....Columbus, O.
 C. H. Doan.....Columbus, O.
 S. J. Heafield.....Columbus, O.
 W. H. Hoagland.....Columbus, O.
 The Ironsides Co.....Columbus, O.
 L. G. Kilbourne.....Columbus, O.
 The Kilbourne & Jacobs Mfg. Co. Columbus, O.
 Ellis Lovejoy.....Columbus, O.
 Prof. Edward Orton.....Columbus, O.
 Ross C. Purdy.....Columbus, O.
 W. D. Richardson.....Columbus, O.
 J. A. Topping.....Columbus, O.
 J. T. Underwood.....Columbus, O.
 The Conneault Shovel Co.....Conneaut, O.
 F. B. Dunn.....Conneaut, O.
 N. C. Ralph.....Conneaut, O.
 B. F. Cotter.....Coshocton, O.
 The Keller Brick Co.....Cuyahoga Falls, O.
 Manufacturers' Equipment Co.....Dayton, O.
 The C. W. Raymond Co.....Dayton, O.
 Chas. W. Raymond, Jr.....Dayton, O.
 Geo. M. Raymond.....Dayton, O.
 J. L. Schroll.....Dayton, O.
 Teigler Bros.....Dayton, O.
 Delaware Clay Co.....Delaware, O.
 Mitchell Brick Co.....Delhi, O.
 Geo. Gleckler.....Elmore, O.
 J. W. Forsythe.....Fremont, O.
 E. M. Freese & Co.....Galion, O.
 B. E. Place.....Galion, O.
 The Wassall Brick Co.....Glouster, O.
 The Hamilton Brick Co.....Hamilton, O.
 C. H. Forry.....Hanover, O.
 R. B. Burr.....Lancaster, O.
 Robert I. Frink.....Lancaster, O.
 R. D. McManigal.....Logan, O.
 W. I. Foster.....London, O.
 Thew Steam Shovel Co.....Lorain, O.
 McArthur Brick Co.....McArthur, O.
 A. T. Blatchford.....Malvern, O.
 Marion Steam Shovel Co.....Marion, O.
 C. H. Carpenter.....Martins Ferry, O.
 M. McC. Everhard.....Massillon, O.
 L. E. Fox.....Mendon, O.
 W. A. Eudaly.....Middletown, O.
 Ed. Deifenthaler.....Millbury, O.
 Frank Shenkle.....Mineral City, O.
 C. N. Miller.....Mogadore, O.
 C. C. Jewett.....Nelsonville, O.
 Arnold-Creager Co.....New London, O.
 John D. Martin.....New Straitsville, O.
 Ohio Galvanizing & Mfg. Co.....Niles, O.
 Wm. G. Griffiths.....Oak Hill, O.
 J. D. Fate & Co.....Plymouth, O.
 Adam Buch.....Portsmouth, O.
 The Peebles Paving Brick Co. Portsmouth, O.
 A. J. Darbyshire.....Sabina, O.
 Paul P. Elliott.....Seville, O.
 Shepfer & Moomaw Bros.....Sugar Creek, O.
 A. R. Kuhlman.....Toledo, O.
 W. S. Russell.....Toledo, O.
 C. D. Smith.....Toledo, O.
 Toronto Fire Clay Co.....Toronto, O.
 The Trimble Brick Mfg. Co.....Trimble, O.
 Ben. S. Fisher.....Union Furnace, O.
 W. S. Leatherman.....Wadsworth, O.
 R. E. Whitacre.....Waynesburg, O.
 H. L. Bennett.....Wellington, O.
 R. C. Bennett.....Wellington, O.
 C. G. Stevenson.....Wellsville, O.
 Industrial Car Co.....West Park, O.
 H. B. Crum.....Willoughby, O.
 L. W. Penfield.....Willoughby, O.
 W. R. Barnhart, Jr.....Wooster, O.
 C. C. Blair.....Youngstown, O.
 Charles M. Crook.....Youngstown, O.
 E. E. Klooze.....Youngstown, O.
 E. M. Ayers.....Zanesville, O.
 R. C. Burton.....Zanesville, O.
 R. H. Rutherford.....Zanesville, O.
 O. N. Townsend.....Zanesville, O.
 Chas. A. Hoshour.....Oklahoma City, Okla.
 F. Oliver.....Beaver Falls, Pa.
 Clarence E. Crook.....Bessemer, Pa.
 F. R. Kanengeiser.....Bessemer, Pa.
 J. B. Hammond.....Bolivar, Pa.
 G. W. Foster.....Bradford, Pa.
 C. E. Foster.....Bradford, Pa.
 Wm. Hanley.....Bradford, Pa.
 W. M. Hodges.....Bradford, Pa.
 E. F. Knight.....Bradford, Pa.
 John P. Melvin.....Bradford, Pa.
 T. J. Melvin.....Bradford, Pa.
 Chas. C. Stratton.....Bradford, Pa.
 C. P. Mayer Brick Co.....Bridgeville, Pa.
 Lee B. Humphreys.....Brookville, Pa.
 George E. Howard.....Butler, Pa.
 Shull & Badger Brick Co.....Butler, Pa.
 George T. Kirkbridge.....Carnegie, Pa.
 Clearfield Clayworking Co.....Clearfield, Pa.
 W. F. Soisson.....Connellsville, Pa.
 D. Warren DeRosay.....Corry, Pa.
 Charles Slattery.....Darlington, Pa.
 DuBois & Butler Brick Co.....DuBois, Pa.
 McKeesport Brick Co.....Duquesne, Pa.
 C. K. Williams & Co.....Easton, Pa.
 Joseph Dudenhoefer.....Erie, Pa.
 Will H. Miller.....Erie, Pa.
 E. P. Lippincott.....Freeport, Pa.
 H. B. Wells.....Greensburg, Pa.
 Fred J. Harm.....Harrisburg, Pa.
 G. W. Lenkerd.....Indiana, Pa.
 Archie Sproul.....Jeannette, Pa.
 Good Roads Machine Co.....Kennett Square, Pa.
 W. B. Daugherty.....Kittanning, Pa.
 G. W. McNees.....Kittanning, Pa.
 Kushequa Brick Co.....Kushequa, Pa.
 Wm. R. Martin.....Lancaster, Pa.
 Geo. S. Good Fire Brick Co.....Lumber City, Pa.
 John P. McIntyre.....McKeesport, Pa.
 Harry B. Simpson.....Monongahela, Pa.
 P. A. Smith.....New Brighton, Pa.
 Beaver Clay Mfg. Co.....New Galilee, Pa.
 W. C. Alwine.....New Oxford, Pa.
 J. E. Harvey.....Orvis, Pa.
 Cyrus Chambers, Jr.....Overbrook, Pa.
 George B. Waite.....Parsons, Pa.
 Patton Clay Mfg. Co.....Patton, Pa.
 E. H. Carroll.....Philadelphia, Pa.
 P. F. Carroll.....Philadelphia, Pa.
 J. H. Chambers.....Philadelphia, Pa.
 I. L. Conkling.....Philadelphia, Pa.
 S. O. Conkling.....Philadelphia, Pa.
 Wm. Conway.....Philadelphia, Pa.
 S. B. Dobbs.....Philadelphia, Pa.
 Murrell Dobbins.....Philadelphia, Pa.
 John H. Earley.....Philadelphia, Pa.
 O. W. Ketcham.....Philadelphia, Pa.
 Mack Manufacturing Co.....Philadelphia, Pa.
 T. B. McAvoy.....Philadelphia, Pa.
 A. R. Root.....Philadelphia, Pa.
 Webster & Keyser.....Philadelphia, Pa.
 Thomas M. Wilson.....Philadelphia, Pa.
 Beckett Brick Works.....Pittsburg, Pa.
 George H. Brown.....Pittsburg, Pa.
 Central Brick Co.....Pittsburg, Pa.
 Darlington Brick & Mining Co.....Pittsburg, Pa.
 Grant Dibert.....Pittsburg, Pa.
 Frank G. Evatt.....Pittsburg, Pa.
 James T. Fox.....Pittsburg, Pa.
 W. H. Gibb.....Pittsburg, Pa.
 Gloninger & Co.....Pittsburg, Pa.
 Houston Bros. & Co.....Pittsburg, Pa.
 Evans Jones.....Pittsburg, Pa.
 Harbison-Walker Refractory Co. Pittsburg, Pa.
 Kittanning Brick & Fire Clay Co.....Pittsburg, Pa.
 R. R. Lambert & Co.....Pittsburg, Pa.
 Charles B. Lawton.....Pittsburg, Pa.
 Manown Mfg. Co.....Pittsburg, Pa.
 J. D. McIlwain.....Pittsburg, Pa.
 H. E. McLain.....Pittsburg, Pa.
 National Fire Proofing Co.....Pittsburg, Pa.
 Ohio Valley Brick Co.....Pittsburg, Pa.
 Phillips & McLaren.....Pittsburg, Pa.
 Pittsburg Clay Products Co.....Pittsburg, Pa.
 H. T. Porter.....Pittsburg, Pa.
 D. T. Riffe.....Pittsburg, Pa.
 Sankey Bros.....Pittsburg, Pa.
 Thomas E. Simpers.....Pittsburg, Pa.
 Hamilton Stewart.....Pittsburg, Pa.
 Vanport Brick Co.....Pittsburg, Pa.
 J. H. Ward & Sons.....Pittsburg, Pa.
 G. C. Webb.....Pittsburg, Pa.
 James H. Welch.....Pittsburg, Pa.
 E. S. Fox & Co.....Reading, Pa.
 Clyde C. Murray.....Reynoldsville, Pa.
 C. S. Estes.....Ridgeway, Pa.
 Elk Fire Brick Co.....St. Mary's, Pa.
 Saxton Vitrified Brick Co.....Saxton, Pa.
 J. A. Williams.....Scranton, Pa.
 Union Brick Co.....Shamokin, Pa.
 Alfred Yates.....Shawmut, Pa.
 S. A. Barley.....Steelton, Pa.
 A. L. Moredock.....Waynesburg, Pa.
 George T. Dickover.....Wilkesbarre, Pa.
 Wm. S. Dickover.....Wilkesbarre, Pa.
 David Atherton.....Williamsport, Pa.
 David Stuempfle's Sons.....Williamsport, Pa.
 York Shale Press Brick Co.....York, Pa.
 W. G. Titcomb.....Providence, R. I.
 G. A. Guignard.....Columbus, S. C.
 George H. Drew.....Ft. Mill, S. C.
 W. A. Hull.....Chattanooga, Tenn.
 Knoxville Brick Co.....Knoxville, Tenn.
 T. C. Lundy.....Knoxville, Tenn.
 Frank H. Reid.....Memphis, Tenn.
 Robert A. Speed.....Memphis, Tenn.
 Tennessee Brick Co.....Memphis, Tenn.
 W. G. Bush & Co.....Nashville, Tenn.
 Joe P. Fulcher.....Nashville, Tenn.
 W. D. Le Sueur.....Nashville, Tenn.
 E. T. Lewis Co.....Nashville, Tenn.
 Elgin-Butler Brick and Tile Co. Austin, Tex.
 J. V. Montrieff.....Bridgeport, Tex.
 Kal Schwarts.....Corsicana, Tex.
 J. E. Whiteselle.....Corsicana, Tex.
 Fraser-Myers Brick Co.....Dallas, Tex.
 J. M. Harry.....Dallas, Tex.
 George Paul.....El Paso, Tex.
 Acme Pressed Brick Co.....Fort Worth, Tex.
 Arthur S. Goetz.....Ft. Worth, Tex.
 C. W. Martin.....Ft. Worth, Tex.
 M. W. Staniforth.....Gainesville, Tex.
 Sunset Brick and Tile Co.....Gonzales, Tex.
 Edward Whitmer.....Thurber, Tex.
 George R. Hill.....Tyler, Tex.
 J. P. Cahoon.....Salt Lake City, Utah
 Justis Jungh.....Salt Lake City, Utah
 Wm. S. Simpkins.....Salt Lake City, Utah
 J. N. Shrum.....Dayton, Va.
 National Paint & Manganese Co.....Lynchburg, Va.
 J. W. Davis.....Newport News, Va.
 F. W. Dennis.....Norfolk, Va.
 J. H. Doyle.....Norfolk, Va.
 A. V. Sturgeon.....Reid's Ferry, Va.
 W. Benj. Davis.....Richmond, Va.
 H. L. Jacobs.....Suffolk, Va.
 S. Geijsbeek.....Auburn, Wash.
 Denny-Renton Clay and Coal Co.....Seattle, Wash.
 W. C. Mitchell.....Seattle, Wash.
 S. P. Baird.....Charleston, W. Va.
 W. D. Isaac.....Charleston, W. Va.
 Geo. E. Snowden.....New Cumberland, W. Va.
 E. P. E'zey.....Parkersburg, W. Va.
 Norton L. Upson.....Parkersburg, W. Va.
 Fred G. Bogk.....Milwaukee, Wis.
 George J. Schwarz.....Milwaukee, Wis.
 Ferdinand Vogt.....Milwaukee, Wis.
 Gunther Bros.....Port Washington, Wis.
 Henry W. Carter.....Oshkosh, Wis.
 Oscar Zimbal.....Sheboygan, Wis.
 John Ringle.....Wausau, Wis.
 J. F. Villata.....Barcelona, Spain

In Memoriam.

- J. H. Grey.....Chicago, Ill.
 G. S. Perdue.....Fire Brick, Ky.
 H. E. Ashley.....Pittsburg, Pa.

MEETINGS OF THE BUILDING BRICK ASSOCIATION.

The Publicity Movement Given a Great Boost By Enthusiasts Who Pledge Substantial Backing.

IT WAS A PECULIAR and unfortunate co-incident that President Martin of the B. B. A. and President Crook of the parent organization should each have been prevented from attending the Louisville Convention by serious ill health. Only once before in its twenty-five years, has the vice-president of the N. B. M. A. been called to the chair by the enforced absence of the president. In both conventions, the chief officers were sadly missed, but luckily the mantle of authority fell on able shoulders and Vice-Presidents Bloom-

look forward to the future with the hope of even better things and greater accomplishments.

Progress is the keynote of the whole world movement; without it, things stand still and to do that in business is to take the first step to failure and dissolution.

The hope for progress is inherent in all—it is the beacon that beckons, the guiding star that leads us on to renewed effort, increased responsibilities, and final achievements. Wisely, indeed, have those builded who first conceived the thought of this organization as an aid to progress.

For what does this Association stand, for what purpose was it organized? Surely for one purpose only, and that the advancement, the perfection, the betterment and necessarily the enlarge-



The Board of Directors of the Building Brick Association of America.

field and Queisser acquitted themselves with distinct credit.

In calling the first session of the B. B. A. to order, Vice-President Queisser expressed the deep regret at the absence of his chief which was keenly felt by every member, and in an admirable address said in part:

PRESIDENT-ELECT QUEISSER'S ADDRESS.

Gentlemen of the Brick Building Association of America:

It is with feelings of regret, mingled with pleasure that I call this meeting to order today. Regret, because of the absence of our esteemed President, Mr. Martin, who is in California on account of ill health, and not able to be with us in person to preside. It is unfortunate that we are not to have the benefit of his wise counsel and clear, keen judgment. Pleasure, because of the honor and privilege that is mine in the opportunity of presiding over the deliberations of the first annual meeting of this Association.

The first mile-stone has been triumphantly passed. We now

ment of our business field; all of that spells progress, individually and collectively.

Singly, we can do little—collectively much, and hence our worth as an Association depends not upon one, not upon any few, but upon the earnest, untiring and united efforts of the many. I am certain that the scope, the importance of the work it needs to do and the possibilities of this Association are scarcely appreciated at this time.

As an Association of "pushers of the brick business," we are pioneers; but at that we merely follow a path, well trodden by those of other trades and interests that apparently have been wiser than we, and taking time by the forelock, have waived aside personal feeling, petty jealousies and joined hands for their general welfare, the common good and, necessarily, personal profit.

Let us not deceive ourselves with any false notions, let us admit that we are here for selfish interests, and what then? Surely we are justified in being interested primarily in the growth of our own business, in its individual advancement and the profit that accrues?

But by what method—by what means are we to obtain that growth? The answer is easy. Many of you heard, and many more

have read, that splendid thorough address of Mr. Frothingham, delivered at the last convention, on the subject of "Publicity." Advertising we call it, and those of you that have tried that method—tried it faithfully, consistently and understandingly, will bear witness of the fruitful results of your campaign. * * *

Our campaign of publicity is fundamental. Though it will be made possible, first, by the enlightenment of the public on a question so misunderstood by them and distorted by others, for a fell purpose, that this plan is necessary. Secondly, the promulgation to the architect, owner and builder of the vital facts of comparative costs of brick as against other material, and third, to bring home to the owner the manifold reasons favorable to the use of your material for his building, be it a palatial residence or a modest cottage, and you and I know that such knowledge will be a blessing to him and his.

All of this can be done easily, and though it requires the expenditure of time, energy and money, the result will be more than commensurate with the outlay. It is not enough that some of you are working full capacity, there should be such a demand that all yards should be working to the same end, and when that time comes, and come it will speedily, if we get together, the question will not be, as unfortunately it is today, at what minimum figure can you move your brick, but instead you can demand and secure a fair compensation for your time, your machinery and your quickly vanishing clayfields. What you want is the development of a greater market that will consume your manufactured product. Increase the demand, the supply will take care of itself.

While there are many things for us to do, there are also some pitfalls of which we must beware. We must have no ax to grind, no prejudices to stunt our judgment and no special interests to serve. We must be free from all and be contaminated by none of these. We must be free agents and for the one purpose of making this Building Brick Association of sterling worth and character, and its plan of action must be skilfully and intelligently directed.

The closer we can get to each other in doing business, the more satisfactorily can we do business. Everyone is entitled to a fair market price for anything he has to sell, and that only can be secured when there is developed to the highest possible degree a market for his products and for that purpose this organization stands.

Of all the things of which we must beware, both as manufacturers and as selling agents, the worst is ruinous competition. The old adage that "competition is the life of trade" is, I believe, becoming obsolete in its strict application, and nowadays this saying apparently applies to the buyer only; not that competition has not its redeeming features, but let those features be to see how good we can make our brick, how much better and attractive, and how much more useful and necessary, and not how cheap or underpriced. Then, and then only, will there be that pleasure in doing business that greater percentage of profit on your investment, that others enjoy, and that is what the brick business is longing for.

And now, in conclusion, let me say that I sincerely appreciate the task that is before me as your presiding officer. I shall endeavor, with fairness and justice to all, to so wield the gavel as to merit your approval, and in return let me ask your heartiest co-operation to the end that we may move along with the business of this association with swiftness and dispatch.

I am satisfied that all that we will do during this year's meeting will be fruitful of much good to the Building Brick Fraternity of America and that wise counsel, harmony and good fellowship will be the prevailing features of all our sessions.

You have a great and important work before you; you are charged with the laying of the foundation for a work which will be a success or a failure, according to the judgment which you use in what you do now. If you build wisely, other men who come after you will praise your work. If you build with a congested brain and a wrinkled heart, with an eye single only to immediate results and your own selfish interests and not in a broad magnanimous spirit of fellowship, with the concession of the right of others to do and prosper, your labors will be as naught. (Applause.)

Following the address of the President, the Secretary presented the report of the certified public accountant giving in detail the receipts and disbursements of the past year, which was accepted and approved.

From February 1, 1910, to January 31, 1911, the receipts totaled \$14,002.78, while the disbursements amounted to \$13,770.99, leaving a balance in the treasury at the present time of \$231.79.

The revision of the by-laws proved a formidable task, so much so that Tuesday afternoon's session extended into the evening and it was after midnight when the officers for the ensuing year were elected.

Officers Elected.

President—R. L. Queisser, Cleveland, Ohio.

Vice-President—Ralph Simkins, St. Louis, Mo.

Secretary-Treasurer—Parker B. Fiske, New York, N. Y.

The Executive Committee consists of the above and Frank Butterworth, Danville, Ill., and Wm. Hanley, Bradford, Pa.

Membership Committee.

J. N. Adams, Columbus, Ohio.

E. J. Burke, Rochester, N. Y.

R. E. Sunderland, Omaha, Neb.

Directors.

New.

W. E. Dunwody, Macon, Ga.

H. J. Jova, Roseton, N. Y.

E. L. Ives, Middletown, Ky.

W. M. Hodges, Bradford, Pa.

H. C. Kleymeyer, Evansville, Ind.

Eb. Rodgers, Alton, Ill.

Reelected for Two Years.

F. W. Butterworth, Danville, Ind.

L. G. Kilbourne, Columbus, Ohio.

S. C. Martin, Pittsburg, Pa.

T. C. Moulding, Chicago, Ill.

John W. Sibley, Birmingham, Ala.

W. Siwart Smit, St. Paul, Minn.

R. E. Sunderland, Omaha, Neb.

Serving Unexpired Term.

J. M. Adams, Columbus, Ohio.

E. J. Burke, Rochester, N. Y.



President R. L. Queisser, Cleveland, O.

J. Howard Chambers, Philadelphia, Pa.

R. G. Eisenhart, Horseheads, N. Y.

E. A. Fisher, Sayreville, N. J.

Parker B. Fiske, New York, N. Y.

S. M. Gould, St. Louis, Mo.

Wm. Hanley, Bradford, Pa.

Charles J. Henderson, New York, N. Y.

A. D. Rogers, Boston, Mass.

Ralph Simkins, St. Louis, Mo.

W. J. Snyder, Brazil, Ind.

C. B. Ver Nooy, Chicago, Ill.

R. L. Queisser, Cleveland, Ohio.

The afternoon session closed with an experience meeting, which in enthusiasm much resembled an old time love feast. The "talk fest" was started by Mr. Howard Chambers asking if any member present could give reasons for the faith within him and point to specific instances where the work of the B. B. A. had been of real material benefit. A number responded, declaring that the advertising done by the Association had been of direct benefit to them, and it was evidently the judgment of all present that whereas a little advertising had proven very profitable, more advertising would result in much greater benefit. As a result of this get together spirit nearly one hundred members were added to the B. B. A. roster during convention week.

Thursday Morning Session.

The regular public session of the B. B. A. held Thursday morning was well attended and equally as enthusiastic as the executive session. The first formal paper was one entitled

THE BRICK VENEER HOUSE.

BY W. E. DUNWOODY, MACON, GA.

Mr. President and Gentlemen of the Association:

I once heard a preacher begin by saying that he spoke by inheritance, for the reasons that his mother was a "woman" and his father a preacher. But he also said that preachers sometimes talked too much and sometimes became mixed in what they were trying to say. Which reminds me of a funeral I once attended which was being conducted by an eminent divine. It was the custom at the time and in this particular neighborhood, at a certain part of the services, to invite the friends of the deceased to "view the remains." When this time arrived in his embarrassment, caused by no one knows what, instead of inviting the friends of the deceased to view the remains, he said: "Will the friends of the deceased please pass around the bier" (beer), and that happened in a "dry" State. Therefore I will confine myself strictly to my paper, which I have tried to make a succinct statement of some of the arguments I use in my endeavor to increase the demand for brick by "creating a demand" by putting before the people the advantages of brick veneered construction as compared with ordinary frame buildings.

We are not salesmen who simply supply the wants of those who seek us. We must create business by psychological effects produced by forces and suggestions set in motion by our own efforts.

Suggestion rules the world.

The consideration of the subject of "The Brick Veneered House, Its Cheapness and Desirability," will, of course, be more from the



W. E. Dunwoody, Macon, Ga.

standpoint of the salesman in his efforts to convince the public that "brick is the best building material" than from the standpoint of the builder. My statement will be none the less true, though we will not consider the technical points in the construction of the edifice, but rather the results to be obtained and the advantages and comforts that inure to the owner. My interest, of course, is caused primarily by a greater desire to increase the use of brick.

TO CREATE A GREATER DEMAND.

I contend that a brick veneered house is better in every way than any other, except a solid brick house, for many reasons, some of which are as follows:

1. The brick veneered house is warmer in winter and cooler in summer.
2. It can be heated for less cost of fuel.
3. The fire insurance rate is less.
4. The painting is almost nothing.
5. The owner or tenant is free from anxiety on account of a possibility of fire.
6. There is no bother about a possibility of frozen water pipes, making it necessary to scratch in the mud and shiver while the wind blows out the candle as you look for a place to cut the water off. The man in the brick veneered house sleeps and lets the wind howl and the thermometer drop. He knows he is "freeze-proof."
7. The plastering does not crack near as much in a brick veneered house as in a frame.
8. The cost of repairs is very much less.
9. It is possible to keep a brick veneered house at a uniform temperature from garret to cellar on account of the freedom from draughts, which means increased healthfulness.
10. It is also a fact that while a contractor may sometimes, in a frame house, use some inferior lumber, covering it with paint, and does prevent your finding it out, it is a very easy matter for any one to know whether his brick are first class or not, and so far as durability is concerned, he can practically leave that to the manu-

facturer, for the manufacturer cannot afford to make a poor brick, as it would cost him, in most instances, as much as a good one, and the breakage would ruin him.

11. Finally, it costs you only about 5 per cent. more on the first cost. We could take up each of these reasons and discuss them at length, but they are so obviously true that it would be a waste of time.

To these arguments the prospect sometimes replies, "But I cannot afford the additional cost." "Well," I say, "My friends, don't spoil a happiness which you are promising yourself when you get to that long-looked-for and constantly receding place, when you can afford it, by waiting too long and making too many preparations for it. We brought nothing into this world and it is certain that we can carry nothing out."

But really a brick veneered house will help one's credit, as it gives the appearance of prosperity, looks substantial and gives the impression that the owner is succeeding, and everybody, from the banker down, wants to help the successful man.

"Them that has, gets."

When building a home one should always build with the idea that he may sometimes want to sell, and we all know that a brick building improves with age, while a frame house begins to deteriorate as soon as the last nail is driven and the last stroke of the paint brush is made. Brick are more durable than iron, as they do not rust. We can all recall some brick house which has been a landmark from our earliest recollections and which is still in a perfect state of preservation.

But if all this be true, why do we have to persuade any one to build a brick house? One potent reason is the fact that many contractors and architects really do not know what the difference is in the cost between a brick veneered house and a frame house, and this fact is seriously retarding the sale of brick in my section. Oftentimes the minute you suggest a brick veneered house the prospective builder says, "I cannot afford it; my contractor or my architect says it will cost me 25 to 50 per cent. more; some say even 100 per cent., to build a brick veneered house than to use weatherboarding." And with that idea firmly planted in his mind, you find it hard to get him to give you a respectful hearing. We are to blame for not pressing brick as the building material. As soon as I found that this situation existed I began an investigation by going to some of our leading architects and contractors. In answer to my question as to what would be the difference between two houses to be constructed exactly alike with the exception that one should be veneered with brick, costing \$15.00 per thousand, while the other should be weatherboarded with No. 1 weatherboarding, I received answers ranging from 5 per cent. to 100 per cent. in favor of weatherboarding. Such an enormous difference of opinions from men, each of whom should have known, made me at once realize where some of my difficulties in interesting my customers in brick veneered houses had had their origin.

In January, 1910, I let a contract for a brick veneered house, in which I specified face brick made by one of my companies and figured in the cost of the house at \$15.00 per thousand. Thus I found from actual experience that the brick veneered house only cost about 5 per cent. more than the frame house. This figure is accurate and can be relied upon. Of course, the frame house could be cheapened by taking out some of the foundations, that is, by making them lighter and by using an inferior grade of lumber, but that would make an inferior house and would not be a fair comparison. The man who wishes to build as cheap a house as possible is not interested in this discussion.

The first cost, which is, of course, important, is not as important as the cost of upkeep. No man buys a brick machine on account of cheapness only; he considers carefully what he is getting for his money, and the lasting qualities of the machine, as well as what it costs to keep it in repair.

Since building my own brick veneered house I have sold a great many face brick for brick veneered houses, and the booklets published by the B. B. A. have been a great help to me as a source of reliable information, and as a means of interesting and convincing prospective customers. Any one contemplating building will appreciate them and will read every word carefully.

Now, we all know that we cannot get out of our own minds what we have not put into them, and it, therefore, behooves us to inform ourselves, if we are to convince others. The difference in men is not so much in native ability as it is in the difference of inability to reach a definite decision. A proposition half-right can be made to succeed by backing your judgment, making your decision; burning the bridges behind you and pushing your plans to completion, having forgotten that you have ever had but one idea on the subject.

As I said, my remarks are from the standpoint of a salesman interested in the subject, because it offers a means of increasing his sales.

Now a salesman seeks, first, the difficulties in marketing his products and the means of overcoming them. My chief local trouble is lack of accurate information on the part of our contractors and architects, who, on account of this, will often discourage the use of brick veneering. The other local trouble is that many people have visions of immense increase in cost when you mention face brick, when, as a matter of fact, if you will figure the cost of them, in most cases, they will be very much surprised and will often decide to use brick. Now, both these difficulties can be overcome by informing yourself and presenting the facts in a way that will impress your customers that you know what you are talking about.

If you will pardon a personal allusion, I want to say that nine years ago I became actively engaged in the brick business, after a lapse of eight years, during which time I was cashier of a bank, having had a three-year experience in brick manufacturing previous to my banking experience. The first year I sold four million

brick; last year I sold and shipped over seventy million brick, and it was not an especially good year either. That is nothing so remarkable, you say; but let's see. In my office I had one book-keeper, one stenographer and myself, and no one on the road; but I advertised. It pays.

Before I close this paper I wish again to digress and call your attention to another way in which you can increase your business, and that is by showing the economy and advantage that can be derived in veneering old frame houses, or, as Suburban Life puts it, "overcoating an old house."

In every frame building there are hundreds of joints; there are spaces innumerable, where wind and cold can get through. The facts cause conditions to rise affecting the health of your family and also increase the amount of your coal bills. A frame house that has been built for years opens up more or less in its hundreds of points—the weatherboarding shrinks slightly away from the water table; the window and door frames pull apart; the cornices give a little, and the result is many places are open where wind can blow through. All this can be cured by brick veneering. Your house will then become more comfortable and remain comfortable and endure as long as the "everlasting hills."

Now, gentlemen, every business man here can increase his business enormously by making up his mind right here and now to become a member of the B. B. A. and by co-operating with its officers in every way possible. We must convince the people that brick is the best building material, and the only effective way to do it at least cost is by having an up-to-date publicity department managed by men of ability and experience. But, you say, you cannot afford such a department. No, you could not if you had to pay the salaries of such men yourselves. That is just where the B. B. A. comes in.

It is your publicity department and it is mine—if we are willing to contribute our "mite" to carry on its work. Sales resulting from one bulletin I received from the B. B. A. paid my dues for last year.

Advertising costs, but advertising pays, and where the cost is borne by a number of us no one feels the expense, but we all feel the benefit. Now, let me give you a little personal experience, if you will pardon me. Last year, while I was at Pittsburg convention, my fellow citizens of Macon, Ga., elected me as president of the Georgia State Fair Association. When I took hold of the association we had about \$8,000 in cash with which to "pull off our fair." Now, how much of the \$8,000 do you suppose I spent in advertising? Practically all of it. Did I come out in debt? No, sir. Our people and a number of your people said that we had one of the finest state agricultural fairs they had ever seen.

We paid all our premiums, all of our expenses and have now ample funds to conduct this year's fair, which will be held early in October, and to which you are all invited.

We cannot sell gold dollars at 90 cents if the people do not know you have them to sell, and you cannot let them know except by advertising. Talk brick, advertise brick, keep brick constantly before the people as the building material, and your business will increase beyond your fondest hopes or expectations. I speak from experience. Do you not believe it? If not you will some day not far distant find yourself in the place once occupied by an old man living in one of the rural districts of Georgia, who had never seen a steam engine. He went with his son one day to Macon, Ga., (which, by the way, will be the next capital of Georgia) to see the sights. When he stopped by the side of the engine and saw that enormous aggregation of steel and iron towering above him, with the immense tender, loaded down with coal, attached, and to that the long string of ponderous Pullman cars, he was disappointed, and said to his son, "Why, boy! you can never start that thing." But the boy knew better, and in a few minutes the conductor said, "All aboard." The passengers who had been standing on the platform awaiting this last call jumped aboard. The fireman began ringing his bell. The engineer set his reverse lever, opened his throttle and gave her the power. The old man saw the wheels begin to turn, the engine to give forth columns of smoke and steam, and before he could realize it the engine with its loaded cars had glided away like a thing of life in all the beauty and grandeur of a locomotive in motion. As it rounded the curve and was lost from sight the old man said: "Boy, they will never be able to stop her." (Applause.)

A vote of thanks was tendered Mr. Dunwody, after which the delegates listened to the following interesting paper:

THE COMPARATIVE COSTS OF A HOUSE OF BRICK OF MODERATE SIZE WHEN CONSTRUCTED OF WOOD, BRICK, CEMENT OR HOLLOW BLOCK.

BY J. PARKER B. FISKE, S. B.

—February 1, 1911—

There can be little doubt, even in the mind of the casual observer, that brick is a most durable material with which to build a house.

The public is gradually coming to understand the enormous loss from fire, the excessive repairs, the rapid depreciation and the discomfort in both summer and winter arising from the use of frame construction, and to appreciate the fact that the house of brick is not only fireproof, but that it requires no painting, that it does not decay or depreciate, and that, of all types of construction, it is the most beautiful.

How is it, then, that America still continues to build her houses largely of wood, while the older countries of Europe have long ago abandoned this type of construction?

The answer may be found in conversation with almost any in-

telligent man or woman, "The first cost of the brick house is prohibitive."

It is singular that the brickmaker has been so ready to accept this answer from the public as final and conclusive, instead of becoming a master of the question himself and in turn teaching the public the real facts so vital to his business.

The writer must admit that, in common with other brickmakers, he has made until recently no great study of this question, accepting the common verdict that the house of brick, while most desirable and most satisfactory in the long run, is expensive in its first cost.

Perhaps it is natural that we who were born and have grown up in a land of wooden houses should take this type of construction for granted.

America, however, is the land of progress, the land of new inventions, the land whose people enjoy to the largest extent the benefits of human ingenuity and skill.

It is high time that America found out the truth of this important matter.

But every man in our busy modern world is occupied with his own affairs. The banker, the manufacturer or the merchant has no time and little inclination to investigate all the ramifications of a complicated problem like this, which comes to him at most once or twice in a lifetime. He will build his house of the material which has impressed him, by observation and superficial inquiry, as the best.

Some one whose interest is vitally at stake, whose very business success depends upon the increased prestige of brick, must undertake to determine the final facts in the case and to teach them to the public.

This man is the brickmaker himself, for the elimination of wood and the substitution therefor of brick would mean an enormous increase in his business, with a corresponding increase of his profits.

Believing that no question is today of greater importance to the



Secretary Parker B. Fiske, New York.

American brickmaker than a thorough knowledge of the comparative cost of the house of brick and one of wood and cement, the writer has undertaken to determine something definite regarding this matter, and now offers the results of his investigations for your consideration.

Before entering into a detailed discussion it may be well to consider for a moment what is meant by the cost of a house.

Building construction has never been reduced to an exact science, and its cost can never be foretold with the accuracy of a mathematical problem.

No two contractors, even of equal skill and experience, will figure exactly the same cost on a given set of plans and specifications. Elements of chance must be considered such as fluctuations in the market price of material and labor, weather conditions and unexpected difficulties in construction. Moreover, each man's figure will be influenced to some extent by the measure of his desire to secure the contract in question; in fact, it is doubtful if the same contractor would bid exactly the same on different occasions, even for precisely the same structure.

Moreover, if these variations are encountered in obtaining the cost of a given building in a given place, still wider differences will arise in obtaining bids for different localities where the price of material and conditions of labor are different.

For this reason a certain amount of discrepancy between different authorities must be accepted as inevitable and must not be allowed to throw suspicion on the figures.

With this explanation, which is perhaps unnecessary before this body of men, who have been more or less associated with building operations for many years, let us proceed to the consideration of a specific case.

It was decided to procure plans and specifications of a given house and to ascertain by actual bids from a number of reliable contractors its difference in cost when constructed of frame, brick, cement or hollow block.

For this purpose a small modern, eight-room house of good de-

sign and excellent arrangement was chosen, the original having been actually built at Beverly Farms, Mass., under the direction of Thorndyke & Kiessling, architects.

- Figure 1—Shows front elevation.
 Figure 2—Shows side elevation.
 Figure 3—Shows interior view.
 Figure 4—Shows first-floor plan.
 Figure 5—Shows second-floor plan.

This house is typical in size, arrangement and cost of thousands of houses which are being erected throughout the East.

Mr. Kiessling was commissioned to prepare the plans and specifications necessary for obtaining bids for this house when built with the following types of exterior wall construction—all other details being common to all types:

DESCRIPTION OF VARIOUS TYPES OF OUTER WALL CONSTRUCTION.

- Type No. 1—Frame covered with boards and finished with clapboards over building paper; inside surface furred, lathed and plastered.
 Type No. 2—Frame covered with boards and finished with shingles over building paper; inside surface furred, lathed and plastered.
 Type No. 3—A 10-inch brick wall, i. e., two 4-inch walls tied together with metal ties and separated by a 2-inch air space; inside surface plastered directly on the brick-work.
 Type No. 4—A 12-inch solid brick wall; inside surface furred, lathed and plastered.
 Type No. 5—Eight-inch hollow terra cotta blocks, stuccoed on the outside and plastered directly on the inside.
 Type No. 6—Six-inch hollow terra cotta blocks, finished with a 4-inch brick veneer on the outside and plastered directly on the inside.
 Type No. 7—Frame covered with boards and building paper, furred and covered with stucco on Clinton wire cloth; inside surface furred, lathed and plastered.
 Type No. 8—Frame covered with boards (building paper omitted) and finished with a 4-inch brick veneer on the outside; inside surface furred, lathed and plastered.
 Type No. 9—Frame finished on the outside with a 4-inch brick veneer tied directly to the studding (boarding omitted); inside surface furred, lathed and plastered.

A separate drawing showing the details of each type of outer wall construction was prepared, and each was accompanied by a set of complete specifications for the entire house.

Everything about the house, except the outer wall construction, was identical in all nine types and may be briefly covered by the following tables:

DETAILS COMMON TO ALL TYPES.

- A—Foundations Local stone.
 B—Cellar Floor Finished with 2-inch concrete of Portland cement.
 C—Chimney Faced with brick costing \$17.50 per M.
 D—Fireplaces Faced with brick costing \$17.50 per M.
 E—Plastering First class "two coat" work.
 F—Exterior Finish Cypress.
 G—Blinds White pine.
 H—Screens Copper bronze on white pine frames.
 I—Window Frames Hard pine.
 Double floors throughout with paper between, except in unfinished attic; Georgia pine upper floors; main hall on first floor of oak.
 J—Floors first floor of oak.
 K—Inside Finish North Carolina pine.
 L—Doors Washington cedar.
 M—Hardware Bronze finish of ordinary type, costing \$60.00 for the job.
 N—Wood Mantels \$45.00 each.
 O—Conductors Copper.
 P—Flashing Tin.
 Q—Electric Fixtures Costing \$80.00.
 R—Hot Water Heating Costing \$250.00 complete.
 S—Wiring Costing \$68.00.
 T—Plumbing Costing \$370.00.
 U—Painting Exterior and interior; clapboard house \$225.00; other houses \$130.00.
 V—Glazing Double thick German glass.

Note—Shades, kitchen range and tile work not included.

The following local contractors of well known reputation and experience were then selected:

- W. F. Kearns & Company Boston
 McDonald & Joslin Company Boston
 P. H. Jackson Brockton
 R. L. Donaldson Lincoln
 J. T. Wilson & Son Nahant

Each was fully advised of the object of this investigation, and was asked if he were willing to undertake the preparation of figures which should truthfully set forth, to the best of his ability, the cost (including his profit) of a house to be built within ten miles of Boston according to these plans and specifications. Each was told that we desired to know the exact truth; if, as alleged by some contractors, the cost of a brick house is 25 to 30 per cent more than one of wood, then we wished to know it, as nothing could be gained by an investigation of this kind which was biased or influenced by any favoritism for one type of construction over another.

Each contractor entered into the spirit of the investigation heart-

ily and agreed to figure out the cost fairly, to the best of his ability.

Each contractor was given the same information and instructions, and each took plenty of time to figure the entire house with care.

The following are the bids submitted by the five contractors in question, arranged without reference to the above order of names, each bidder standing ready to enter into a contract for the house in question at the figures submitted:



Front elevation.



Side elevation.



Interior view.

COMPARATIVE BIDS.

Type No.	1.	2.	3.	4.	5.	6.	7.	8.	9.
Description.	Clapboard.	Shingle.	10-inch Brick Wall Hollow.	12-inch Brick Wall Solid.	Stucco on Hollow Block.	Brick Veneer on Hollow Block.	Stucco on Frame.	Brick Veneer on Boarding.	Brick Veneer on Studding.
Bid No. 1.....	\$6,732.00		\$7,572.00		\$7,416.00	\$7,777.00	\$6,857.00	\$7,130.00	\$7,080.00
Bld No. 2.....	6,235.76	6,370.40	6,736.43	7,105.00	6,491.23	6,762.83	6,410.00	6,746.20	6,664.88
Bld No. 3.....	6,692.00	6,786.00	7,118.00	7,418.00	7,179.00	7,238.00	6,847.50	6,970.00	6,895.00
Bld No. 4.....	6,690.00		7,496.00	7,801.00	7,202.00	7,648.00	7,000.00	7,496.00	7,420.00
Bld No. 5.....	7,450.00	7,450.00	7,940.00	8,240.00	7,650.00	7,990.00	7,650.00	7,790.00	7,710.00
Average of Bids.....	6,739.95	6,868.80	7,372.48	7,641.00	7,187.65	7,483.16	6,952.90	7,226.44	7,153.98

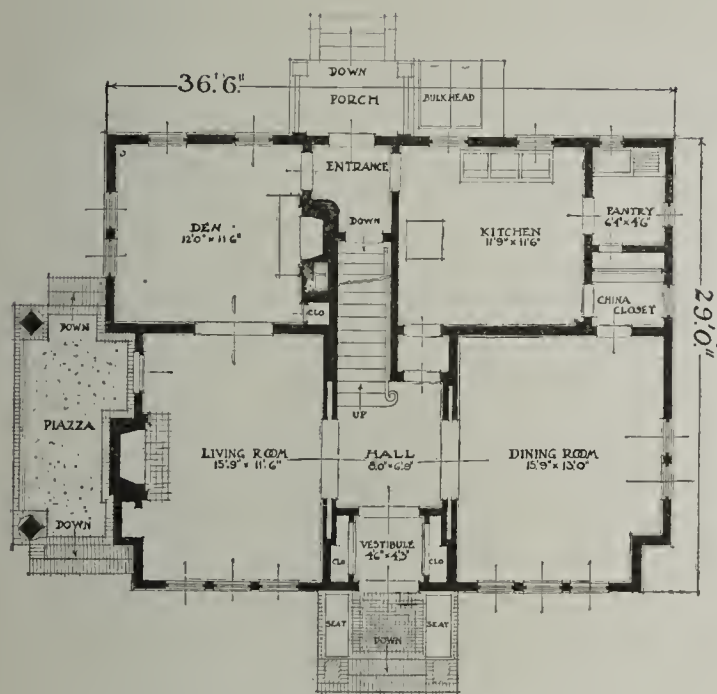
A comparison of these five bids with reference to the excess cost of the various types as compared with the clapboard house may be of interest.

COMPARATIVE BIDS.

EXCESS COST OF EACH TYPE OVER CLAPBOARDS.

By Percentages.

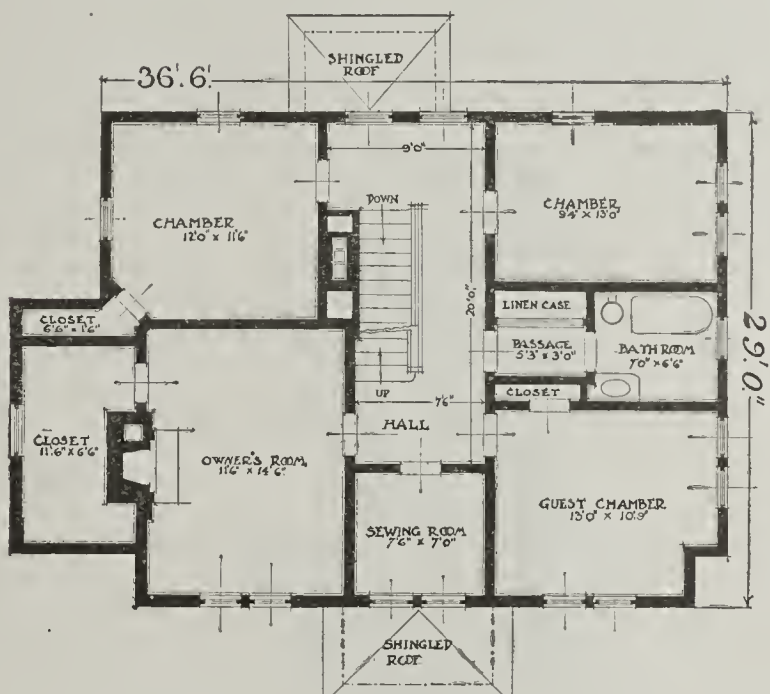
Type No.	1.	2.	3.	4.	5.	6.	7.	8.	9.
Description.	Clapboard.	Shingle.	10-inch Brick Wall Hollow.	12-inch Brick Wall Solid.	Stucco on Hollow Block.	Brick Veneer on Hollow Block.	Stucco on Frame.	Brick Veneer on Boarding.	Brick Veneer on Studding.
Bid No. 1.....	100.0		112.5		110.2	115.5	101.9	105.9	105.2
Bld No. 2.....	100.0	102.1	108.0	113.9	104.1	108.4	102.8	108.2	106.9
Bld No. 3.....	100.0	101.4	106.4	110.8	107.3	108.2	102.3	104.2	103.0
Bld No. 4.....	100.0		112.0	116.6	107.7	114.3	104.7	112.0	110.9
Bld No. 5.....	100.0	100.0	106.6	116.6	102.7	107.2	102.7	104.6	103.5
Average of Bids.....	100.0	101.6	109.1	113.0	106.3	110.7	102.9	106.9	105.8



FIRST FLOOR PLAN

HOUSE at BEVERLY FARMS, MASS. THORNDIKE & KIESSLING, ARCHTS.

Fig. 4



SECOND FLOOR PLAN

HOUSE at BEVERLY FARMS, MASS. THORNDIKE & KIESSLING, ARCHTS.

Fig. 5

COMPARATIVE BIDS.

AVERAGE OF THE TWO MOST FAVORABLE BIDS.

Type No.	1.	2.	3.	4.	5.	6.	7.	8.	9.
Description.	Clapboard.	Shingle.	10-inch Brick Wall Hollow.	12-inch Brick Wall Solid.	Stucco on Hollow Block.	Brick Veneer on Hollow Block.	Stucco on Frame.	Brick Veneer on Boarding.	Brick Veneer on Studding.
No. 3	\$6,692.00	\$6,786.00	\$7,118.00	\$7,418.00	7,179.00	7,238.00	6,847.50	6,970.00	6,895.00
No. 5	7,450.00	7,450.00	7,940.00	8,240.00	7,650.00	7,990.00	7,650.00	7,790.00	7,710.00
Average	7,071.00	7,118.00	7,529.00	7,829.00	7,414.50	7,614.00	7,248.75	7,380.00	7,302.50
Excess over Clapb'ds.		47.00	458.00	758.00	343.50	543.00	177.75	309.00	231.50
Percentage Excess over Clapboards		.7	6.5	10.7	5.0	7.7	2.5	4.4	3.3

The two concerns referred to in the last table were particularly well prepared to make an accurate comparison on this particular kind of building. Mr. Arthur W. Joslin of the McDonald & Joslin Company has made a life study of estimating different types of building construction, and is a well known authority on the subject. Mr. Donaldson has made a speciality of all kinds of small house construction for many years. Their figures, like all the others, were prepared absolutely independently, and while they vary considerably in the totals, their percentage difference between the different types is in remarkably close agreement.

In making up his figures Mr. Joslin used the following:

PRICE OF MATERIALS.

Lime.....	\$1.00 per bbl. 200 lbs.
Portland Cement.....	\$1.60 per bbl.
Spruce Framing.....	\$26.00 per M. ft. B. M.
North Carolina Pine.....	.1c. per inch per ft.
Georgia Matched Pine (first quality).....	\$75.00 per M. ft. B. M.
Shingles.....	\$4.75 per M.

Clapboards.....	\$55.00 per M.
Hemlock Boarding.....	\$22.00 per M. ft. B. M.
6-inch Hollow Blocks.....	10½c per sq. ft.
8-inch Hollow Blocks.....	14c per sq. ft.
Face Brick.....	\$17.50 per M.
Common Brick.....	\$9.00 per M.
Allowance for Furring, Lathing and Plastering.....	.5c per sq. ft.
Wages of bricklayers.....	.60c per hour
Wages of carpenters.....	.50c per hour

You may compare these figures with prices of similar material and labor in your own market, and you will then be in a position to apply a corresponding correction to the results of this investigation to make them applicable to your own neighborhood.

LUMBER DISPLACED BY BRICK ON TYPES 3, 4, 5 AND 6.	
Frame and Studding, 2,300 ft., B. M., at \$26 per M.....	\$59.80
Square edge boards, 2,500 ft., B. M., at \$22 per M.....	55.00
Spruce Clapboard, requiring for manufacture 600 ft. of stock, B. M.	93.50

\$208.30

Total, 5,400 ft., B. M.

The writer must frankly admit that these figures of relative cost were something of a pleasant surprise to him, being produced as they were under conditions of absolute fairness by totally disinterested and unprejudiced experts.

Are they not a surprise to you, Mr. Brickmaker?

Is it conceivable to you that reasonable men and women, knowing these facts, will continue to build their homes of an inflammable, perishable material, extravagant in its upkeep, requiring constant painting and repainting and making a house uncomfortable in the heat of summer and difficult to heat in winter, simply for the sake of saving a paltry $3\frac{1}{2}$ to $6\frac{1}{2}$ per cent on an investment which they are making for a lifetime?

Notwithstanding these facts and figures, however, compelling as they are in favor of brick, we know that thousands and thousands of wooden houses continue to be erected.

What reasonable explanation can we find for this extraordinary state of things?

A very simple and satisfactory one, viz: That the public does not know the truth.

How do these figures compare with public opinion on this important question?

The writer cannot answer this question definitely for any market except his own, but he can say with perfect confidence that it is the public opinion in and around Boston that the brick house costs anywhere from 25 to 35 per cent more than one of wood. Let us give you two or three specific illustrations.

A friend of the writer has just completed plans for a house, and having finally secured a satisfactory figure from a local contractor for the construction of his house in wood, he asked the builder's opinion, less than a month ago, as to the probable cost of the same house if built with exterior walls of brick. The contractor, who is a reputable and honorable business man, replied that, in his opinion, the cost would be at least 25 per cent more.

Again, another friend of the writer recently asked an acquaint-



E. J. Burke, Rochester, N. Y.

ance, who is an extensive builder of small wooden suburban houses, why he did not build of brick. The man was astonished at such a question and replied: "Because it would cost me at least one-third more."

That the same sentiments predominate in other portions of the country is evidenced by the fact that only 4.7 per cent of all the wooden construction in the year 1907 was erected in the New England States, although their population is 7.3 per cent of the entire population of the country. These figures are sufficient to show that the same false ideas on this question are prevalent all over the land.

Are not these facts sufficient to arouse the brickmaker to action?

Is it not the plain, straight forward business duty of every brickmaker to see that the truth is placed before the prospective builder for his serious consideration, and is it not certain beyond a shadow of a doubt that when the truth is made public through the length and breadth of this land that the dangerous and unsatisfactory woodwork with which America is today constructing her homes will be replaced rapidly and surely with the only safe, satisfactory and economical building material—BRICK?

But it may be argued that while these comparative costs are true for Boston, they are not true for other portions of the country.

We will accept the challenge.

The writer believes that they are not unduly favorable to brick; in fact, they are not as favorable to brick as figures which could be obtained under similar conditions in many cities of the Middle States. We have already been advised in a general way from other parts of the country of figures even more favorable to brick.

If it is believed that the Boston figures do not fairly represent the entire country, and if no more representative and reliable figures are available, then it is time that a united effort be made by the brickmaker to ascertain the truth, not only for Boston, but for New York, Chicago, Buffalo, Cleveland and a dozen other cities.

If a shadow of a doubt remains within your mind that these figures cannot win the entire confidence of the country, let us immediately appropriate a sufficient sum of money to engage the serv-

ices of a competent expert. Let him take these plans and specifications (or other plans and specifications if such are considered more desirable), and let him visit at least a dozen cities in the United States during the next six months.

Let him be an architect of ability and skill, who can secure the co-operation of local architects, in the conduct of an investigation by at least three competent builders in each city as to the comparative costs of the house in question.

Let the results of this investigation be properly collected, analyzed and sifted to a final conclusion representing average conditions and let these facts be set forth in attractive literature to carry conviction to its reader.

Let The Building Brick Association of America advertise this literature in the popular magazines of the country. Let every individual brickmaker advertise in its own local newspaper until it shall be brought to the attention of every prospective builder in the land.

The people will respond, for they are hungry for the truth.

Inquiries for our literature will pour in by the thousands from every state in the Union. The experience of this association with its little advertising campaign last year has already proved it.

We can flood the country with this literature, carrying its message not only of beauty and practical advantages but of low cost and real economy.

Brick can be made to win out in small house building.

But, after all, what does the building of little brick houses really amount to?

Some of our friends tell us that they are not interested in these small operations—what they desire are the large buildings taking hundreds of thousands of brick each.

Would the substitution of brick from frame really add a great deal to the volume and profits of the brick business?

Here again popular impression, rather than fact, has been allowed to dominate the brickmaker.

In order to determine with some accuracy, at least, the volume of wooden house construction in this country with its consequent loss of business to the brickmaker, the writer has solicited the good offices of the F. W. Dodge Company, the well known authorities and distributors of building reports and statistics.

An analysis has been made by this company of the contracts actually awarded for the building of wooden houses in the New England States (i. e., Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut); and the fact has been established that the number of single and double houses erected of wood in this limited territory in the year 1910 was not less than 3,250, with a total valuation of over \$19,000,000, and average cost, therefore, of about \$5,850.00. This average is made up of houses which range in cost from \$2,500.00 to \$50,000.00 each, about one-eighth of the houses costing \$10,000 or more.

Think of the folly of building a \$50,000 house of wood.

These figures do not include hotels, apartment houses, stables, garages or other out-buildings connected with dwellings, but include only isolated houses, either single or double.

A very conservative estimate of the quantity of face brick required for a house of the above average size would be 15,000, not including brick for chimneys, fireplaces, porches or veranda floors; the corresponding number of common brick required for 12-inch outer wall construction only would be about 30,000.

From these figures it may easily be calculated that the New England house, if built of brick, would add to the business of the brickmaker about fifty million face brick per year and about one hundred million common brick.

The present consumption of face brick in the New England States is estimated at approximately twenty millions, and of common brick five hundred to six hundred millions.

In other words, the face brick business of New England would be increased by over two and one-half times its present volume, and the common brick business would be increased by about one-fifth.

Now as to the entire country.

Statistics compiled by the United States Geological Survey for the year 1907 (the latest available figures) show that the entire wooden construction of eight leading cities of New England was 4.7 per cent of the entire wooden construction of forty-four leading cities of the entire country. It is a fair assumption that the total amount of wooden houses erected in New England in 1910 bears substantially the same proportion to the number of wooden houses erected in the entire country, for there has been little relative change.

On this basis, the number of wooden houses constructed in the United States in the year 1910 was over sixty-nine thousand. These houses, if constructed with only the outer walls of brick, would have required the vast quantity of one billion and thirty-five million face brick.

Do you face brickmakers grasp these figures, and do you realize what the simple little brick house might do in the aggregate for your business? The total yearly production for the entire country is less than six hundred million face brick. In other words, the increase which would take place in your business would be about one hundred and seventy-five per cent.

We cannot, of course, present the common brickmaker with such a magnificent dream, but the substitution of brick in the building of the outer walls of wooden houses in the year 1910 would have added to your business two billion and seventy million brick, while your entire production was less than ten billion. In other words, the increase in your business would have been over twenty per cent.

When it is considered that the use of brick for exterior walls would soon lead to the replacement of wood in all interior partitions, for porch floors and for much veranda construction, as well

as for all stables, garages and out-buildings, it is safe to say that the increase of the face brick business would be at least two hundred per cent, and the increase in the common brick business by at least 50 per cent.

The introduction of brick for house building would soon lead inevitably to the elimination of wood in all apartment houses, stores, and in many public buildings in small communities where it is still the prevalent building material. It is impossible to estimate in actual figures what the final elimination of wood as a structural material would mean to the brick business, but it is no foolish dream to assume, that under these conditions brick manufacturing would be on quite a different plane from that which it occupies today.

It may perhaps seem idle, in the face of the firmly established position of wood as a building material in this country, to speculate on what might be accomplished if wood were abandoned, for the wooden house with all its objections will be with us for many years to come.

But the march of progress is inevitable; the world moves on to better things.

Changes which have resulted from natural causes in England and Continental Europe will, in time, take place in America.

As wood becomes more scarce our people will look about for a cheaper and a better material; in fact, they are doing so already.

What part are you going to take in the revolution of building materials?

Are you going to step forward and assume the leadership in this greatest movement?

Are you big enough and broad enough to grasp the opportunity which is now offered to lead it rapidly and surely to its final goal? To hasten the time by many years when the wooden house shall disappear from the face of the land and brick shall take its place?

Or, are you content to follow at the rear of the procession, leaving the people to find out for themselves, by fire, by decay and by waste, in a long tedious wandering through the wilderness of ignorance that wood is not a suitable material for their homes and that brick, after all, is the best?

You cannot, of course, by any stretch of imagination or by any activity, however vigorous, entirely displace wood with brick, but you can by the exercise of ordinary business acumen and with the expenditure of an almost insignificant sum of money, hasten the introduction of brick to the extent of many million per year, with the sure knowledge and the great satisfaction, that while you are increasing your own business and profits you are really doing a noble work, for you are adding to the prosperity, wealth and comfort of your fellow-countrymen. (Applause.)

Another offering which was listened to most attentively was that of Mr. John Andres, which was illustrated with stereopticon views of the advertisements carried by his company in their local papers. Mr. Andres' experience proved beyond all cavil that it pays to advertise brick as well as any other commodity.

WINNING THE PUBLIC FOR BRICK.

BY JNO. ANDRES, EVANSVILLE, IND.

Mr. President and Gentlemen of the Convention:

The task set for itself by this association as I see it is "Winning the Public for Brick."

In the other departments of this industry it is an established rule to learn and profit by the experience of others. Since this custom is faithfully observed in the other branches of our work, surely it ought not be disregarded in the sales department. The time has arrived in the history of the manufacturers of brick when they must break away from their over-confidence in relying upon brick to sell itself upon its merits alone; when they must bravely meet the situation as it is, learn the secrets of those who are forging to the front in other lines; employ their methods, and go into the battle for supremacy with the very best weapons known to commerce.

Our members were not slow to avail themselves of the help of the electric motor, the gas producer, the natural gas, the oil fire, waste heat, etc., and yet it is remarkable that they are the last people on earth to realize the value of "hot air" in selling their product.

For our first lesson we need go no farther than the cement people. They have flooded the country with their literature, which alone explains the phenomenal growth of their business. Mr. A. W. Greene, president of the National Biscuit Company, said recently "that business can no more be carried on without advertising than it can without money." The man who has an article for sale must tell the public in an intimate way what it is good for, how it is better than similar articles, what is gained by using it and what is lost by not using it. And this must be told a thousand times." Conditions in Evansville have always been such as compelled us to make a hard fight to secure for brick the place to which it is entitled. Evansville has always been a great wood-working center. Its location on the Ohio river near the mouth of Green river made it the natural harbor for the vast timber territory extending from the Ohio river to Tennessee. Besides 25 large furniture factories there are 30 lumber dealers, sawmills and planing mills, some of whom are heavy advertisers, giving employment to thousands of men, showing the opposition we have to encounter. One of the officers of the local lumbermen's club stated at the annual meeting of the Evansville Business Association recently that the members of their club represented an investment of \$3,000,000; that they sold in Evansville in 1910 155,000,000 feet of lumber and shipped out 500,000,000 feet.

When we entered the field about 14 years ago and up to within the last few years some of the largest factory buildings were built of frame, with common brick selling as low as \$4.25 per thousand. This shows again that low prices do not create business. Prosperous firms with much machinery like the Globe Furniture Company, the United States Furniture Company, the Standard Chair Company, the Evansville Mirror and Beveling Company, the M. A. Hunt Company and others built immense frame buildings to house their men and machinery.

Perhaps the largest of all are the buildings of the Evansville Ice and Storage Company, which occupies a whole square near the heart of the city. This property is even inside the fire limits and the last few frame additions were put up contrary to law. During this time and up to a time within the last two years the finest residences in town were built of frame. Bank presidents and men prominent in business and professional circles were building fine residences of frame. Washington avenue, one of our best residence streets, for a mile and a half on both sides of the street is almost solidly built with frame houses. Two or three brick houses a year was our limit for the whole city.

We saw that our only hope was to bring about a change in public sentiment, and could think of no better way than to start a campaign of advertising and education in the daily papers. Throughout the building season the four daily papers of Evansville carry a builders' page once a week, upon which are assembled all items of interest in the building line. By taking a 12-inch double column space for the season in each of the papers for display ads we were given the privilege of the news columns to publish anything of interest to the public, and we have taken advantage of this privilege to its fullest limit. We gave local publicity to all of the articles appearing in THE CLAY-WORKER and Brick favorable to brick houses, and after exhausting our own resources we were greatly relieved to have your valuable Association come to our aid with its literature, which filled a long-felt want. Since we have



John Andres, Evansville, Ind.

these booklets and have been able to supply ourselves with new ideas and all kinds of good arguments, clothed in convincing and attractive language, we have had no trouble in keeping the merits of brick constantly before the public. A few weeks ago the Courier, our leading daily, announced that it would devote a page every Sunday to "boost" Evansville, and that it had invited prominent business men to write articles showing why people should be loyal to their home town, one article to appear each Sunday. They invited me to write, my article appearing third in the series, and naturally I took advantage of this opportunity to talk "brick," being satisfied in my own mind that the best way to help Evansville would be to encourage the building of substantial residences.

My opening paragraphs would apply with equal force in any locality. I said: "Brick is the only building material that is strictly made in Evansville, and the main cost in its production is for labor. Money spent for brick helps Evansville labor. On all other building materials the chief item of expense is the raw material, for which the money is sent away from Evansville." The remainder of the article consisted of arguments favorable to brick houses, which were taken from the booklet, "Maintenance of a Brick House."

To emphasize the "brick house safe from fire" we published a photograph of the Hulman building taken after the fire. One hundred thousand dollars' worth of groceries were entirely consumed within this building, not a vestige being left of floors or roof, the solid brick walls remaining intact, and with but slight repairs are serving as before in the otherwise new building.

It seems strange that many cities have to go through the experience of a great conflagration before their eyes are opened to the necessity of using only fire-resisting materials in crowded centers. It is only by the free use of the columns of the press in calling attention to incidents like the Hulman fire and in circulating the book

published by our Association, "The Brick House Safe from Fire," that we can hasten the day when our material will receive the recognition to which it is justly entitled.

By taking a liberal advertising space in the magazines published by our local architects we secured the insertion of valuable reading matter calculated to influence both the architect and his clients.

The publishers of these magazines are as a rule glad to get good copy to fill their reading space, and we have had no trouble in getting them to use everything we offered them. Our chief difficulty was to find material that directly referred to our product, and we were seriously handicapped previous to the publication of the various articles by the Building Brick Association.

We found that in showing the architects that we believed our material to be the best on earth, and that we were dead in earnest about promoting its use, we gained their sympathy and co-operation.

One of the greatest obstacles we have had to overcome was the contention that "brick houses are damp," and the saddest part of the matter is that it is only too true when applied to some of the old-time residences, which were built upon low ground, with insufficient drainage, the floor joists being placed barely above the ground, and no damp check or air space in the walls. To convince people that these difficulties have been entirely overcome in the modern construction of a brick house will require a constant repetition of the facts for some time to come. We thought the very best counter argument that could be made would be the personal evidence of some of the best-known people in our city, prominent in business and professional circles, so we framed up the strong, positive statement before you on the screen and had no difficulty whatever in getting these and additional signatures.

Our recommendations to all builders of brick houses are as follows: See that your yard is properly drained and all water from down-spouts drained away from the house. In grading the lot make the highest point at the foundation of the house, running a



Wm. Hanley, Bradford, Pa.

gradual slope away from the house to the yard limits. Have the floor joists from 2 to 3 feet above the ground. Put a layer of slate over the entire foundation wall just above the grade line to serve as a damp check. Provide an air space of from 1 to 2 inches between the outside four-inch wall and the inside wall, using metal wall ties and blind headers. Use plenty of good cement in the mortar. When these ordinary and reasonable precautions are taken we are free to guarantee that the house will be absolutely and perfectly dry and comfortable in all seasons.

Since the Building Brick Association has concentrated its advertising efforts upon the brick house proposition we thought it wise to do the same in our local ads, and while the National Association has been stirring things up in the magazines and through their various books of designs and brick house literature, we have been making constant appeals for the residence buildings, and where formerly nearly all the best houses were built of frame (one built in 1909 costing \$12,000), we can truthfully say that in 1910 all the best houses were built of brick, and instead of two or three, as in former years, we built 16.

Our high school class issued a very handsome and expensive year book, and with the intention of getting the young folks started right on this subject, also considering that what the sons and daughters were interested in would command the attention of the parents, we took a page advertisement, in which we called attention to the variety of shades and colors in the face brick on display at our office. We found that some people objected to brick houses because they did not like red, and as red is the only color our clay will burn, we hastened to supply ourselves with samples of all colors made by the leading brick manufacturers of the country, as we make it our chief business to try to give the people anything they want—just so it is a brick house.

We have had a great many of our houses photographed and feel sure they have added force to our advertisements. The objection being that they are expensive, costing us \$3.00 apiece, \$2.00 for the

photograph and \$1.00 extra for the cut. The loss is in the fact that they can be used to advantage but once. Here again is where the Association can be of great benefit by acting as a clearing house and bringing about exchanges of cuts between all members who do similar advertising. In this way no member would have to pay for more than two or three photographs per year, and yet he could have a new and different cut in his advertisement every week for the price of the transportation charges by mail or express—not over 25 cents.

Coming back to the High School Year Book, in consideration of the purchase of a page advertising space we were invited to furnish an article telling how brick are made, and we appropriated several pages for this purpose, illustrating the matter with several views at the plant, and especially emphasizing the superiority of brick for residence purposes. These are ways in which we have set people to talking about brick houses, and it is no uncommon thing to have a prospective customer at our office tell us in answer to our remarks, "Yes, I've been reading all your dope in the papers, and my wife and I have made up our mind to try and sell the frame house we are living in and build one of brick."

We find it to be no small job to frame up display matter that, in our judgment, will "touch the spot," to tell the old story in a new way, so we were delighted to receive from Mr. Parker Fiske his series of "Brick Talks," very many of which we used to good advantage. To our mind this Association should raise enough money to employ one of the best copy writers in the country, have these ads electrotyped and distributed among all members who wish to do local advertising. These plates should not cost members more than 25c apiece, and the newspaper will allow this much or more from your bill in not having to set up any type.

By this arrangement the manufacturer in the smallest town could have as striking and attractive an advertisement in his local paper as the largest manufacturer in the city. He could rest assured that his advertisement would be high class, would command attention and respect, would appear original, and at the same time would require no wear and tear upon his thinking apparatus, would free him from all worry and care in the matter and provide him with a most creditable advertisement at a trifling cost.

There is such immense power and economy in consolidation and co-operation that it is amazing to me that these accepted laws of business have not been more universally adopted in our sales department. Mr. Randall will bear me out in the statement that our Mr. Kley Meyer wrote him four years ago urging the publication of a well-gotten-up book with first-class cuts advertising brick houses for use among all brickmakers, pledging our firm to assume their share of the cost. We have long felt that the only way to handle this big proposition was for everybody to get together and in a systematic, organized way march as one grand army against our common enemy.

One thing that has helped very much to bring brick to the public notice in Evansville was the organization of the Brick Men's Association, which the members of our company were instrumental in organizing. It is an affiliation of the brick manufacturers, brick contractors and the dealers in stone for the purpose of promoting the use of brick. The things accomplished were:

Made plenty of noise in the papers about our meetings and let folks know we were here. Raised a special advertising fund and advertised brick without attaching any firm names to the ads.

Sent committees to make talks to the Bricklayers' Union, urging them to do missionary work among all their friends who were contemplating building, and offering to keep them supplied with literature to help them in this work. Secured the appointment of a building inspector.

Agitated the extension of the fire limits. (This led to the discovery that the fire limits as defined on the statute were about two to six squares farther in each direction than was supposed.) All we demanded then was that the laws be enforced as written. Dozens of frame houses had been built in this territory within the last few years.

Another thing our company does: We pay 25c per week to have a copy of the Court Records, containing a list of all real estate transfers made, delivered to our office each morning with the previous day's entries thereon. To each purchaser of a vacant lot we immediately mail a copy of "A Revolution in Building Materials," then enter his name and address upon a book kept for that purpose; also the date of entry. Then we follow up the work each succeeding day with another booklet, until the list is exhausted, entering upon the book under the date merely the number of the booklet sent. We have them numbered as follows:

- No. 1—"A Revolution in Building Materials."
- No. 2—"Brick or Frame—Which?"
- No. 3—"Safe from Fire."
- No. 4—"Maintenance of a Brick House."
- No. 5—"Beauty of a Brick House."

These Court Records are often valuable in other ways. Should any of your customers give a mortgage or have a lien filed against them you would at once learn of it and find the information very useful in deciding credit extensions.

We don't pretend to have achieved the end of our ambition at Evansville, but we do claim that things are beginning to come our way. For instance, they no longer build frame factories. Since we get some of them started in brick it's not so hard to get others to follow. The last firm to have plans drawn for a frame factory building was the E. Q. Smith Chair Company. Our Mr. Kley Meyer went to see the head of the firm and argued for brick. Mr. Smith replied: "You need not tell me about brick; I know they are better, but I cannot pay the price. I have set aside a certain amount for these buildings and cannot go beyond." "Well," said Mr. Kley-

meyer, "will you let us figure on your work?" "To be sure," said Mr. Smith; "you can figure as much as you please, if you won't charge me for it." The result was that Mr. Smith was as much surprised at the high cost of the carpenter contractor's figures (\$5,700) as he was surprised at the low figure made by the brick contractor (\$7,000). He not only chose brick for these buildings, but has since built an immense brick warehouse much larger than the original factory buildings.

The Globe Furniture Company, whose frame factory building appeared first on the screen, has in the meantime built three immense factory buildings of brick, only a small part of which could be contained in the compass of the camera. Besides this they have built a fine office building of brick, and the general manager, Mr. Benjamin Bosse, who is also president of the Evansville Business Association, will go out of his way to urge a fellow manufacturer to use brick if he learns of his intention to build a frame factory building.

From the local building inspector's report for 1910 made to the

From the beginning he was a great believer in advertising in daily newspapers. From the beginning he made it a rule each year to put back into newspaper space a fair proportion of his profits.

That man's name was J. C. Hoagland. When he wanted to sell his business there was no difficulty in finding people who were glad to pay him millions of dollars—just for good will.

Let us not be like ten of the twelve spies whom Moses sent up into Canaan to spy out the Promised Land, who, when they returned, said: "We came unto the land whither thou sentest us, and surely it floweth with milk and honey. Nevertheless, the people be strong that dwell in the land, and the cities are walled, and very great. And there we saw the giants, the sons of Anak, which come of the giants, and we were in our own sight as grasshoppers, and so we were in their sight."

Why not do like the other two spies, Joshua and Caleb, who said: "Let us go up at once and possess it; for we are well able to overcome it"?

Those of you who are familiar with holy writ will remember that



Exhibition of the National Paving Brick Manufacturers' Association at Louisville, February 6-11, 1911.

government we find that there were 362 new wooden buildings erected, valued at \$304,848; 78 new brick buildings, valued at \$791,834.

This shows that while the number of brick buildings is only about 18 per cent. of the whole, the better class of buildings were brick. We have received enough encouragement to make us feel like spending more money than ever before for advertising. If the comparatively small amount we have spent has brought good results, it makes us wonder how much more could have been accomplished if all of you gentlemen had been working for us heartily through the plan operated by this Association—that of creating public sentiment favorable to brick through magazine advertising. We can readily see that through the use of the magazines and the circulation of helpful literature the Association may become for each one of us a wonderfully capable and effective salesman at a cost that is ridiculously low.

The proprietor of Royal Baking Powder started from a small drug store in Fort Wayne, Ind.

the first great victory of Joshua's invading army was the taking of the walled city of Jericho, and the main thing they did to accomplish this was to blow loud their horns, and all the people shouted with a great shout, and the Lord did the rest.

Why spend a fortune in building a modern plant with large capacity and then be content to see it idle for weeks and perhaps months at a time, missing the chance to round out a good profit in order to save a few hundred or a thousand-dollar advertising bill.

The man who whispers down a well
About the goods he has to sell
Won't reap the shining golden dollars
Like he who climbs a tree and hollers.
(Applause.)

Following Mr. Andres' paper, another love feast was held and the spirit of enthusiasm ran so high that a greater success was assured the B. B. A. for the ensuing year.

SIXTH ANNUAL CONVENTION OF THE NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.

The Meeting at Louisville Proves the Most Successful Yet Held—Headquarters to Be Moved to Cleveland, Ohio.

THE ANNUAL MEETING of the National Paving Brick Manufacturers' Association was held at Louisville February 6, 7 and 8, with a large attendance of the members of the organization. The sessions were held at the Seelbach Hotel immediately preceding the convention of the National Brick Manufacturers' Association, most of the members of the N. P. B. M. A. being members of the general association also.

The paving brick men devoted most of their time to the consideration of matters intimately connected with the organization, and a number of amendments to the constitution

The entire office management was placed in the hands of a committee composed of the president, Mr. Deckman; J. G. Barbour, of the Metropolitan Paving Brick Company, of Canton, Ohio, and C. C. Blair, of Bessemer Limestone Company, of Youngstown, Ohio. Each of these men is also the chairman of one of the three important committees.

Charles M. Crook, of Youngstown, Ohio, who had served as president through 1910, sent word that his failing mealth had compelled him to retire from business temporarily and to ask to be relieved of active work with the association. On resolution a letter was prepared expressing deep regret in the loss of Mr. Crook's advice and counsel, hoping for his speedy recovery and return to active life. This was not only signed by the committee but by all the members of the asso-



Members of the N. P. B. M. A. Looking Pleasant for The Clay-Worker.

were adopted. One of the most important decisions was to move the headquarters from Indianapolis to Cleveland, and this will be done by March 15, in compliance with a resolution adopted by the directors.

One of the reasons advocated for the change was that Cleveland's miles of properly constructed brick paved streets offer an example of the best in vitrified brick street construction, and that it will be an advantage to have the headquarters located where all visitors may be shown these streets.

The following officers were elected for 1911:

President—Charles J. Deckman, Deckman-Duty Brick Company, Cleveland, Ohio.

Vice-President—J. W. Robb, Clinton Paving Brick Company, Clinton, Ind.

Secretary—Will P. Blair, Indianapolis, Ind.

Treasurer—C. C. Barr, Barr Clay Company, Streator, Ill.

ciation at the convention.

J. G. Barbour read the report of the committee which had been appointed to investigate the question of a standard rattler for testing paving brick. The committee recommended the adoption of specifications, which were submitted as part of the report, for a standard rattler. The association adopted the specifications and pledged that each concern holding membership in the association will build a standard rattler and place it in operation at the plant.

In this connection the association also condemned the action of the Organization of City Officials for Standardizing Specifications because that organization adopted specifications for a standard rattler without giving sufficient consideration to the percentage of increased severity in the abrasion test by the new rattler and that of the old machines which have been generally used.

It was also the action of the association that an effort be

made to have all materials tested at the plants instead of in the city where the brick are to be used. It was shown that in many instances a serious injustice is done the manufacturer by the tests being made by incompetent or indifferent subordinates in the municipal engineering departments and that great loss has often resulted by the rejection of good brick. Attention was called to the fact that the government makes all the tests of materials it uses for construction purposes at the plants where the material is used.

In considering the question of association advertising Merle Sidener, publicity counsel, presented a paper in which he said:

"In these days of development and discovery and substitution the man or concern that ignores the public soon becomes a Rip Van Winkle. The younger and newer grows up while he sleeps, and when at length he does awake he finds it almost impossible to make himself recognized. Almost every issue of the technical publications announces the birth of some new 'smear' pavement, and this whole 'ithic' family seems possessed of foghorn voices. Before the mess is able to stand alone it begins to shout its own praises and the public cannot help but take notice. And if the paving brick continues to sleep in self-contentment while a new generation of paving materials comes on apace, it will slowly but surely be forgotten.

"You gentlemen who compose the companies that make up this organization live too close to your own industry to realize the indifference of the general public to your business and your product. You come into personal contact with a few individuals whom you impress with the merit of vitrified brick and you mistake these for the public. While you are sending your secretary and your salesmen and your field men to advocate the merit of the vitrified brick to the hundreds of individuals your competitors in the manufacture of paving materials are appealing to the millions of property owners through the pages of the magazines and the medium of attractive and therefore expensive private publications. You have, no doubt, begun to feel the effect of these modern methods. For you find in every community a growing knowledge of bitulithic, and bitu-mass, and macadam, and wooden blocks, and asphalt. And while you also find that brick is known, the attitude is all too often antagonistic through unfortunate experience with improperly constructed brick pavements.

"And the pity of this situation is all the more pronounced because of the fact that absolutely no other paving material is of so much genuine worth and so valuable to the taxpayer. This very fact is perhaps largely responsible for the failure to exploit paving brick. The material with fewer points in its favor shouts the more loudly to fill the void."

Mr. Sidener urged that the association increase its advertising appropriation and carry the message of the properly constructed brick pavement to the people through the pages of the popular and the technical magazines.

TO HANDLE FATE MACHINERY.

A trade agreement of much importance to the users of brick and tile machinery has been entered into by the J. D. Fate Company, of Plymouth, Ohio, and the Manufacturers' Equipment Company, of Dayton, Ohio, whereby the latter firm is to act as sales agent for the former. Fate machinery is well and favorably known to clayworkers the world over. The Manufacturers' Equipment Company is a new firm of hustling young men, all of whom are well acquainted with the needs of brick and tile manufacturers, and, being enthusiasts, will prove an effective aid to the sales department of the older firm. While the wish may be father to the thought, there is every reason to predict results gratifying alike to the two firms and to the trade in general, which they will serve with an ability and fidelity that spells success.

THE N. B. M. A. CONVENTION ANNEX AND ANNEXERS.

J OY REIGNED supreme in the ranks of the trade missionaries at Louisville. Never before have the T. M.'s enjoyed a week of such solid comfort as was afforded at the Seelbach. The Exhibition Room was perfectly lighted, attractively decorated, thoroughly comfortable, and in every way adapted to the needs of the exhibitors. There was plenty of room for all, and, when once installed, the displays were not disturbed, but were open to inspection the whole week through. Here, as in all the other departments of the Seelbach, the service was well-nigh perfect; if one wanted anything, he had but to ask for it. Add to all this the other prime requisite, a large attendance of visiting clayworkers, and it is easy to understand why the exhibitors smiled and smiled the whole week through.

Facing the elevator on each floor of the Seelbach above the parlor floor is an enormous mirror, in which the guests as they come and go may see themselves as others see them. Convention week these mirrors were well-nigh hidden with placards giving the headquarters of the various machinery and supply firms, particularly was this the case with the one on the tenth floor, in the center of which the American eagle posed with spread wings, calling attention to the attractions in rooms 1, 2, 3 and 4, where the representatives of the American Clay Machinery Company welcomed all visitors. In one room they gave a picture show of their famous brick-setting device. In another they exhibited specimen brick and other clay products made on American machinery. Their advertising was exceptionally effective and stamps Frank Hopley, their ad man, as a genius.

The aforesaid mirror also bore the announcement of a number of other T. M.'s, who had headquarters on that floor, among them the C. W. Raymond Company, Dayton, Ohio, who in connection with their other announcements, advertised the fact that those who wanted to visit their new factory at Dayton would be granted stop-over privileges by the Big Four railroad. In their headquarters the Raymond Company exhibited a model of their Youngren kiln and a Berg press and other things of particular interest to brickmakers. Mr. Chas. W. Raymond, president of the company; Chas. W. Raymond, Jr.; Geo. Neushaw, Jas. P. Williams, A. A. Vaughn and Arthur G. Walker were in charge.

The Mathews Gravity Carrier Company, of St. Paul, Minn., was represented by Mr. O. C. Sylvester, who was demonstrating one of their gravity conveyors used for unloading kilns either to the stock pile or the railroad cars. It is set up with 2½ to 3½ per cent. grade according to the smoothness of the brick. The 12-inch conveyor will convey 4 common building brick abreast or three pavers. The carriers are supported by all steel adjustable supports, ranging in width from 11 inches to 8 feet 4 inches. The carriers are constructed of rows of 12-inch rollers journaled at 3-inch centers. The side rails are of ¼x2½-inch milled steel. This company also had a nice line of circular matter describing their machine, which was being distributed.

The Thew Automatic Shovel Company, of Lorain, Ohio, was represented by D. D. Deeds and A. C. Vicary, who had their headquarters in Room 6, where they were telling of the merits of their well-known steam shovel, describing it by the use of catalogues, blue prints and photographs.

The Chase Foundry and Manufacturing Company, of Columbus, Ohio, were represented by S. M. Chase and A. J. Dunn, with headquarters in Room 9, in which they were showing their roller-bearing dryer car with flexible box and folding deck.

The Frink Pyrometer Company, Lancaster, Ohio, represented by R. L. Frink, R. B. Burr and F. J. Frink, had quite

an exhibit, consisting of instruments, charts and photographs, and were distributing some nice literature and souvenir pencils.

Tate, Jones & Co., of Pittsburg, Pa., were represented by J. M. Tate, C. P. Watkins and G. E. Luce, who showed oil-burning equipment and expressed themselves as doing well.

The Arnold Creager Company, of New Loudon, Ohio, represented by Frank McClellan and C. L. Rorick, had on display in their room models of soft-mud brick machinery and a fine line of catalogues, while in one corner of the convention hall they exhibited a large wheelbarrow attractively located. They reported a goodly number of orders obtained during the week and felt well satisfied with the outlook for a prosperous year in their line.

The American Clay Machinery Company, of Bucyrus, Ohio, had quite a number of representatives in charge of their elaborate exhibit, among them being: R. C. Penfield, L. W. Penfield, R. O. Perrott, J. D. Whittaker, H. L. Harmon, G. C. Stoll, W. W. Whiting, E. W. Dow, S. J. Heafield, E. J. Rutland, J. P. Martin, C. B. Sharer, F. S. Naugle, F. H. Essig, W. R. Cunningham, F. L. Hopley, T. L. Myers and A. C. Myers. They occupied a suite of four rooms with their exhibit. The first two were consultation rooms, followed by Room No. 3, in which was a moving picture show, showing the style of setting brick by the Penfield mechanical brick setter. These machines are in use principally on the Chicago brickyards. All the Chicago yards have ordered them, and they are being put in there at the present time. Seven have already been installed and the balance are being put in as fast as they can be equipped. In the fourth room was a beautiful exhibit of clay products of all kinds manufactured in all parts of the United States, and these represented some of the products made on machinery built by the American Clay Machinery Company. On the walls were photographs of model plants located in various parts of the country which have been built and equipped by this company. They also had quite an assortment of souvenirs, among them being clothes brushes, letter-openers, daily reminders and pencils.

On the left, near the entrance, in the convention hall was shown the place where the man with the hoe stands to stir grout in the Standard cement grout mixing box. Looking through the hall at this point we saw three lines of tables with convenient walking space between, while along the walls were wall tables, on which were displayed samples of brick and other clay products, equipment, supplies, circulars and other interesting matter for clayworkers.

The most conspicuous exhibit first on the left wall table was that of the N. P. B. M. A., showing a varied line of pavers neatly arranged for display, and above them a number of photographs of well paved streets, with a view of the great Indianapolis motor speedway, brick paved, as a centerpiece. Spread among the different tables, making up a great feast of mental food for the edification and information of brick manufacturers, was to be seen the following:

The Frost Manufacturing Company, Galesburg, Ill., with circular matter describing their engines, boilers, dry pans and their various specialties. Their representative, Wm. Simpson, entertained the inquiring delegates with detailed information as to the advantages of the Frost dry pans, engines, boilers, etc.

J. C. Steele & Sons, Statesville, N. C., represented by H. O. Steele, had circular matter and catalogues describing their brickmaking machinery.

Chambers Bros. Company, Philadelphia, Pa., had some beautiful illustrations of their brickmaking machinery and some elegant catalogues. The old faithfuls, Messrs. Cham-

bers, Root and Frazier, pleasantly received and talked to the visitors. They presented to each delegate with their compliments a very attractive watch fob.

The Everhard Company, of Massillon, Ohio, was represented by M. McC. Everhard, who was showing a fine line of samples of face brick in various colors and also some beautiful examples of a rustic face brick.

J. D. Fate Company, Plymouth, Ohio, represented by H. H. Fate (Button No. 450, weight 450 pounds), H. J. Votaw and G. A. Anderson, had quite an assortment of literature and display cards and were distributing their fine Russian morocco leather-covered catalogue illustrating their full line of clayworking machinery and a leather-bound filing case, for which there was quite a demand.

The American Pulverizer Company, of St. Louis, Mo., was represented by Geo. C. Videtto, secretary of the company, who was showing a model of their ring hammer pulverizer, together with a line of circulars and private mailing cards illustrating and describing their machine.

The Bonnot Company, Canton, Ohio, had quite an assortment of literature and booklets on display and for distribution. Mr. A. A. Oldham and A. W. Aylesworth represented the firm and presented the visitors with an attractive and most acceptable leather pocketbook.

C. & A. Potts & Co., Indianapolis, Ind., had a line of catalogues, circulars and also samples of brick from the East End Brick Company, Louisville, Ky., made on the C. & A. Potts machine. Albert Potts and George Potts kept open house all week.

E. M. Freese & Co., Galion, Ohio, had a card announcing their headquarters on the parlor floor and circulars and samples of wire-cut lug blocks made with their machines. Also samples of pressed brick. They were distributing some nice calendars and bill-books as souvenirs. Those well-known gentlemen, E. F. Place, H. H. and A. J. Freese and E. L. Hess, ably represented the company.

The Davenport Locomotive Works, of Davenport, Iowa, had pictures illustrating their industrial locomotives and quite a variety of catalogues and circulars. They were represented by J. H. Coley and E. M. Hall.

The Westinghouse Electric and Manufacturing Company, Pittsburg, Pa., had pictures of their plant and illustrated catalogues showing clay manufacturing plants operated by Westinghouse motors.

The Main Belting Company, Chicago, Ill., was showing samples of Leviathan belting and also fasteners, catalogues and circulars telling about their belting and belt supplies. Mr. C. A. Gould and Wm. M. Taylor, their representatives, stated that they had experienced a very good year.

The Williams Patent Crusher and Pulverizer Company, St. Louis, Mo., were illustrating their well-known line of crushing and pulverizing machinery with various circulars, catalogues, etc. M. F. Williams, the "crusher man," spent a happy, enjoyable week giving out information as to the merits of his machines.

One of the busiest men at the convention was F. W. Dennis, of Norfolk, Va., who had something new in up-draft kilns to talk about. He is an N. B. M. A. enthusiast and suggests that it might be well at future conventions to have a Bureau of Information, where those looking for experienced superintendents, burners, etc., or where expert brickmakers might leave their names or make appointments with those desiring to talk over prospective business relations. He is of the opinion that if it were known such a bureau was in opera-

tion that many desiring to change locations would avail themselves of the opportunity offered for personal interview.

Jas. B. Crowell & Son, Wallkill, N. Y., were displaying samples of brick molds and circular matter describing same.

The American Home Fireplace Company, Zanesville, Ohio, showed samples of fire-flashed brick for mantel work and ornamental designs.

The Central Paint and Roofing Company, Louisville, Ky., displayed samples of security roofing, Natroco paint and other of the well-known products of this company.

W. J. Phillips, of Phillips, & McLaren Company, Pittsburg, Pa., represented his firm, which makes a specialty of dry pans. From Louisville Mr. Phillips went to California for rest and recreation.

The Chisholm, Boyd & White Company, of Chicago, Ill., was represented as usual by that congenial gentleman, Harry Flood, who expresses himself as well pleased with the convention and spoke encouragingly of the prospects for a good year's trade in their line.

The Anderson Foundry and Machine Works, of Anderson, Ind., had for their representative Mr. William Durbin, who seldom misses a convention, and is an enthusiastic promoter of burned clay products. He told the delegates of the merits of the Anderson Foundry and Machine Works' presses and equipment and enjoyed the week of convention work.

Mr. James Hensley, of Indianapolis, greeted his friends in usual cordial style and spent a great deal of the time in answering questions of visitors relative to his line of soft-mud brick machinery and clayworking devices.

The Standard Dry Kiln Company, of Indianapolis, Ind., was well represented by Robert Elliott and V. F. Outland. They distributed interesting literature pertaining to drying problems and presented most acceptable blotters and combination pens and pencils as souvenirs.

The Sawyer Belting Company, of Cleveland, Ohio, was much in evidence convention week. This well-known firm was represented by W. Reece, E. F. Deckert, C. G. Mack. On a well-located table in the exhibition hall they displayed their attractive advertising literature and backed it up by convincing arguments on the superior quality of Sawyer belting.

Orenstein-Arthur-Koppel Company, Pittsburg, Pa., had models illustrating the Koppel dump cars, portable tracks, switches, turn-tables and rails, together with quite a lot of circular matter describing same.

The Illinois Supply and Construction Company, St. Louis, Mo., exhibited a model Grath press and Schurs oil burners and some excellent samples of brick made with their equipment. W. P. Grath, the head of this company, reported a good week's business and was very enthusiastic over the fine convention.

The Weller Manufacturing Company, Chicago, Ill., displayed the Weller improved oil burner, with catalogues and circulars illustrating their conveying, elevating and power transmitting machinery.

Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa., represented by Chas. Horton, had a variety of catalogues and blue prints illustrating their well-known line of brick machinery and supplies.

H. Brewer & Co., Tecumseh, Mich., had a variety of catalogues and pictures illustrating their line of brick and tile machinery. They were represented by Davis Brown, who displayed an interesting blue print styled the final estimate.

The Brown Instrument Company, Philadelphia, Pa., represented by W. H. Gibb, started exhibiting the Brown instruments at Rochester and have attended all conventions since then. This year they were particularly interested in show-

ing their electric pyrometer and were distributing catalogues and charts pertaining to same.

Scott-Madden Iron Works, of St. Louis, Mo., had some excellent catalogues of their line of clayworking machinery. "Dixie" Scott was much in evidence.

The Marion Steam Shovel Company, Marion, Ohio, represented by Harry L. Cox, were showing pictures of their shovel at work and literature pertaining to same.

The Chicago Brick and Machinery Company, Chicago, Ill., had quite a lot of catalogues and circulars illustrating their machinery. These were distributed by the amiable John J. Moroney.

McManigal Grateless Furnace Company, Logan, Ohio, had brochures and testimonials pertaining to the McManigal grateless furnace.

The Ohio Ceramic Engineering Company, Cleveland, Ohio, had a model of their double-deck dryer car. Their representatives, F. H. Robinson and D. L. Wadsworth, spent a busy and satisfactory week.

The Wellington Machine Company, Wellington, Ohio, were showing sample brick molds and catalogues. H. S. and R. C. Bennett and James W. Hensley wore smiles that indicated the condition of their business.

H. Haigh, Catskill, N. Y., had pictures and catalogues illustrating Haigh's improved new system continuous kiln for burning all grades of brick and tile.

Brazil Clay Company, Brazil, Ind., exhibited a line of impervious face brick including some beautiful effects both in smooth and rustic finish.

The Hanover Red Pressed Brick Company, Hanover, Ohio, had a great line of Hanover red pressed brick, both in smooth and rustic finish.

The Kentucky Fire Brick Company, Portsmouth, Ohio, had an excellent line of samples of fire and face brick.

Bolivar Face Brick Company, Bolivar, Pa., had on exhibition some beautiful effects in rustic face brick samples laid up.

The Pearl Clay Products Company, Bradford, Pa., were displaying samples of the well-known Pearl gray face brick.

Tuna Valley Pressed Brick Company, Bradford, Pa., were showing some excellent samples of red pressed brick.

Upper Kittanning Brick Company and Kittanning Clay Products Company, of Bradford, Pa., showed samples of gray and buff face brick.

The Pulsometer Steam Pump Company, of New York, had catalogues and circulars illustrating their pumps.

D. Cobb, Box 1135, Jacksonville, Fla., had blue prints and circulars of Cobb's patent up and down-draft regenerative continuous kiln.

The Atlas Car and Manufacturing Company, Cleveland, Ohio, represented by R. S. Richards and L. W. Harston, had special catalogues illustrating their triple-deck dryer cars.

John C. Boss Company, Elkhart, Ind., had a line of catalogues illustrating the Boss system of drying and burning, also announcements of their headquarters in Room 314.

The Claycraft Brick Company, of Columbus, Ohio, were exhibiting panels of their corduroy velvet bricks, which received many compliments during the week.

The Independent Powder Company, of St. Louis, Mo., which claims to set the pace everywhere on quality, had a pretty complete line of its products, in dummy form, on exhibition, together with a variety of circular matter telling about their blasting supplies. Mr. C. Fred Foley, their rep-

representative, was distributing a pretty red, white and blue pencil as a souvenir.

Marion Machine, Foundry and Supply Company, Marion, Indiana, represented by D. Erlewine and A. W. Snider, had a full-sized mold of the new Marion flue-blower and catalogues illustrating their cutting tables and the Rust clay feeders and mixers. They secured a large number of orders.

Alfred Yates, of Shawmut Vitrified Paving Brick Works, Shawmut, Pa., had an exhibit of their paving brick and a number of Turkish tobacco jars, which disappeared like hot cakes. We were pleased with being presented with one. It finds a place among our large exhibit in THE CLAY-WORKER sanctum.

IMMENSE PENNSYLVANIA FIRE BRICK PLANTS CHANGE HANDS.

ONE OF THE largest and most important deals in the brick business was recently consummated by J. B. Hammond, of Bolivar, Pa., when he concluded the negotiations for the purchase for the Phoenix Fire Brick Company and the Bolivar Face Brick Company of all the

atly over the fire clay deposits, which are or may be worked in connection with the fire clay; while the two principal seams that are operated independent of the fire clay and furnish the fuel for the factories consist of one seam 3½ feet and another 6 feet. These four seams lie above the level of the railroad immediately adjacent to the factory, are worked by drift, natural drainage, under the most favorable mining conditions, with no gas to contend with, the mining rates reaching from 40 to 60 cents per ton, making an average cost delivered to the boilers and the kilns of about 75 cents per ton.

The fire clay deposits consist of two seams of flint clay 5 to 8 feet in thickness, the upper seam being a black, flinty, refractory clay, very free from impurities, suitable for high-grade fire brick; the under seam being 8 to 12 feet in thickness, being gray in color, slightly less refractory than the upper seam and suitable for No. 2 fire brick.

The plastic clay deposits consist of seven distinct seams: The first seam above the level of the railroad being 5 to 8 feet in thickness and suitable for an iron spot face brick; the second a seam 6 to 8 feet in thickness of a semi-flinty fracture, suitable for manufacture of the best color effects in



Clay Properties and Factories of the Bolivar Face Brick Company, Bolivar, Pa.

properties formerly owned and operated by the Reese-Hammond Fire Brick Company and the United States Enameled Brick Company, valued at over half a million dollars.

The factories and properties heretofore devoted exclusively to the high-grade silica and fire-brick business have been acquired by the Phoenix Fire Brick Company, which is a corporation made up largely of local people, the officers being J. B. Hammond, president; B. F. Reese, secretary and general manager, and W. B. Hammond, treasurer.

The properties acquired by the Bolivar Face Brick Company, however, are larger, more extensive and of more interest to our readers, being devoted almost entirely to the manufacture of a variety of high-grade face brick and paving brick. The properties purchased for the corporation include 285 acres of mineral land in fee, fronting on the main line of the Pennsylvania railroad and the Conemaugh river, at Bolivar, Pa. This acreage is underlaid with perhaps the most valuable deposits of material for the manufacture of various products turned out at this factory of any similar acreage thus far developed in connection with the brick industry in this country.

There are four seams of coal underlying this property, consisting of two thin seams of 20 inches and 24 inches immedi-

ately over the fire clay deposits, which are or may be worked in connection with the fire clay; while the two principal seams that are operated independent of the fire clay and furnish the fuel for the factories consist of one seam 3½ feet and another 6 feet. These four seams lie above the level of the railroad immediately adjacent to the factory, are worked by drift, natural drainage, under the most favorable mining conditions, with no gas to contend with, the mining rates reaching from 40 to 60 cents per ton, making an average cost delivered to the boilers and the kilns of about 75 cents per ton.

The shale deposits consist of three seams varying in thickness from 8 to 15 feet each, from which are manufactured a superior quality of shale paving blocks, meeting the highest absorption and abrasion tests, and a variety of effects in face brick to meet the popular demands of the trade at this time.

There are also three seams of silica rock and two seams of iron ore on this property that are especially valuable when properly manipulated with the different seams of fire clay to produce a good variety of live shades of face brick both in rough and smooth effects.

With nine seams of fire clay, three of shale, three of silica

rock and two of iron ore, all mined or in condition for mining, on property immediately adjacent to the factory, within 300 yards of the pan, all above tippie height, and with four seams of coal for burning the product, it will be readily seen that the factory of the Bolivar Face Brick Company is most advantageously located. Not all of these seams of material are being operated. Three of the seams of coal, however, are developed, one of which is being worked in connection with the fire clay, two of them independent of the fire clay. The flint clay is also operated to some extent, as are four distinct seams of plastic clay, one seam of shale, two of silica rock and two of iron ore, one of which is known as bog ore and one gray ore.

The plant is well located, not only with relation to the supply of raw materials, but with plenty of room for buildings and with splendid shipping facilities. The building site consists of about seven acres of level land lying between the Pennsylvania railroad and the Conemaugh river at Bolivar, Pa., with sidetracks on both sides of the factory. There are two factories, the first of which is known as the enamel plant, which was formerly owned and operated by the United States Enameled Brick Company, consisting of brick factory buildings constructed throughout of brick, steel and slate; two tubular boilers, two engines, 9-foot dry pan, 5-foot combination wet and dry pan, Freese combined machine, Bonnot cutter, 2 hand represses, Potts' pug mill, filter press, glaze mills and other equipment for preparation of enameling materials; also hot air dryer, 4 square down-draft kilns, 5 round down-draft kilns and 1 Potter kiln.

The second factory, formerly owned and operated by the Reese-Hammond Fire Brick Company, known as No. 4 Works, consists of large buildings constructed of stone, steel, brick and slate, and consist of the power building, main machinery building, auxiliary machinery building, 2 dryers, machine shop, 2 fan and heater buildings, 3 storage buildings, blacksmith shop and scale house. The equipment consists of 5 tubular boilers, 650 h.p.; 4 engines—1 550 h.p. Corliss, 1 35 h.p., 1 30 h.p. and 1 15 h.p. vertical—the 3 small engines driving fans and furnishing power for machine shop; 1 125 h.p. compressor, furnishing power for mine; also heaters and pumps. The machinery of this factory consists of 2 crushers, 6 9-foot dry pans and 1 8-foot wet pan; 2 12-foot iron pug mills, 1 vertical tuyere machine, 1 American Special Giant stiff-mud machine, 1 Freese Ohio Mammoth machine, 1 American No. 32 combined machine, 1 Horton soft-mud machine, 1 Berg 4-mold dry press, 2 Eagle double represses, 2 Victor double represses. There are 2 dryers, one heated with exhaust steam, coil heater and fan, and one with waste heat from cooling kilns; about 400 dryer cars, 28 kilns, 5 of which are longitudinal, 23 round, all down-draft.

There is also a machine shop thoroughly equipped for doing all the machine work necessary not only at these factories, but work is done for other factories.

The capacity of the two factories owned by the Bolivar Face Brick Company is 100,000 brick per day, and the product consists of mat glaze, impervious white brick, a number of delicate shades of face brick, including French gray and blue gray, such as have been furnished for the Vanderbilt Hotel in New York City and for the United States Naval Academy buildings at Annapolis, Md.; a variety of mottled face brick, including spotted cream, gray and white, made under special terra cotta process; cream, buff, orange, gray and red brick in solid colors in smooth and rough effects; iron spots and velours, consisting of a variety of artistic shades in rough effects, comprising buff, gray, golden brown and gun metals. In fact, while there is no attempt to carry a stock of all the different shades above enumerated, yet owing to the number of different seams of fire clay, shale, ore and other coloring materials, the range of colors and shades that may be produced at this factory is practically unlimited. Many times

this factory has produced shades to order to satisfy the demand of some architect, and this company is in position to match practically any shade of brick or terra cotta that may be submitted, in addition to making several colors and shades that are exclusive and different from anything produced elsewhere. The product also includes fire clay and shale paving blocks and fire brick for general purposes and ground fire clay.

There is no other factory in the country that can reach as wide a territory; markets can scarcely be described by geographical limitations, as in times past the product has been marketed from Maine to British Columbia, and from Hudson Bay to the Gulf of Mexico.

This company has good business booked already for this year and the prospect for a big year's business is very encouraging. Perhaps the most important brick job furnished by any brick concern the past year was that of the Vanderbilt Hotel, 34th street and Madison avenue, New York City, which was supplied by the Bolivar Face Brick Company through its New York agents, Carter, Black & Ayers. These brick are of a special shade known as French gray, developed by the Bolivar Terra Cotta Brick Company, operating the enamel plant, which has been absorbed by the Bolivar Face Brick Company. It is a difficult shade to produce. The architects, Warren & Wetmore, of New York City, had a certain color effect that they desired to carry out, using a varying shade of French gray for the main walls, to be trimmed with faience and white enameled brick, and it certainly presents a very artistic appearance, being the most conspicuous building on Madison avenue from the Metropolitan Tower at 23d street to the Belmont Hotel and the Grand Central Station at 42d street.

The officers of the Bolivar Face Brick Company consist of J. B. Hammond, president; C. W. Hammond, secretary; F. R. Hammond, treasurer; I. L. Hammond, superintendent, and these four, with E. R. Hammond, constitute the board of directors.

Written for THE CLAY-WORKER.

PUGET SOUND NOTES.

THE brick business is still at a low stand, and while the stock of brick at hand is not very large, the prices are still too low for the yards to start up on full time. Several large buildings are contemplated, but January did not develop much activity in that line. Of the growing towns of the State, Pasco has shown a remarkable record for building operations, and this amounted to over \$500,000.00 for the year 1910.

Several new brick companies were incorporated and organized in January. The Shope Patent Brick & Tile Co., of Tacoma, with a capitalization of \$25,000.00 in which J. E. Reynolds and Boss Vawter are interested, was incorporated. Mr. Wm. Doyle started a new brickyard on the old foundry site in Bellingham, and will manufacture common and pressed brick. Anacortes will also soon have a brick and tile factory. Capt. Walter S. Brown and W. Robertson of Vancouver, B. C., are contemplating erecting a brick factory in Anacortes. They will bring the clay from Guemes Island, and use it at their plant, which will be located on the water front.

The Citizens Club of Chehalis sent some clay for testing East a few months ago, and samples of brick made from the shale arrived a few weeks ago. The brick are looking good, and are a hard burnt nearly vitrified shale brick, and the prospects are good that Chehalis will have a brickyard in the near future.

The Carbon Coal & Clay Co. of Seattle has placed on record a mortgage on all their property and appliances in favor of the Cleveland Trust Co. for the amount of \$750,000.00.

Judge George A. Joiner, in King County Superior Court, denied an injunction preventing the Denny-Renton Clay &

Coal Company from diverting the drainage from their town of Taylor into Issaquah Creek. The suit was brought by the farmers along the creek who asserted that its increased volume of water would work harm to their land. The Clay company made this diversion when the city of Seattle objected to the pollution of their Cedar River watershed in which the town of Taylor is located.

Jos. Rich of Orenco, Oregon, will locate a brick and tile factory northeast of town. He has opened up a good supply of clay, and will make brick and tile for the local market.

SIWASH.

CONVENTION SIDE LIGHTS.

G. W. Atherton, of the H. Atherton Manufacturing and Supply Company, Boyne City, Mich., says they have the only dry press brick plant in Michigan and they have built up quite a business. Trade was not so very good the past year, but did fairly well, and they expect it to be better next season.

Walter Colyer, secretary of the Albion Shale Brick Company, Albion, Ill., found lots to interest him among the machinery and supply exhibits. While he has been in the brick business for quite a number of years, this is a new concern with them that they are organizing and promoting, and they expect to equip a plant with four times the capacity of the old yard they have been operating.

D. Warren de Rosay, general manager of the Corry Brick and Tile Company, Corry, Pa., said it felt something like a home-coming to him to get down into Kentucky again, for he used to be in the brick business something like twenty years ago in Kentucky. He and Tom Lawson, noted later and better known as "Frenzied Finance" Lawson, were in partnership at Grand Rivers, Ky., in the brick business over twenty years ago. That is why he felt like it was a home-coming to get back in the Blue Grass State. He said he had not been there before in ten years.

W. H. Hoagland, secretary and general manager of the Claycraft Brick Company, Columbus, Ohio, said that they have had a fair business in 1910 and they look forward to pretty good doings throughout 1911. He was showing up in the exhibition room a panel of unique rustic ornamental face brick that attracted quite a lot of attention. It looked like the very thing for bungalow and what we term as craftsmen's homes and rustic work generally.

Those of the boys that came from up toward the Hudson said that there had been a good volume of business on the Hudson in New York this year, but not enough in the way of prices and profits had been realized from it.

J. B. Wilcox, general manager of the Alliance Clay Products Company, Alliance, Ohio, said their institution is only four years old, but they have gotten well established and are making a good line of both paving block and building brick. Their business increased approximately 20 per cent. last year, and indications are they will add still more to it the present year.

The Bolivar Face Brick Company, Bolivar, Pa., and the Kentucky Fire Brick Company, Portsmouth, Ohio, show their firms on the same card and were represented by the same man, J. B. Hammond. Incidentally they showed an excellent line of products in the exhibition hall. Some of the face work being made by a process of welding the face material on the clay column as it comes out, giving any kind of a face and color that might be wanted welded in and burned with the brick itself. They formed one of the most interesting exhibits in the exhibition hall.

J. B. Nicholson, of the Toronto Fire Clay Company, Toronto, Ohio, whose home is in Steubenville, says he was practically born and raised in the brick business, and doesn't know much of anything else. They make front brick, fire

brick and paving block, and have a capacity of about 95,000 a day. He says that for the first time in seventeen years they had to shut down part of their plant for a little while. This was due in some measure to business being a little slow, but quite largely to the fact that they had increased their capacity and equipment so that they got a little ahead, and instead of running all through the winter this time they shut down a part of their plant for a little while and will take advantage of the occasion to repair and get in good shape for the spring run.

T. C. Lundy, of the Lonsdale Face Brick Company, Knoxville, Tenn., says that it has been rather a quiet year down in Tennessee. Not bad enough to complain of, but not exciting in the brick business.

Charles T. Harris, of Fiske & Co., New York City, was one of the live wires and enthusiastic rooters in the convention and around the corridors. He is full of ideas and resourcefulness and wide awake all the time. He was formerly in the roofing tile business, and it has been some years now since he has been in harness in the brick business proper, but he is back in it now and is going at it as if he intends to make up for lost time.

C. P. Mayer, of the C. P. Mayer Brick Company, Bridgeville, Pa., the man with the red vest, and who was the recipient of the red cowboy hat, is getting to be something of an association worker, and there is something more than foolishness back of all of that redness. He makes it a feature of his letterhead and envelope advertising. It has become a trade mark that is worth a lot to him as a business asset, and through this means he is one of the best advertised business men in the Pittsburg district. He is not only a good worker in the N. B. M. A. and in the Paving Brick Association, but he is also in the lumber business and is vice-president of a Pennsylvania lumber association and is reported to be a wheel horse among the workers in conventions. In addition to all of these things, he was showing at the convention some of the best looking paving block to be found.

George M. Krick, of the Krick-Tyndall Company, Decatur, Ind., says they make building brick and drain tile. They have had an excellent year in drain tile, taking the past year as a whole. Of course, trade is a little slow with them right now, but they anticipate a good run during the spring. Also, they think there will be a good business in building brick.

Charles H. Kepler, of the Saginaw Paving Brick Company, Saginaw, Mich., had some samples of their product in the face and paving brick exhibit. They are featuring their paving brick for face brick work and meeting with quite a healthy success at it. They had gotten up a set of souvenir post-cards showing various attractive buildings about Saginaw erected with this paver face brick of theirs, and have a notion of following this method of advertising to further boost their pavers in face work.

The beautiful stereopticon views supplied by Mr. R. C. Penfield, showing views in connection with the great building material exhibit in London, not only helped to arouse interest in the clay products exhibition idea, but it served to remind us that this exhibition idea has been a sort of hobby of THE CLAY-WORKER for some time. We have urged exhibitions both local and general, that every clay man should make it a point to get in on State fairs and other exhibitions, so that we make always keep clay products in the public mind.

D. L. Wadsworth, of the Ohio Ceramic Engineering Company, Cleveland, Ohio, didn't put it in exactly these words, but the line of his talk was that even equipment men have to figure on cost to get a profit, and often through lack of taking into consideration the cost of getting out machinery

and equipment they are driven by competition into making prices that may be good for the brick men, but are hard on the machinery and equipment people.

Fred C. Klutey, of Kleymeyer & Klutey, Henderson, Ky., says their product is building brick and drain tile. They make a specialty of a sand finish face brick for building and had an excellent year's business last year. Also, they are looking forward to even better times in 1911.

Fred W. Alhorn, of Alhorn & Waller, Morganfield, Ky., reports a pretty good business for 1910 and is cheerful over the outlook ahead. He says that their product is a general line of building brick and drain tile.

A. R. Root, of Chambers Bros. Co., Philadelphia, Pa., claims to have the distinction of being the only other man besides Secretary Randall who has attended every meeting of the N. B. M. A. since its formation. Also, when he is grouped among the old stand-bys and they get to reminiscing he is reminded of the early days in the brick machinery business and of the fact that the first machine sold by Chambers Bros. Co. was to Mr. Reeves, of New Jersey, in 1862, and it is still in operation.

One of the things that grieved Jeff Bannon, of Louisville, the first part of the week, was that his automobile had to go into the repair shop. He got it out, however, before the convention was over, and played host to several in a whole-hearted Southern way. In fact, if there was any man around the convention busier than Jeff he was hard to find.

Vice-President C. A. Bloomfield, of Metuchen, N. J., said it did him good to get South, because he lived in a sort of Southern atmosphere at home. He has an old colonial home that is a hundred years old, and his only regret in connection with it is that it is not built of fire brick instead of lumber. Incidentally he and Governor Willson immediately struck up a friendship on meeting, because both are progressives in political matters. So they found much in common to talk about and much in each other that appealed.

There were two Bishops at the convention. One was T. Bishop, president of the Louisville Brick Club, who worked hard to make the stay of the visitors pleasant. The other was J. A. Bishop, his brother, who is associated with the West Point Brick and Lunber Company. They are enough alike, too, that sometimes one was mistaken for the other, and J. A. was asked questions which kept him guessing and reminding people that they were mistaking him for T.

While much to the regret of every member of the Association, President Charles M. Crook could not be present, the junior member of the Bessemer Limestone Company, of Youngstown, C. E. Crook, was there and earnestly enjoyed every hour of his stay. He had hopes up to the last minute that his father might be able to come, but said that he really needed rest and recreation and he would probably be better off not to undertake it.

H. W. Katterjohn, of Paducah, Ky., vice-president for Kentucky, came up early and joined hands with the local boys about Louisville and became an active member of the reception committee.

Somebody else may be the Hoosier poet, but J. M. Hoskins, of Terre Haute, is the Hoosier poetry reciter of the N. B. M. A.

The Kentucky Fire Brick Company, with works located at Haldeman, Ky., and general office at Portsmouth, Ohio, had a very nice exhibit of face brick at the national convention. These brick were both smooth and rough effects. The smooth brick included a variety of shades from a brick practically a pure white running through the darker shades to gun metal. In the rough effects there were buff, golden and brown of very rich color effect. The Kentucky Company has a strictly modern plant, devoted to the manufacture of high

grade fire brick, which enter principally into the steel trade of the South and West, and face brick, with a capacity of thirteen million per year, and reports business very good, having lots of orders, and the plant is now running to the full limit of its capacity. This company was represented at the convention by J. B. Hammond, president; L. P. Halde-man, secretary and treasurer, and Henry K. Leighow, general manager.

One of the new members in attendance at the Louisville meeting that the N. B. M. A. may well be proud of is a lady brick manufacturer, Mrs. Georgia A. Buckley, Montrose, Col., widow of the late Senator N. S. Buckley. Mrs. Buckley did not get into the brick and tile business accidentally; neither did she have it left to her as a heritage, but went into it from choice. She had purchased some shale bank property as an investment, and not being able to get some man interested to develop it and take advantage of the opening of the country to create a market, she went to work, selected machinery, superintended its installation and developed the



Mrs. Georgia Buckley, Montrose, Colo.

business herself. She has already developed a good business in brick and tile, but is not satisfied with that, and becoming interested in the subject of brick manufacture, she came to the convention fully determined to hear the technical discussions and learn all she could about the brick manufacturing business. This is an unusual record in the annals of brick manufacturing, and Mrs. Buckley is an unusual woman, handsome and of striking appearance, and combined with all the social attributes of the feminine world has a business head and abilities that put her on a good footing among manufacturers.

The Bolivar Face Brick Company, of Bolivar, Pennsylvania, had a large display and fine exhibit of its different shades of face brick at the Louisville convention, showing a very wide variety of colors and styles of face brick, including buff, light and dark shades, in smooth and rough effects. This company reports good business already booked and very encouraging prospects for a full year's run. It was represented at the convention by J. B. Hammond, president, and I. L. Hammond, superintendent.

THIRTEENTH ANNUAL CONVENTION OF THE AMERICAN CERAMIC SOCIETY, HELD AT TRENTON, N. J., FEB. 13-16, 1911.

THE HISTORIC city of Trenton opened wide its gates to the members of the American Ceramic Society during the week beginning February 13. In meeting in this great ceramic center the executive committee of the society realized a long-cherished plan. The city being a veritable beehive of ceramic plants, it afforded an opportunity for the inspection of up-to-date potteries that was fully appreciated by the members, who gathered there nearly a hundred strong at the Hotel Windsor. The days were all too short for the work and social pleasures that had been planned by the program committee, so a good part of the nights were given over to adjourned sessions and parlor conferences. A more enthusiastic, earnest and tireless bunch of industrial students it would be difficult to get together anywhere, and the result of their labors, as recorded in the annual proceedings, will fully justify the time and energy expended.

A meeting of the Board of Trustees was held Monday for the transaction of official business. The convention proper was opened Tuesday morning at 10 o'clock. In the absence of President Heinrich Reis, Mr. Edward Stover, of Trenton, acted as president pro tem. and read the address prepared by President Reis. It was distinctly a technical paper, discussing at length the formation of kaolin. It was followed by the minutes of the 1910 meeting, presented by Secretary Orton, who reviewed the work done by the Society during the past year. A brief description of the midsummer meeting at Akron was given and the report of the Board of Trustees was submitted. Volume XII of the society's proceedings containing a report of the 1910 convention was briefly reviewed. The report was the largest the society has published. It contained 880 pages of instructive matter of great value to the ceramic trades. The financial statement showed total receipts of \$3,547, an increase of income of \$700 over the previous year, and expenditures in proportion. The balance in the treasury being \$250. The sale of literature during the year netted the society \$400 more than in previous year. The total number of volumes of all the transactions published now on hand number 2,710 and are valued at \$6,000.

The membership numbered 340 in February, 1910. There were 57 accessions during the year and 16 lapses, leaving the total membership on the first of the present month 381. Since that time there were 40 new members admitted, making a total membership of 421.

In the report of the Board of Trustees the following interesting information was given relative to the Bureau of Mines: The political work done by the American Ceramic Society for some years past in behalf of the creation of a Federal Bureau of Mines has at last borne fruit. Congress passed the necessary legislation for this bureau at its session closing June 25, 1910. The appropriation given to the new bureau was a somewhat liberal one and has enabled it to take up its duties with vigor and zest. A disagreement, however, arose in the course of the legislation, resulting in the partition of the work formerly carried on by the Technological Branch of the United States Geological Survey by which the testing of structural materials was transferred to the supervision of the Bureau of Standards instead of the Bureau of Mines.

Under this legislation the Bureau of Standards has taken charge of the clay products laboratory created by the Technologic Branch of the United States Geological Survey at Pittsburg, while the balance of the plant has passed into the control of the Bureau of Mines.

The interest of the Ceramic Society in this matter is purely that of getting the research work on ceramic problems

carried through, and it is, of course, immaterial to it as an organization which branch of the federal service shall be entrusted with the execution of this work. The high quality of the research work done by the Bureau of Standards in other fields and the retention by the bureau of the ceramic investigators which this society was largely influential in bringing together in the earlier organization at Pittsburg, seems an excellent guarantee that the interests of this society in the matter will be conserved. At the same time it is not improbable that the Bureau of Mines will be able to take up in due time the investigation of problems relating to the occurrence and winning of clays and the preparation of the clays for the market as raw materials, which will scarcely fall under the terms of the act relating to structural materials. It is therefore possible that this division of the field may result finally in an increase of the work in which the Ceramic Society is interested.

The continued interest of the members of the American Ceramic Society in both of these government bureaus and our sympathetic and effective co-operation with both of them in making them acquainted with our problems and needs is as necessary as at any time in the past.

A very elaborate revision of the rules of the society was made this year, which takes effect at this time. This was



Treasurer Ellis Lovejoy, Columbus, Ohio.

the chief work done at the convention outside of regular routine. Provision was made for four classes of members, namely: Honorary, active, associate and contributing. The fourth class consists of persons, firms or corporations engaged in ceramics or on allied work, who being interested in the society, make such financial contributions for its support annually, the Board of Trustees fixing the amount of annual dues, which shall not exceed \$25.00. The privileges of this membership begin with the payment of the annual dues and cease at the end of the fiscal year of the society.

The new rules prescribe a method of promoting associate members to active members and puts the power of electing associate members in the hands of the board, so that new associate members can come in at any time during the year without formal vote.

The limits of the dues in various classes were raised, but no change in amount made at this time; the change in amount of dues will be made at the discretion of the board. The dues for active, associate and contributing members cannot be raised above \$10.00, \$5.00 and \$25.00, respectively. The present dues are: Active members \$5.00 and associate, \$4.00. No change was made relative to number of officers, mode of election or method of conducting the meetings except that an annual midsummer meeting committee for arranging summer

meetings is to be appointed every year by the president.

Elaborate rules were also set forth governing the publication committee, which consists of the editor (appointed by the Board of Trustees), the secretary and treasurer.

Special meetings were held Tuesday and Wednesday nights, after which the new rules were adopted.

After the reports of officers in the Tuesday morning session the following officers were elected:

President—Charles Weelans, Trenton, N. J.

Vice-President—L. E. Barringer, Schenectady, N. Y.

Secretary—Prof. Edward Orton, Jr., Columbus, Ohio.

Treasurer—Ellis Lovejoy, Columbus, Ohio.

Member of Board of Trustees—J. Parker B. Fiske, New York City.

The vacancy on the Board of Trustees caused by the death of H. E. Ashley was filled by Ernest Mayer, of New Brighton, Pa. The present Board of Trustees consists of Messrs. Mayer, Cannon, Fiske and the four newly elected officers.

The Tuesday afternoon session as well as the other remaining sessions of Wednesday and Thursday, were given over to the reading and discussions of papers, of which there were fifty-nine, all of high merit and intensely interesting to the members. Space will not allow of any special mention at this time; however, several of them will be published in



Secretary Edward Orton, Columbus, Ohio.

full in THE CLAY-WORKER in due time.

During the convention the following were raised to full membership:

Geo. H. Brown, Pittsburg, Pa.

R. C. Cowan, Cleveland, Ohio.

D. T. Farnham, Seattle, Wash.

L. Gelstharp, Charleroi, Pa.

R. F. Grady, St. Louis, Mo.

John H. Knote, Pittsburg, Pa.

A. E. Mayer, New Brighton, Pa.

Jos. B. Shaw, West Lafayette, Ohio.

Dr. Felix G. Singer, Bunzlau, Germany.

Homer B. Staley, Columbus, Ohio.

W. G. Worcester, Detroit, Mich.

The following were nominated for full membership and are to be voted upon for election next year:

W. H. Gorseline, Rochester, N. Y.

K. Takahaski, Clarksburg, W. Va.

T. R. Ernest, Spokane, Wash.

R. K. Landrum, Canandaigua, N. Y.

The convention adjourned Thursday at 2 p. m. After a hurried lunch the visitors were escorted in automobiles to Washington Crossing, nine miles from Trenton, where they viewed the country around that historic point. Much interest was shown by the party in the old house in which Washington

stayed over night after crossing the Delaware river with its dangerous floating ice cakes. The party returned to Trenton and without stopping speeded through muddy roads to Princeton 14 miles beyond Trenton. Here they saw the beautiful Princeton University, which is one of the finest in the world, according to the consensus of opinion expressed on this occasion.

Thursday evening the annual banquet was held at Hildebrecht, a short distance from the hotel, where the inner man was entirely satisfied and the eloquent orators and after-dinner speakers held sway until the wee small hours. A large number of the members remained in Trenton over Friday and visited several of Trenton's famous clay plants, while a number of others traveled on to New Brunswick, escorted by Prof. Parmelee, to see the interesting ceramic school there.

The number 13 was no hoodoo for the Ceramic Society, for this thirteenth meeting started on the 13th of the month and was a banner one.

CONVENTION OF WISCONSIN CLAY MANUFACTURERS' ASSOCIATION.

THE ELEVENTH annual convention of the Wisconsin Clay Manufacturers' Association, held in Milwaukee, February 1, 2 and 3, was especially interesting because of the discussion of timely topics, such as railway rates, employers' liability and pending legislation. While the attendance was not large, there were more members present than at the convention a year ago and interest in the organization is growing satisfactorily.

The forenoon of the opening day was given up to registration and to the arrangement of exhibits. The session proper was called to order at 2 o'clock in the afternoon by President John Ringle, of Wausau. Following the reading of his annual address, the reports of Secretary Samuel Weidman, Madison, and Treasurer E. H. Korrer, Fond du Lac, were heard and approved. Discussion of mutual fire insurance, publicity, legislation and railway rates, upon which matters standing committees offered reports, occupied the greater portion of the afternoon. The session was concluded with an address by Secretary Weidman on "A Proposed Exhibit of Model Brick Dwellings and Other Brick Structures for State Fairs," and a discussion of the subject by members. Plans for the erection of a model brick structure at the Wisconsin State Fair were adopted by the organization.

The Wisconsin Association has plans under way for an aggressive publicity campaign, by which means it will show the advantage of the use of brick. This idea of publicity was brought out strongly by President Ringle in his annual address, which follows:

President's Annual Address.

"Gentlemen of the Convention:

"The organization in Wisconsin is comparatively an infant among the clayworking organizations. We begin to realize, however, that there is not only ample reason for our existence, but real necessity for united and persistent effort. It is also pleasant to note the presence of so many representatives of clayworking implements, and of the clay journals. They are our friends in need, who never tire of giving aid and comfort, and of saying a good word for our product at all times and under all circumstances. Our meetings are usually made interesting and beneficial to those in attendance by the reading of papers and a discussion of subjects designed to improve our product, and minimize our difficulties. These are always interesting and important subjects and will as heretofore remain the essential features of a convention of clayworkers.

"In addition to this, it has become clear to the observant producer of clay products that an equal opportunity with other building materials for marketing our product is essential for the future development of the clay industry in our state.

"We are not only manufacturers but also salesmen. When the raw material has been mined and prepared, made into brick and tile, safely passed the difficult ordeal of drying and burning, our money and labor invested, we still have to transport our product to the consumer or starve in the at-

tempt. Many of us rely exclusively, and the further development of the clay industry in Wisconsin relies wholly, upon railroads for transportation. At the present time the industry in our State is at great disadvantage as to rates, compared with those in force in our neighboring States, and with rates upon other building materials. We are entitled to an equal opportunity and it is our duty to insist upon a just regulation. Your committee on railroad rates will make a report. The subject is of vital importance.

"Another subject should receive earnest consideration; that is the subject of publicity. We have depended for our market upon the superiority of our product for building purposes, and our customers are those who know. That market will always remain to us. But what percentage of the people know that brick is the most durable, the most artistic, the most sanitary, and with that, the cheapest of all building materials? In considering this subject you will find the proposed plans of our secretary for the erection of a model brick dwelling or other structure at the State Fair Grounds worthy of consideration.

"This is essentially an age of advertising. The article of merchandise which is most persistently in the public eye by the way of printer's ink derives a corresponding benefit even when not always the most deserving. The clay industry owes it to itself, and to the public interest, to make its superiority known. Every manufacturer of clay products owes it to the industry to make a proportionate contribution for judicious and persistent advertising. We may not obtain personal results the first month or the first year, but it will be placing bread upon the waters which will eventually return a hundredfold; when the facts permeate the public mind that with clay products only can a structure be reared, whether cottage or mansion, a building of any nature, on the farm or in the city, with all the essentials of life and comfort, artistic and inspiring, secure against the elements and free from decay, a property which will not depreciate in value, a home not only for the present, but for all future time, at less expenditure of money than of any other building material, all things considered, then will we have done our duty to ourselves and to the public, then will we have made one blade of grass to grow where none grew before. And by giving the industry the deserved prominence in the mind of the public we will attract the attention of the directors of our great institutions of learning to the fact that schools of courses of ceramics are essential in all modern educational institutions and that manual training schools, which give instruction in bricklaying and teach other essential accomplishments in the builders' art, should be established in all our cities.

"Another legislative subject of vital interest to every member of this association is the proposed legislation in regard to industrial insurance and employers' liability, which is to be discussed by a member of the special legislative committee. If Wisconsin is to be a pioneer in the matter of industrial insurance in this country we should be prepared to understand the situation and our future relations as employers of labor to those whom we employ. We are under obligation to the gentleman for being with us here to explain the workings of this proposed legislation, and I urge a close and respectful attention."

On account of the illness of Prof. Ross Purdy, Columbus, Ohio, his place on the program at the Thursday morning session was taken by Prof. F. T. Havard, who spoke on "Fire Brick." J. G. Hamilton, of Grand Rapids, spoke on "Some of the Difficulties of Operating Medium Sized Plants." A general discussion was held on the condition of the drain tile business in Wisconsin and the reported increase in the use of the hollow block.

One of the most interesting incidents of Thursday afternoon was a discussion on industrial insurance by Senator A. W. Sanborn, chairman of the special Wisconsin legislative committee on industrial insurance. Senator Sanborn explained the workings of the bill on this subject now before the Wisconsin Legislature. Senator Sanborn's talk soon took on the form of a discussion, as many of the members present had questions to ask concerning the measure.

"Every employer in the State of Wisconsin would be in favor of the proposed liability and industrial insurance bill if he understood the measure," said Senator Sanborn. "Most of the big manufacturers do favor the measure. There are a

few who condemn it, but these do not know its provisions. The bill provides so clearly for the protection of employers as well as employees that it could scarcely fail to be satisfactory to any person who would study it."

Senator Sanborn then explained how it is optional with employers to accept the provisions of the bill. Sentiment among the brick men present seemed to be in favor of the measure as it now stands.

William George Bruce, secretary of the Merchants' and Manufacturers' Association of Milwaukee, also appeared before the convention on Thursday afternoon and spoke on the subject of organizations. Mr. Bruce also explained the object and plans of the recently organized Wisconsin Manufacturers' Association and urged the brick men to be represented in this association.

The annual banquet was held Thursday evening at the St. Charles Hotel, the headquarters of the convention. An excellent menu was served and several toasts were listened to later in the evening.

Following the presentation of interesting papers Friday morning by Davis Brown, of Tecumseh, Mich., and Treasurer E. H. Korner, of Fond du Lac, on brick and brickmaking machinery, the following officers were elected: President, W. J. Graney, Kenosha; vice-president, Samuel Gunther, Port Washington; secretary, Prof. Samuel Weidman, University of Wisconsin, Madison; treasurer, E. H. Korner, Fond du Lac.

Before adjourning the association adopted resolutions petitioning the Board of Regents of the University of Wisconsin for the establishment of a laboratory for testing clays and clay products and for the inauguration of a course of instruction in ceramics for the purpose of assisting the clayworking industry in the further development of the State's clay resources. They did not confine their petition to the university alone, but also to the Department of Public Instruction, urging the establishment of courses of instruction in bricklaying in connection with other courses in industrial subjects now being taught in the high schools of the State.

The association also went on record as indorsing the recently organized Wisconsin Manufacturers' Association and elected a member to represent the association in that organization.

The executive committee recommended Milwaukee for the 1912 convention, and in all probability it will be held in this city.

Another resolution of interest was passed to the effect that future exhibits shall be more comprehensive in covering the field of clay products, and with that purpose in view, circulars will be sent to the architects, contractors and material men, inviting them to attend the 1912 convention.

The following resolutions were passed by the convention on the closing day:

Resolved, That this association endorses the movement inaugurated by the Building Brick Association of America in its educational campaign to popularize and extend the use of brick as a building material and appreciates the work already accomplished by that association in the production and distribution of literature, which has been of practical value and aid in extending their work.

Resolved, That this association endorses the recently organized Wisconsin Manufacturers' Association and elect a member of this association to represent it in their association.

Resolved, That this association, through its secretary, extends an invitation to architects, contractors and material men to inspect the future exhibits of clay products at our following meetings.

Resolved, That a vote of thanks be extended to the St. Charles Hotel management and to such parties as assisted in making this meeting a success.

Whereas, It appears to this association that there is urgent need of a laboratory for testing clay products and also the need of a course of instruction in ceramics, established at our State University, for the purpose of assisting the clayworking industry in the further development of our clay resources; and,

Whereas, There is also an urgent need of proper training in the art of bricklaying in our schools; be it

Resolved, That the Wisconsin Clay Manufacturers' Asso-



CLAY WORKER

ONE OF THE N. B. M. A. DELEGATIONS AT MAMMOTH CAVE, TOGGED UP FOR THE TRIP UNDERGROUND

Supplement, February, 1911, Clay-Worker

ciation respectfully requests that the regents of the University of Wisconsin provide for a clay-testing laboratory and provide for a course of instruction in ceramics at the University of Wisconsin, and further, that the State Department of Public Instruction provide for establishing schools or courses of instruction in bricklaying in connection with other courses in industrial education in all the larger cities of our State; and be it further

Resolved, That copies of these resolutions be sent to the University of Wisconsin, the Department of Public Instruction and to the Senate and Assembly of the State Legislature.

Resolved, That the hearty thanks of every member of the association be extended to the retiring officers.

The following were in attendance at the convention of the Wisconsin Clay Manufacturers' Association:

H. J. Votaw, J. D. Fate Company, Plymouth.
S. Weidman, Wisconsin Geological Survey, Madison.
John Ringle, Ringle Brick Company, Wausau.
E. H. Korner, Fond du Lac Pressed Brick Company, Fond du Lac.
C. D. Erlewine, Marion Mch. Foundry and Supply Company, Marion, Ind.
Davis Brown, H. Brewer & Co., Tecumseh.
G. C. Stoll, The American Clay Machinery Co., Bucyrus, Ohio.
L. C. Stingl, Picklands, Brown & Co., Milwaukee.
Erwin Fricke, Wm. Fricke & Sons, Manitowoc.
F. Vogt, Milwaukee Building Supply Company.
A. W. Hilker, Hilker Bros. Brick and Mfg. Co., Racine.
Gustav Schram, Ringle Brick Company.
W. J. Craney, Craney & Spaulding, Kenosha.
F. W. Wood, Building Brick Assn., Adams Brick Co., Indianapolis.
M. R. Winchell, Chicago.
Oscar Zimbal, Sheboygan.
F. L. Sanborn, Portage.
B. Lu Blanchard, Wisconsin Composite Brick Co., Milwaukee.
E. R. Frazier, Chambers Bros. Co., Indianapolis.
Geo. Schwarz, Ricketson & Schwarz, Milwaukee.
A. Potts, C. & A. Potts & Co., Indianapolis.
G. E. Luce, Fate, Jones & Co., Inc., Pittsburg.
L. T. Crabtree, Alden Clg. Products Co., Crandon.
Jos. Norton, Hollandale Brick & Tile Co., Hollandale.
Emil Louis, Oconto.
Frank Wozniak, Athens Brick & Tile Co., Athens.
C. J. Peterson, Weller Mfg. Co., Chicago.
A. O. Zerrenner, Zerrenner Bros., New London.
I. J. Covey, Improvement Bulletin, Minneapolis.
F. T. Havrad, University of Wisconsin, Madison.
A. F. Oeder, Chicago, Ill., 5455 Drexel, Chicago.
S. Gunther, Gunther Bros. Brick (Ave.), Pt. Washington.
Fred Gunther, Gunther & Tile Brick, Pt. Washington.
Frank Gunther, Gunther & Tile Brick, Pt. Washington.
F. W. Boulton, Good Roads Mch. Co., Ft. Wayne.
Richard G. Hoffman, Chicago.
Warneld Welsh, Chicago.
F. R. Minton, Mexico Brick & Fire Clay, Mexico, Mo.
Jno. Le Mane, F. G. Bolles, Allman Eng. Sales Co., Milwaukee.
Geo. I. Dietrich, Sales Mgr. Chicago Retort & Fire Brick Co., Chicago.
E. A. Allen, Ohio Ceramic Engr. Co., Cleveland.
H. A. Hilker, Hilker Bros. Mfg. Co., Racine.
E. C. Guhr, 703 49th ave., West Allis.
Geo. H. Hartwell, Chicago.
Ed. Fricke, Manitowoc, Wis., Clay Co., Manitowoc.
Samuel A. Greeley, Supt. City Incinerator, Milwaukee.
Jos. Poppert, Milwaukee Bldg. Sup. Co., Milwaukee.
Edwin Underbory, Milwaukee Bldg. Sup. Co., Milwaukee.
A. A. McClamrock, Wallace Mfg. Co., Frankfort.
John J. Maroney, Chicago.
A. W. Sanborn, Ashland.
Wm. Geo. Bruce, Merchants & Mfg. Assn., Milwaukee.

THE NORTHWESTERN CLAY ASSOCIATION'S MEETING AT MINNEAPOLIS.

THE NORTHWESTERN CLAY ASSOCIATION is working hard, through its committees, to make the next meeting, which will be the third annual gathering, the best yet held. The general arrangements are being handled by Axel Anderson, of the M. Anderson Brick Company, Minneapolis, the energetic secretary of the association. E. H. Cobb, of Minneapolis; J. P. McLean, of Menominee, Wis., and F. J. Nixon, of Duluth, are in charge of the arrangements for the banquet, which will be held the evening of March 15.

The program committee consists of Ira C. Jones, of Minneapolis; Rufus P. Morton, of Brickton, and R. B. Hinckley, of Luverne. This committee has outlined a program covering the following subjects, and has drawn a bead upon its intended speakers, but will not give them out until they have accepted. The following are the proposed topics:

"Finding a Market."

"Conducting a Successful Yard in the Country."

"Conducting a Successful Yard in the City."

"Finding the Cost of Production."

"Architectural Possibilities of Common Brick."

"Advertising Common Brick. Can It Be Made to Pay?"

"Tile and Drainage."

"The Best and Cheapest Way to Dry Bricks."

"The Best Way to Maintain Prices."

"The Best Way to Burn Brick."

"Will Our Industries Be Benefited by Industrial Education?"

"Is It to a City's Permanent Benefit to Build of Brick?"

The program may be extended by the addition of some more topics. There is also to be a question box, with answers, on all sorts of subjects.

The subject of building a model brick residence on the State Fair Grounds as a means of advertising what can be done with brick for residence construction will also come up for consideration and discussion.

Machinery men will be given sufficient time to display and



Carl Cappel and Grant Dibert, ready for the trip to Mammoth Cave, or any old thing.

exploit their goods. Heretofore they have been rather slighted with only a one-day session, such as has been held. Now that there will be two days—March 15 and 16—it is expected that they will be given a fair hearing.

WASHINGTON CLAYWORKERS' CONVENTION.

Great interest was shown in the convention of the Washington Clayworkers' Association which held their meeting January 26, 27 and 28 in Seattle. The meeting will do a great deal of good to bring a more friendly understanding between the different clayworkers of the State. Spokane was well represented, as were also other sections of the State. Seattle and Tacoma showed the largest attendance. The visitors were brickmakers from Portland and Tolo, Oregon, from Westminster and Vancouver, B. C. The idea to organize a Northwest Clayworkers' Association was left with a committee, and will be brought up later after careful investigation as to the de-

mand for such organization. The program was excellent, and many valuable points of interest were brought out. Some of the papers will be reproduced in THE CLAY-WORKER later on. The Denny-Renton Clay and Coal Company provided a special train to visit their plants at Taylor and Renton, and this company did much to make the convention a great success.

The officers for the ensuing year are: President, T. J. Mackintosh; first vice-president, W. T. Houlahan; second vice-president, J. T. Davie; treasurer, D. F. Power; secretary, James Gibson; and executive committee, John Megrath, Frank Lohse and Jos. K. Moore.

THE NATIONAL CLAY MACHINERY ASSOCIATION.

The members of the N. C. M. A. had their annual meeting in the Music Room of the Seelbach. A committee was appointed to act in connection with a similar committee of the N. B. M. A. to urge upon the proper railway officials the importance of a classification of clayworking machinery, in order to secure a proper freight rate. Aside from this the only public session was devoted to the election of officers, who are: President, L. W. Penfield, Willoughby, Ohio; vice-president,

start until spring, and have empty kilns right now, when usually they begin the spring with kilns pretty full. The conditions are certainly unusual. In Kansas there is still a water shortage which prevents many plants from running, and the same conditions apply to many points in Oklahoma. The winter demand has been strong enough to clean out all the plants which burned all their kilns full and then closed down for repairs, and so there is very little reserve brick in the territory to begin the season with. If there is plenty of rain from this time forward, so all plants will be able to run, it will cause a big production of brick in a short time, as practically all the plants closed down have been thoroughly overhauled, and are in fine shape for a long run. If the railroads are able to give prompt delivery there should not be a shortage of brick the coming season for any great length of time, unless the demand is greater than it has ever been before.

Those who make a specialty of handling paving brick are reporting the outlook at this season of the year to be better than it ever was before, and last year brought them more business than they could take care of, as a good many plants contracted for more delivery than could be made in the specified time. This city is not doing much in the way of brick pav-



President L. W. Penfield,
Willoughby, Ohio.



Secretary W. N. Durbin,
Anderson, Ind.



Vice-President H. J. Flood,
Chicago, Ill.

H. J. Flood, Chicago, Ill.; treasurer, J. H. Chambers, Philadelphia, Pa.; secretary, W. N. Durbin, Anderson, Ind.

KANSAS CITY BRICK AND BUILDING NEWS.

HERE was some fine building weather in January and the early part of February, and the contractors have generally been making pretty good use of it. This is the time of year when contractors are glad to get enough to do to hold their gangs of workmen together, and with the weather we have been enjoying, it would seem certain that most gangs were held together in good shape for the spring rush, and that it will begin early if the weather at that time will permit.

Some builders are preparing for spring work by ordering the brick on the ground now, and a great many brick are being placed at this time which will not be used for a month or two. This advance business taken with the brick actually going into work at this time is making the winter business better than was expected, and the dealers are glad to have the advance business, as they feel that there will be plenty of business for everyone as soon as spring really opens.

High prices are beginning to be talked again, and some seem to think that they will advance as the season advances. Their reason for this prediction is the fact that so many of the plants have been closed down this season and will not

ing, that line of work being largely confined to alleys, but over in Kansas City, Kansas, several good sized street contracts have been let, and some are to be let in the future, as the officials of that city seem to be willing to give brick its rightful place among paving materials.

A good many of the surrounding cities are preparing their preliminaries, so they can place their contracts earlier this year than in the past. They are beginning to learn that it is the cities which get into the field early in the year that get their paving laid that year.

Thos. Eadie, head of the Eadie Building Supply Co., and Mrs. Eadie left this month for a visit to Southern California. They usually go to Mexico, but owing to the unsettled conditions in the sister republic this year they decided to take in California. They went by the southern and will probably return by the northern route, in a month or six weeks.

According to the gossip which is floating around in the trade there has been a shake-up in the office of the Kansas City Hydraulic Pressed Brick Co. It is stated that Secretary Baird is no longer with the company, but is going into business for himself. Manager Reed was down at St. Louis this week, attending the annual meeting of the company, and during his absence those in the office refused to affirm or deny any reports and they were also unable to tell where Mr. Baird could be found.

The Lyle Brick Co. is putting in new machinery in its

South Side yard to make repressed paving brick, and will also add several new kilns.

The Eadie Building Supply Co. reports that its deliveries for the past year amounted to 2,400 cars of brick.

The Kansas City Terra-Cotta Co., which was recently organized with a capital stock of \$100,000 by C. C. Corwin and others, has already begun construction of a plant which will have a capacity of fifty tons of terra cotta per week. The main building will be 62x244 feet, and there will be the machine shops and another building of 30x60.

K. A. W.

CONVENTION ECHOES.

A New Member Well Paid.

MY DEAR MR. RANDALL:

I am back home from the N. B. M. A. convention that was held at Louisville, Ky., February 6 to 11, 1911. I had a right good time. This was my first convention, and I think I will be well paid for the trip from the information I gathered there. Mrs. Post and I will be at your next convention.

Thanking you very much for your kindness, I am,

Yours truly,

Glenhead, L. I., N. Y., Feb. 16, 1911.

JOTHAM POST.

Meeting Enjoyed by Dr. Stratton.

MY DEAR MR. RANDALL:

I have very pleasant memories of my trip to Louisville, for I enjoyed thoroughly attending your meetings, and was glad of the opportunity which it gave me to meet personally so many representative men of an industry with which the work of the Bureau of Standards is so closely allied. I only regret that it was impossible for me to spend more time with you.

Thanking you for the many courtesies extended to me at the convention, and with kindest wishes for the continued success of the Association, I remain, Yours very truly,

S. W. STRATTON, Director.

Washington, D. C., Feb. 18, 1911.

A Missouri Man Was Shown.

FRIEND RANDALL:

Returned home all O. K., and as to my enjoyment at the convention, would paraphrase a slogan of one of our large hardware houses, "Long after the cost is forgotten the thought of the Louisville convention remains a pleasant recollection." You know I am from Missouri, where they say, "You must show me," and I can truly say I was shown just right. The agreeable time I had makes me feel like the kid who yelled, "Some more." And for me at the next convention it will be some more.

Yours truly,

St. Louis, Mo., Feb. 14, 1911.

JULIUS J. KOCH.

Convention Fulfilled Every Expectation.

MY DEAR MR. RANDALL:

The twenty-fifth annual convention, now a matter of history, has probably fulfilled every expectation, and like each preceding one, has added new attractions for the brick manufacturers in the way of enlightenment of the many difficult problems that present themselves from time to time.

I have been extremely fortunate to be able to attend these annual functions, which I find profitable in many ways, and am pleased to note that the members have gained each other's confidence to such an extent that it has become an annual family reunion, with a spirit of friendliness and good fellowship existing which guarantee its success.

The information that is available is bountiful in the extreme, and the members are very ready to share their knowl-

edge and experience in a most affable manner, and any brick-maker who does not participate in the N. B. M. A. conventions simply does not know what he is missing.

With my very best wishes, I am, Sincerely yours,

CARL CAPPEL.

Up-to-Date Brick Manufacturers Can't Afford to Miss the Convention.

DEAR MR. SECRETARY:

I think the big Louisville convention was one that was calculated to do every one good that attended; in fact, I do not think any up-to-date brickmaker or any one who has a desire of being up-to-date can afford to miss these conventions. I am looking forward with a great deal of pleasure to the next year's convention in Chicago, which I hope to have the pleasure of attending.

With kindest regards to yourself and Mrs. Randall, and also "the granddaughter," I remain, Yours very truly,

Macon, Ga., Feb. 2, 1911.

W. E. DUNWODY.

Looking Forward to Next Convention.

DEAR FRIEND RANDALL:

After leaving the convention the party in which I traveled made a trip through the South. We saw about everything, I guess, that there is to see in that country; at least all the things that we thought we wanted to see, and arrived home safely yesterday noon.

Wish to congratulate you upon the great success of the convention and the spirit of enthusiasm which prevailed. We are making a great stride forward and under the present management and spirit which prevails in our Association I am sure that it will not be long until the Brick Association will be classed at the head of all industries.

We are already planning and looking forward to the convention next year, and if the opportunity does not present itself before that time I hope to meet you in Chicago.

With kindest personal regards,

Yours truly,

Bradford, Pa., Feb. 16, 1911.

W. M. HODGES.

More Than Doubly Paid.

DEAR MR. RANDALL:

I am pleased to inform you that I arrived at Shawmut safely and am now at work, looking forward to our next meeting, which I understand will be held in Chicago.

I assure you it is a great pleasure to meet our fellow-craftsmen and exchange experiences once a year. It is a benefit, individually and collectively, to our business. I have never yet attended a convention when I have not gained some point of information that more than doubly paid me.

I must congratulate you upon such a large gathering of our fellow-craftsmen and for the valuable and instructive papers read at our meetings. Professors Purdy's and Bleininger's and Mr. Gregory's papers I considered of great value, as these subjects were touching on the keynote of success in our business. I assure you Professor Purdy's paper is convincing proof of the earnest effort that our Investigating Committee is putting into this industry for our benefit.

I was somewhat sorry and disappointed that the Ceramic Association did not meet with us, but hope, before another year comes around, they will reconsider their decision and decide to meet with us at their next convention. We need their assistance, their presence and talented methods of instruction as an incentive to the craftsmen in the commoner occupation of clayworking. Some of our highest authorities started as common brickmakers. If we are not quite so high-toned and cannot afford to wear as fine clothes as some of these professors and scientists, we are just as useful in filling our part and in helping to turn the wheels of commerce in the interest and for the benefit of mankind. So induce them to come next year and help the common craftsmen to solve some of the difficult prob-

lems that confront us all.

I felt quite lonesome when I heard the news that our beloved Professor Orton could not attend the convention. I note with great pleasure the attendance of our "Horace Greely," "Abraham Lincoln" and Mr. Ittner and other noted members of the Association. It was with deep regret that we could not meet our beloved Vice-President, Chas. Crook, whom we elected President for the ensuing year. I sincerely hope that the Supreme Architect of the universe will restore him to his former health and vigor, so that we can again meet him at our convention and shake hands with one of the noblest characters of our Association.

Trusting that all members of the convention may arrive home safely and that we will all live to meet another year, I remain,

Yours very truly,

ALFRED YATES.

The Convention a Lesson in Good Fellowship.

MY DEAR RANDALL:

Just a word or two to congratulate you on the success of the convention. I enjoyed this, my second N. B. M. A. convention, more than I did the first at Pittsburg, and that is "going some." It certainly was a well-planned convention, hospitably entertained, splendidly cared for by the local committee. You have a membership of good fellows, earnest, thoughtful men, bent on the advancement of their craft; clean, clever, progressive men. To me it was a lesson in good fellowship that was an unmixed pleasure. I am impressed more than ever with the idea that the motto of the Association should be "The greatest good to the greatest number," and you certainly are living up to it.

Hope you may serve another twenty-five years, and that the Association will continue to make marked progress every year.

Yours cordially,

Chicago, Feb. 14, 1911.

C. B. VER NOOY.

Little Talks of the Louisville Convention.

Editor THE CLAY-WORKER:

Believing that good burning results are vitally necessary to the successful operation of a brick plant, the writer, as the first step in investigating at the convention looked up the various burning propositions as regards continuous kilns and oil burning propositions.

In continuous kilns there were represented the various types such as the Youngren gas-fired chamber and tunnel kilns, the side and top-fired Haigh kiln, the top-fired Cobb continuous kiln and the Grath system of continuous kilns adapted for direct coal fire, producer gas or oil. This last system uses bag walls on both sides of the chambers, while the Youngren chamber kiln has the bag wall only on one side. The Haigh as well as the Cobb kilns showed adaptation of a tunnel kiln. The Youngren gas-fired kiln was illustrated very nicely by a model that served excellently for illustrating the principle of operation of the kiln. I for one surely do believe in models, because it is so much easier to show what you have than to explain the merits of your article by means of drawings. There is no doubt but what closer competition will entail the use of more economical kilns than have been used in the past, and the rational solution is the continuous kiln, and with the different types already presented, it should not be a matter of great difficulty to select a kiln system that is adapted to the user's wants.

The next proposition looked up was the oil-burning proposition, which was represented by the burners of Tate, Jones & Co., the Weller and the Schurs, representing steam and air, both a high and low pressure. The use of oil should be determined from two sides: first, as a question of economy, and secondarily, as a question of quality of product. When coal is high oil may be cheaper to use, but even with a slight increase in cost it may be to advantage to use oil for burn-

ing roofing tile, say plain, as the color is better and same glazed, as it dispenses with the use of saggars or boxing in. It has been stated that in some of the larger glass factories in France and Belgium that oil has displaced producer gas, owing to the certainty of results. An oil burning paper was read at the convention that surely contains solid meat, and it is advisable for prospective oil users to read it.

The next matter that took up the writer's attention was the pyrometers shown by the Frink Pyrometer Company and the Brown Pyrometer Company. There were recording, indicating and heat controlling pyrometers, and the manner of attachment to any number of kilns was clearly and plainly shown. These instruments are certainly of great value, considering that their application and use is very simple and of material benefit to both burners and plant owners, and it will be a source of security to both the old time burner and the rising young burner as well.

Another display that appealed to the writer was the Mathews gravity carrier, in that the display parts were of actual working size, showing straight lines and curves as well.

The American Clay Machinery Company certainly struck the keynote of successful advertising in their moving picture show of the application of the setting machine as shown in up draft kilns. It was just like being in two plants, where in one case the setting was done by hand and in the other by the machine. It was very interesting to see how the arches as well as the balance of the kiln was set.

In dry clay process the writer found only two models exhibited, one by the C. W. Raymond people, who had their model attached to an electric motor, and the other was a hand operated model exhibited by the Illinois Supply and Construction Company, which showed a very ingenious method of getting rid of the air in the brick during the pressing.

All the necessary brickmaking appliances were very well represented by catalogue and samples, and it was not difficult for the prospective purchaser to find what he wanted.

Exhibits of Clay Products.

The paving brick manufacturers had a very interesting exhibit in that each individual exhibit was small numerically, but when grouped the exhibit was fine. They apparently were all shale brick, but one firm showed a salt glazed paver which certainly looked impervious to me. The exhibit looked like it had been made by one big family.

In view of the ways of adapting mud brick machinery, the Iron Clay Brick Company showed their usual enterprise in exhibiting their dry clay flash brick. Their exhibit was small, showing only one brick of each shade, and it was interesting to note the graduations of shades, running from the lighter to the darker ones, all of which is effected by the range of temperature as well as the degree of oxidation. Where comparison is made with the mud brick, flash brick it is already shown that color and texture of these different process products colors and shades can be produced with one process that cannot be effected by other process. Flash brick that were all O. K. were also exhibited by M. C. Everhard, Massillon, Ohio; Alsey Brick and Tile Company, Alsey, Ill., and the Kentucky Fire Brick Company, Louisville.

In rough face brick (Devonshire, etc.) the Hanover Brick Company, Ohio, had some fine brick of the matt brick variety, and the Clay Craft Brick Company, Columbus, Ohio, showed samples of what might be termed a rustic or corduroy face. It was shown that in adopting a little imaginary skill, radically different looking products can be obtained out of practically the same material, and serves to show that the modern brickmaker possesses inventive faculty. In solid color face brick the reds were well represented by the Hanover (Ohio) Brick Company and the Tuna Valley Brick Company, Bradford, Pa., and the grays were shown by the

Kittanning people and the Pearl Clay Products Company, Bradford, Pa.

Gossip.

Anent the old-time brickmaker, one of the new brick concerns showed a line of brick in which various colors of the face were effected apparently by a slipping process. While the talk about their brick was going on an old-time brickmaker came along and volunteered this statement: "We are going this one better; we put our coating on after the brick are burnt, and it stays on, too." This remark should be highly gratifying to the fraternity because the old-timer shows a willingness to adopt modern methods and that the state of the art is not at a standstill.

Messrs. Steadman & Robinson, Greenridge, N. Y., showed a burner for up-draft kilns and made statements that looked odd to the western brickmaker. They claimed they burned their brick with anthracite coal which cost them \$1.00 to \$1.25 a ton. They make what is called rough and double coalies, that is, they put say from 25 to 50 pounds of anthracite dust per thousand brick into the clay before running through the machines. The rough "coalies" are used in the body of the kiln and the double "coalies" where it is difficult to create the proper heat. The burning conditions are handled very close in that the burning follows right upon the water smoking. This is what is termed in Europe burning under the wet blanket. They claim they use 200 pounds coal in the furnace, 50 pounds coal in the brick and 25 pounds coal for steam used in their appliance, or 275 pounds anthracite coal per thousand brick. The \$1.25 per ton for anthracite coal and only 275 pounds per thousand brick surely appeared fascinating to me.

Another interesting story came to my ears: "Bituminous shale for paints." This was a surprise to me, as such shale is generally considered a bugaboo. The outlines of this process are about as follows: Retorts are charged with the shale and submitted to heat and the resistant gases are utilized for heating purposes and the condensed oil is a valuable by-product. The residue is taken from the retorts, ground and used as paints, and is said to be excellent in that it withstands the ravages of the weather.

Another interesting story told was the history of a sewer pipe plant at Pretoria, in the Transvaal, Africa. You talk about strict specifications, their specifications surely were. The contract called for \$125,000,000 worth of pipe, but was carried out successfully, even with crudest kind of labor. It made me feel good to think that even in far-off Africa the value of a sanitary salt-glazed sewer pipe is appreciated as against the much-lauded cement pipe.

It has also been heard at the convention that it might not be a bad idea for brickmakers to adopt a slogan, two of them being cited: "It washes its own face," and "Made a little better than seems necessary." A SATISFIED DELEGATE.

CHANGES IN LACLEDE-CHRISTY CLAY PRODUCTS COMPANY.

Mr. William C. Morris has retired from the presidency of the Laclede-Christy Clay Products Company and has been made chairman of the executive committee. Mr. Morris will spend some time in southern California before resuming active duties. Mr. James Green is chairman of the board of directors and Mr. John L. Green becomes president, Mr. Richard D. Hatton, vice-president and treasurer, and Mr. Montague Lyon, secretary and counsel.

The directors of the company are James Green, William C. Morris, John L. Green, Richard D. Hatton, Montague Lyon and Robert H. Miller.

Notice of an increase of \$200,000 in the capital stock of the Sibley-Menge Brick Company has been filed, bringing the capital stock up to \$300,000. John W. Sibley, the popular treasurer of the N. B. M. A., is president of this company.

OBITUARY.

HARRISON EVERETT ASHLEY.

THE AMERICAN clayworking fraternity has suffered a great loss in the death of Mr. Harrison Everett Ashley, which occurred February 4 at Pittsburg, due to meningitis, following two operations for mastoid abscess. He was taken away in the midst of his labors from the work which he loved so well. His death is a great shock to his many personal friends, as well as to all clayworkers concerned in the welfare of the industry and its higher development.

Harrison Everett Ashley was born at New Bedford, Mass., August 2, 1876, of good Puritan ancestry, the son of A. Davis and Caroline Morse Ashley. As a child he was studious and always eager to get at the bottom of things. He was educated in the public and high schools of New Bedford and later attended the Massachusetts Institute of Technology, taking the course in chemical engineering. At the institute he was a close student and exceedingly thorough in all he did. He was graduated in 1900 with the degree of S. B. in chemical engineering.

Mr. Ashley during his college course had specialized in metallurgy and consequently took up the technology of foundry metal and steel after leaving the institute. He held several positions in steel plants and foundries, but meanwhile



Harrison Everett Ashley

became exceedingly interested in silicates, with special reference to slags and clays. Upon corresponding with Professor Orton he was advised to secure a practical position. This he did and entered the employ of the Homer Laughlin China Company at East Liverpool, Ohio. Realizing the advisability of securing special training in this line, he then took a special course in ceramics at the Ohio State University under Professor Orton. During his stay at the university he was honored by election to Sigma Xi, an honorary scientific fraternity. After completing this work Mr. Ashley returned to his position at East Liverpool, where he was placed in charge of the kiln work and later of all the raw materials. After the construction of the great pottery plant at Newell, W. Va., the company transferred him to the latter place, where he tested all the materials used and had charge of the purchasing department of this large concern.

In 1908 he received the appointment as assistant ceramic chemist with the Technologic Branch of the U. S. Geological Survey, and in 1910, upon the transfer of the work to the Bureau of Standards, he was promoted to be associate chemist. In this field he enjoyed the opportunities offered to the utmost and worked unceasingly in developing new principles. He realized promptly the value of modern research in regard to colloidal chemistry and proceeded to study the clays and their properties from this standpoint. He was successful in developing new lines of thought, which he applied not only to

clays, but also to lime hydrate, metallurgical slimes and other substances.

Mr. Ashley contributed freely to technical literature and he has written articles and papers upon the following subjects: The study of tellurium alloys; the use of the triaxial diagram in the thermal study of slags; a suggested method of studying the gas engine cycle by means of a logarithmic triaxial diagram; the production of luster effects on glass; the effect of various lime compounds in a whiteware body; the diagrammatic study of glazes as regards their crazing and shivering limits; the testing of pottery materials; a testing method for pottery plaster; the colloidal content of clays; the control of the colloids in clay; the precipitation of metallurgical slimes, and a number of other papers.

Harrison Everett Ashley represented the highest type of manhood. He was of an exceedingly kind and genial nature, full of the old-fashioned Yankee humor, of absolute and fearless integrity, unselfish in his labors, always ready to help another and, most important of all, a sincere Christian.

He met death bravely, and his lips uttered no complaint, though conscious until his spirit departed. His last words were of cheer to his loved ones. Mr. Ashley is mourned by a widow and a young child, his parents and brothers. Those that knew him mourn the good man, the loyal friend, the able investigator and scientist, the unselfish worker, the devout Christian. His memory will continue to live with us.

Written for THE CLAY-WORKER.

GLEANINGS FROM THE CLAYWORKING FIELDS OF ILLINOIS.

THE Banner Clay Works, Edwardsville, Ill., has completed extensive improvements at its plant and a full force of men is at work.

N. E. Smith, of the Harvel Brick and Tile Company, of Harvel, Ill., was elected chairman of a meeting held February 15 at Litchfield, Ill., when it was decided to form an organization of the brick and tile factories of the southern part of Illinois. Joseph Mitchell, of the Oland Brick and Tile Works, of Witt, Ill., was elected secretary. Study of improvements in the clay-working industry and mutual and social benefits will be the aim of the organization which will meet again in Litchfield, March 30th. Others present at the meeting were H. P. Brown, of Palmer; F. E. Flegel, of Morrisonville; S. D. Price, of Waggoner; F. C. Reinka, of Harvel; F. I. Luking, of Raymond, and D. Davis, of the Illinois Brick and Tile Works, of Litchfield.

The Western Clay Products Company, of Chicago, has been incorporated with capital stock of \$10,000, to do a general manufacturing business. The incorporators are R. H. Green and W. J. Gilbert.

A meeting of the stockholders of the Alton Brick Company, of Alton, Ill., has been called for February 27 to consider the proposition to increase the capital stock from \$200,000 to \$250,000. Enlargement of the capital is made necessary by increasing business.

The Chicago Retort and Fire Brick Company has increased its capital stock from \$120,000 to \$250,000.

J. F. Martin's tile factory at Arthur, Ill., had a record of 500,000 tile in the last season. Of these 335,000 were sold locally. Orders for 125 carloads could not be filled.

The White Hall Drain Tile Company, of White Hall, Ill., has been incorporated with capital stock of \$40,000 and the clay fields in that vicinity will be drawn upon for the manufacture of sewer pipe drain tile, stoneware, pottery, etc. The incorporators, who are prominent in Central Illinois, are Henry C. Morrow, Carlton H. Stahl and Frank Griswold. A site lying near the junction of the Chicago & Alton and Chicago, Burlington and Quincy railroads is considered.

The name of W. S. Purington is connected with rumors of a new brick industry at Dahinda, near Galesburg, Ill., where it is said there is an excellent quality of shale.

It is said that the Illinois Ceramic Company, which recently began the operation of its new plant at Macomb, Ill., is considering a contract for its entire output of porcelain insulators for insulation in electrical construction work. Twenty-five men are now employed. Charles Ketron, formerly

superintendent of the Macomb Pottery Company, is president and general manager.

The Western Brick Company, of Danville, Ill., is busy building several new kilns.

Plans are being made for a \$50,000 brick and tile factory one mile southwest of Newton, Iowa. H. A. Brown, a clayman of Lehigh, Iowa, analyzed several hundred pounds of the clay available and found it of excellent quality. Tests also were made, it is said, at Fort Dodge, Iowa, and Bucyrus, Ohio.

ILLINOIS.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.

A DECIDEDLY OPTIMISTIC feeling seems to exist in brick manufacturing and jobbing circles of Wisconsin just at the present time. Judging from the inquiries that are being made in building lines even at this early date, a very satisfactory amount of building will be carried on in the State this spring. Contractors and architects say that while conditions were naturally quiet during the past month, more inquiries are now being made than was the case a year ago. General manufacturing and industrial conditions in Milwaukee and about the State are fast returning to the normal state, and confidence, while still depressed in some lines, is stronger than for some time.

Most of the brick manufacturers in attendance at the recent annual convention of the Wisconsin Clay Manufacturers' Association, held in Milwaukee, expressed themselves as satisfied with the outlook. Just at the present time most of the brick manufacturing concerns are busily engaged in getting their plants in readiness for an early spring run.

The Antigo Building Supply Company, of Antigo, Wis., has completed the installation of a new 150 h.p. engine and has resumed operations with a large working force. The company plans to increase its capital stock of \$40,000 within the near future.

A \$30,000 corporation has been organized at Cumberland, Wis., to take over the Peter Larson brickyard and plant at Barronette, Wis. New brick machinery will be added and a line of tile will also be manufactured.

Several Wisconsin cities have plans under way for the laying of extensive brick pavements during the coming season. None of the cities in the State is planning on a more extensive paving campaign than is Madison, the capital city, however. A quarter of a million dollars is the approximate amount which Madison will invest during the coming season in permanent street improvements. All the work will be done under the direction of City Engineer Icke, who seems to lean strongly to a liberal use of vitrified brick in the paving work.

G. W. Kennedy, for ten years treasurer and general manager of the Manitowoc Clay Products Company, of Manitowoc, and one of the best known brick manufacturers and salesmen in Wisconsin, has retired from the company. H. M. Clark and Elmer Leach are now in control of the company, which operates one of the largest yards and plants in the State. Mr. Kennedy will engage in the contracting business.

It is reported in Milwaukee that a company has been organized at Green Bay to carry on the manufacture of terazzo, tile, mosaic and concrete floors.

The city officials of Antigo have plans under way for the erection of a sewage disposal plant and the installation of a large brick main sewer.

The Fond du Lac Pressed Brick Company, of Fond du Lac, will begin its spring season by manufacturing wire-cut brick, and has installed a machine for this purpose. The new equipment will enable the company to increase its output by 40,000 brick daily, and it is expected that the season's output will amount to 5,000,000 brick. The company will engage in the manufacture of pressed brick as in the past. At the recent annual meeting of the company the following officers were elected: President, Robert Zinke; vice-president, A. J. McCreery; secretary, E. H. Korrer; treasurer, M. T. Simmons; directors, A. G. Bechaud, George Bolan, Dr. Derwe, C. F. Geisse and Al Hutter. Another meeting of the company will be held on February 17.

A. BADGER.

IMPRESSIONS OF THE LOUISVILLE CONVENTION AND SUGGESTIONS FOR THE BETTERMENT OF THE N. B. M. A.

Friend Randall:

The Convention was a success, with the largest attendance of active members of any held to date. The delegates in general must feel well repaid for the time and expense involved, and each member should recognize that he aided in the success attained. The carefully prepared articles descriptive of the analyzing, treating and testing the materials entering into the manufacture of clay products, the mixing and shaping of the various styled products, the drying and burning of same, the discussion of railroad rates and tariff duties, the investigation and comparison of machinery and appliances that are required to prepare and produce the various products, the merits of manganese steel and permanency of the various wares as to durability, strength and maintenance of colors once fixed in the various structures for use, attracted universal interest, and will serve as a lasting volume of information to the end that added perfection will be attained and success made more secure.

The combined factors, viz.: the clay manufacturer and the machinery manufacturer, served to make complete the interest of the general attendance in that those who sought diversified information found that which interested them in particular, as well as in general.

Pleasure was evident in all directions; acquaintances were gladly renewed, new acquaintances were acquired, both of which will prove a lasting bond in the cementing of friendship, which in turn lends vital sinews of strength to the life, endurance and progress of the Association.

The banquet was well attended, affirmed in the fact that the great dining-room of the Seelbach Hotel was filled from wall to wall. One guest was heard to say he never ate so much at one meal in all his life. Asked to explain, he said, "There was so much to eat," and not knowing they were going to render so many courses, he ate everything as it was served, admitted that the seventh service fractured several buttons. He volunteered he was from Missouri and had to be shown.

The smoker given by the Louisville Clay Manufacturers was well attended. The numerous lantern pictures of Portland cement structures, portraying dismal failure, proved interesting and served to display a serious attack and utter defeat against clay products on the part of Portland cement at least when used in the various structures and subjected to conditions as were exposed. Serious reflection was transformed upon the announcement of "Lights out." The real thing, darkies and lassies, accompanied by a band of music of like ensemble, appeared upon the stage, followed by the boom of the base drum, toot of the Long Tom horn, songs from the darky cabins of Old Kentucky, mingled with side-steps and high kicking, ending in a grand scramble for the small coin tossed upon the stage. The smoker adjourned with the words, "We thank you, Mr. Louisville Clay Manufacturer," with the assurance that the pleasure was ours.

Mr. Seelbach has a fine hotel and knows how to operate it.

An impression—would it not be best for the clay products manufacturers to combine in one National Clay Products Association; make perfect one forceful organization. Subdivide by placing the various departments of the great industry under the supervision of committees, all to report to one general Executive Committee. Hold annual Conventions and Exhibitions at central points and in cities that have suitable Convention Halls, Exhibition Coliseums and hotel accommodations. Let the membership fee be in keeping with the magnitude and importance of the institution. Subdivide space in the Exhibition Building; place a price on each space in keeping with its location and dimensions. Offer the numer-

ous spaces by allotment under a fair devised distribution scheme. Offer the exhibition spaces to all manufacturers of clay products whatsoever, also to all manufacturers of machinery pertaining thereto, also to all others who are interested and allied with the industry. The public would visit the exhibits and such revenue would afford support.

Centralization of power augments strength and will gain the attention of the consumer and public to the products of this world-wide industry. Such an organization, progressively conducted, would consolidate effort, disseminate information and officially and collectively become a commercial power of magnitude.

Does it not appear more reasonable to combine in one organization and work collectively for the desired results, rather than remain disjointedly organized and cry aloud against competitors?

St. Louis, Mo.

Yours truly,

GEO. C. VIDETTO.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



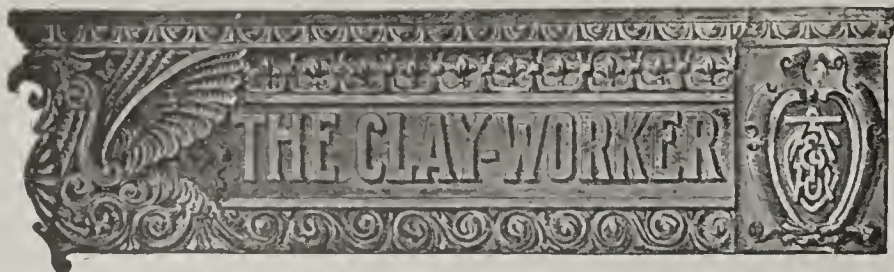
THE REMARKABLY active movement of building brick which has featured the Toledo market all winter shows no signs of abating, but on the contrary is grow-more brisk as the spring building season approaches. Some say the demand has exceeded their ability to supply the trade while others claim to be able to take care of all the business that has come in. One

thing is certain and that is, that brick concerns will be taxed to their limit the coming season if indications count for anything. Manufacturers recognize this condition and are making their arrangements accordingly, as nearly as they have been able to do so. Several of the local concerns have been operating all winter up to a couple of weeks ago, when they were forced to shut down for annual repairs. At present none of them are operating, but they announce that they will be going at full blast again next week. The supply may be said to be rather below normal, and manufacturers are figuring on an increased output, some of them putting in additional machinery, and otherwise fitting up their plants to care for what they feel certain will be an increased trade.

The outside trade promises even more than the city of Toledo proper, and indications here point to an approach if not equal of the record in 1905, the banner season in the local building business. At present for city delivery, common building brick are retailing at about \$6.75.

The Ohio Brick Company of Toledo reports some exceedingly good business booked recently. Among other contracts landed is one for 800,000 rough face pressed brick for use in the two new high school buildings to be erected in Toledo this summer. These brick, which will be 2-inchx8-inch, will be turned out by the Hydraulic Brick Company of Cleveland. The Ohio Brick Company will furnish 2,000,000 common building brick for the East Toledo High School building, the contract for the West Toledo building not yet having been awarded, so far as common brick are concerned. In order to meet the demand of the coming season, the Ohio Brick Company is now installing an additional machine which will approximately double the output of this concern. A Haigh continuous kiln has been in use by this concern for some time with the best of results, none but good hard brick being produced.

The Northwestern Ohio Drain Tile Association recently met in convention at the Boody House in Toledo. More than thirty members of the Tile Manufacturers Association also convened in regular quarterly session. Numerous matters pertaining to their business were discussed and the meeting was pronounced one of the most successful in the history of the organization. Leo Child, of Findlay, Ohio, who has been president for the past two years, presided over the meeting. Secretary J. D. Rumsey, a prominent tile manufacturer of Stryker, Ohio, was also present. Reports of the past year's business show it to have been unusually flourishing. T. O. D.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-EIGHTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. Lv.

FEBRUARY, 1911.

No. 2

CURRENT COMMENT.

If you did not attend the Louisville convention you missed something, but you can get the next best thing to it by reading the report of it in THE CLAY-WORKER.

* * *

That talk on trade schools served to remind us again that the more and better trade schools we have the more good citizens we will have.

* * *

It is still not the cost of brick so much as the cost and worry of getting it put up into the walls that serves as a drag to much more rapid progress in its use.

* * *

The whole brick family was there—the N. B.'s, the P. B.'s, the B. B.'s—and all the B.'s were busy and happy. The parent association is rather proud of its many husky offsprings, too.

* * *

One of the expressions made at the N. B. M. A. convention that quite a number are treasuring in their memory is that the main distinction between a rut and a grave is the matter of depth.

* * *

That it pays to have good brick streets in more ways than one was demonstrated in that because Cleveland has more good brick-paved streets than any other city in the United States the headquarters of the National Paving Brick Manufacturers' Association is to be moved there.

* * *

The local people at Louisville are worrying some about the hole left when President Blair took out that little section of a pavement to bring along from Cleveland to show just what constitutes an ideal brick pavement. It is such a good sample that it is highly prized, and there is naturally some wonder expressed as to how the people feel about

it who had this sample taken out of their street. There is no need to worry about that, for there is plenty more in Cleveland where this came from.

* * *

In the country districts especially it is being demonstrated that the drain tile business is a splendid side line to brick-making, and that it does well to develop and push by an educational campaign of advertising.

* * *

The ladies who attended the Louisville convention were well provided for. The special entertainments arranged for them by the local committee proved very pleasing, so much so that those who can will be sure to be present at the next convention.

* * *

Not only might it be possible to increase the building brick business 150 per cent. by the elimination of wood in the outer walls of house buildings, but it would also increase quality and stability of the houses themselves so that everybody would be benefited.

* * *

It was pretty well demonstrated by Mr. Dunwody in his paper before the B. B. A. that the next best thing to a solid brick wall is a veneered brick wall, and that brick manufacturers can push this kind of a building proposition successfully in competition with lumber for outside walls.

* * *

There were more people learned more things about the real value of proper advertising at the Louisville convention than they were ever impressed with before, and if they take this knowledge home and use it as they should both the brick manufacturers and the country in general should benefit from it.

* * *

The paving brick manufacturers are just as interested in having thorough tests of brick paving material as are city engineers, and often they are in a better position to realize and understand the unavoidable variations in rattler tests. Therefore, they have a right to be heard in matters of this kind, and are generally in position to give authoritative information.

THE SIDE TRIP TO MAMMOTH CAVE.

Those who made the trip to the Cave had a most enjoyable time. All told, there were nearly one hundred of them. Instead of all going at one time, a number of small parties made the trip at different times, some going Thursday, others Friday and Saturday. The group picture in this issue gives the proper conception of the spirit of the visitors. They just made a lark of it and had a jolly good time.

ARE YOU A MEMBER OF THE EASY MARK CLUB?

We have received advice from three worthy brick manufacturers of Ohio, stating that they had recently been initiated into the Order of "Easy Marks" by a smooth gentleman who represented himself to be Mr. George H. Richmond, of the Richmond Clay Products Company, of Philadelphia, Pa., who, having been on a business trip west, and having traveled farther and longer than he intended, found himself just a little "shy of money," and so requested the initiates to kindly cash a check for him for \$50. In the three cases referred to the favor was extended, and in due time the drafts came back unpaid, and the gentlemen who endorsed same consider themselves full-fledged life members of the Order of Easy Marks. They are good fellows, very companionable, and will extend the glad hand to others of the fraternity who have already, or may in the near future, qualify for admission in this organization, the membership of which is limited, but very select. The editor of the Clay-Worker was waited upon by the alleged

Mr. Richmond, and an invitation extended to join the merry throng, but, owing to our bank cashier insisting on wiring the bank on which the draft was drawn, just as a matter of form, the invitation was withdrawn. This bit of objectionable "red tape" was very distasteful to the gentleman in financial distress, so we "missed another chance to be a hero."

THE SILVER ANNIVERSARY SOUVENIR BADGE.

That it was very appropriate is perhaps the best that can be said of the souvenir badge, a replica of which is shown on the front cover of this issue, presented to those who attended the Louisville Convention. It was adorned with the phiz of the secretary, in honor of his twenty-five years of faithful service. Had the likeness on the medallion been better, the badge would have been more highly appreciated. As it is, it will be prized by the older members and be a unique addition to the collection of N. B. M. A. souvenirs. Members who were not able to be present at the convention, but who desire the Silver Anniversary badge can obtain same on application to the secretary. Those who have not remitted their annual fee are requested to do so at once.

THE YEAR IN COAL.

According to a preliminary report of the Geological Survey the production of coal in the United States during 1910 was between 475,000,000 and 485,000,000 short tons, which is a considerable increase over 1909, when the total was 459,715,714 short tons, and it was within 1 per cent. of the maximum previous record, that of 1907. Some of the noticeable increases in production during the year were made in some of the west counties of Kentucky, Pennsylvania, Ohio, West Virginia, Alabama, Colorado, New Mexico and Montana. The States showing a reduced output, which was due to strikes, were Illinois, Kansas, Missouri, Arkansas and Oklahoma. Of the total production in 1910 the anthracite mines of Pennsylvania contributed nearly 83,000,000 tons and the bituminous mines between 390,000,000 and 400,000,000 tons. Probably the most noticeable increase comparatively in production was in western Kentucky, where the demand was heavy part of the year because of the strike in Illinois. This lent encouragement to mine working in western Kentucky, with the result that Kentucky produced during the year between 30 and 40 per cent. more than in 1909.

THE BUSINESS OUTLOOK.

It looks like the brick business during 1911 is going to be somewhat typical of clay products, solid and substantial. From talks had with different visitors at the Louisville convention it was found that practically everywhere nearly everybody expects a better volume of business in 1911 than they had last year, and the trade as a whole prospered well last year.

Some sections reported business a little quiet, but nowhere was there any specific complaint nor any grumbling of extremely dull times. Generally wherever there was slow times with individual concerns it was traceable to either increased capacity on their own part, beyond the development of the trade, or increased capacity on the part of someone else reaching into the territory. Even this increased capacity, however as it is, will be taken care of during 1911 because the country is in a splendid condition of prosperity of the substantial kind, without special booms—the kind that makes for stability—and there are many large building projects being talked of, and also everywhere all over the country municipalities are working enthusiastically for better streets and for beautifying their cities.

As evidence of the feeling of confidence and optimism gen-

erally one hears splendid reports from the brick machinery people of the business being done by them in the way of equipment and supplies for brickyards.

They are having an excellent call from all sides and naturally take this to mean that clayworkers everywhere are getting in shape to do a big year's business. Back of this, of course, is confidence on the part of clayworkers that there will be an excellent demand for their product all next season.

The volume of demand may be increased more or less by industrious cultivation of the territory by every man through advertising. And by advertising we mean every part of it—that in papers, that from personal contact and from letters. If the signs read right 1911 can be made a banner year in the brick business, both in building brick and pavers, unless something unforeseen happens to interfere. It looks like now that the big convention is over and people have threshed out new ideas and learned what is to be learned about new things, everybody is going home with the determination to make 1911 a big and prosperous year for the brick and tile manufacturing industry all over.

ADVERTISING—AN INVESTMENT.

A prominent manufacturer with supreme confidence in the power of advertising told a friend of his from the financial district that he was going to invest \$100,000 during the year in advertising a new product.

"What do you expect to get from it?" asked the friend.

"Well, if I put my money in Wall street I would get about 4 per cent., so I will be satisfied if I get that much or a little more."

At the end of the year the manufacturer figured that his advertising brought him \$16,000 in profits—16 per cent. on his investment.

"Well," said the financial friend sarcastically, "are you satisfied?"

"Of course," was the answer. "I have 16 per cent. on my money. That is 12 per cent. better than Wall street."

"Yes," almost shouted the friend, "but Wall street would have returned your original \$100,000, too. You have lost your money; you are \$84,000 out."

"Not by any means," answered the manufacturer. "I still have my money. It is represented by my trade-mark. Do you think I would sell for \$100,000 a trade-mark that will bring me \$16,000 a year?"

The proof of the pudding is the eating. There are trade-marks today rated as worth millions of dollars—the trade-mark itself, mind you—and all that money represents purely money invested in advertising.

KEEP THE MACHINE RUNNING.

Keep the machine running.

It is not making tile or brick or money when it is idle. When the time comes for it to start it should be in good order and ready to make a good run during working hours. It is cheaper to have one or two men do the necessary repairing and tinkering before and after working hours than to stop for repairs and adjustments while a full crew of men are waiting and drawing their pay.

The man in charge of the machinery should make a note of anything that is liable to get out of order and fix it or report it to the proper person for attention.

Keep the machine running.

Keep plenty of clay ready.

I have seen the machine in large clayworking plants running without enough clay, with a full set of men in attendance, and not enough clay up to fill the machine.

Keep the machine running. It only makes ware and money when it is running.

I have seen the machine stopped to repair an old belt that

the proprietor knew was liable to break at any time and stop the machine, and yet he failed to provide a new one. He took chances on the old one--and lost.

When a railroad locomotive comes in from a run it is put into the round house, together with a statement from the engineer of anything that needs attention.

Before it is taken out again it is repaired, cleaned, wiped and adjusted. As a result a locomotive very seldom fails to go when it is wanted.

It has been said that what a purchaser of an automobile wants is efficiency. He wants a machine that will go when he wants it to go. A locomotive, an automobile or a clay machine can and will give satisfaction only when it is in order and when it is running.

BILL'S SOLILOQUY THE MORNING AFTER.

Sometimes, old pal, in the morning,

When the dawn is cold and gray,

And I lay in the perfume of feathers,

Thinking thoughts I dare not say;

When I think of the stunts of the night before,

And smile a feeble smile,

And ask myself for the hundredth time

Is it really worth the while?

Then I pick up the morning paper

And I read how some saintly man,

Who never was soused in all his life,

Who never said hell or damn,

Who never stayed out till the wee small hours,

Nor jollied a gay soubrette,

But preached of the evils of dancing,

Cards and cigarettes.

Cut off in the prime of a useful life,

The headlines glibly say—

Or, snatched by the grim old reaper,

Has crossed the great highway.

They bury him deep—while a few friends weep—

But the world moves on with a sigh,

And the goodly man is forgotten soon,

Even as you or I.

Then I say to myself, "Well, Bill, old scout,

When you're called to take the jump,

And you reach that place where the best and worst

Must bump the eternal bump,

You can smile to yourself and chuckle,

Though the path be exceedingly hot,

For while you lived you were moving some,

Isn't that an unholy thought?

Then I arise and attach a cracked ice band

To the rim of my tattered hat,

And saunter forth for a cold gin fiz—

She's a great old world at that—

And go on my way rejoicing,

What's the use to complain or sigh?

Go the route, old scout, and be merry,

For tomorrow you may die.

—Ex.

BRACE UP.

Here today and gone tomorrow—

Here today, tomorrow gone—

Then there'll be no one to borrow

Your best books, nor mow the lawn,

Ere the sun begins its shining,

While you're lying sleepy-eyed,

And no dogs at midnight whining;

'Twon't be bad—that other side!

Here today, then gone forever;

Here today then—aber nit!

Then's an end of all endeavor,

Work and sorrow, all of it!

German bands will no more harass,

There will be no phonograph,

There will no more bills embarrass;

That's not bad at all—not half!

So, if that's what means the morrow,

Why go grouchy through the day?

Don't sit arm in arm with sorrow,

Laugh and frighten it away;

Sing a stave and lilt a chorus,

Life's a lake with blossomed shore;

There the bore will no more bore us;

Grief come near us nevermore.

—Houston Post.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 423.]

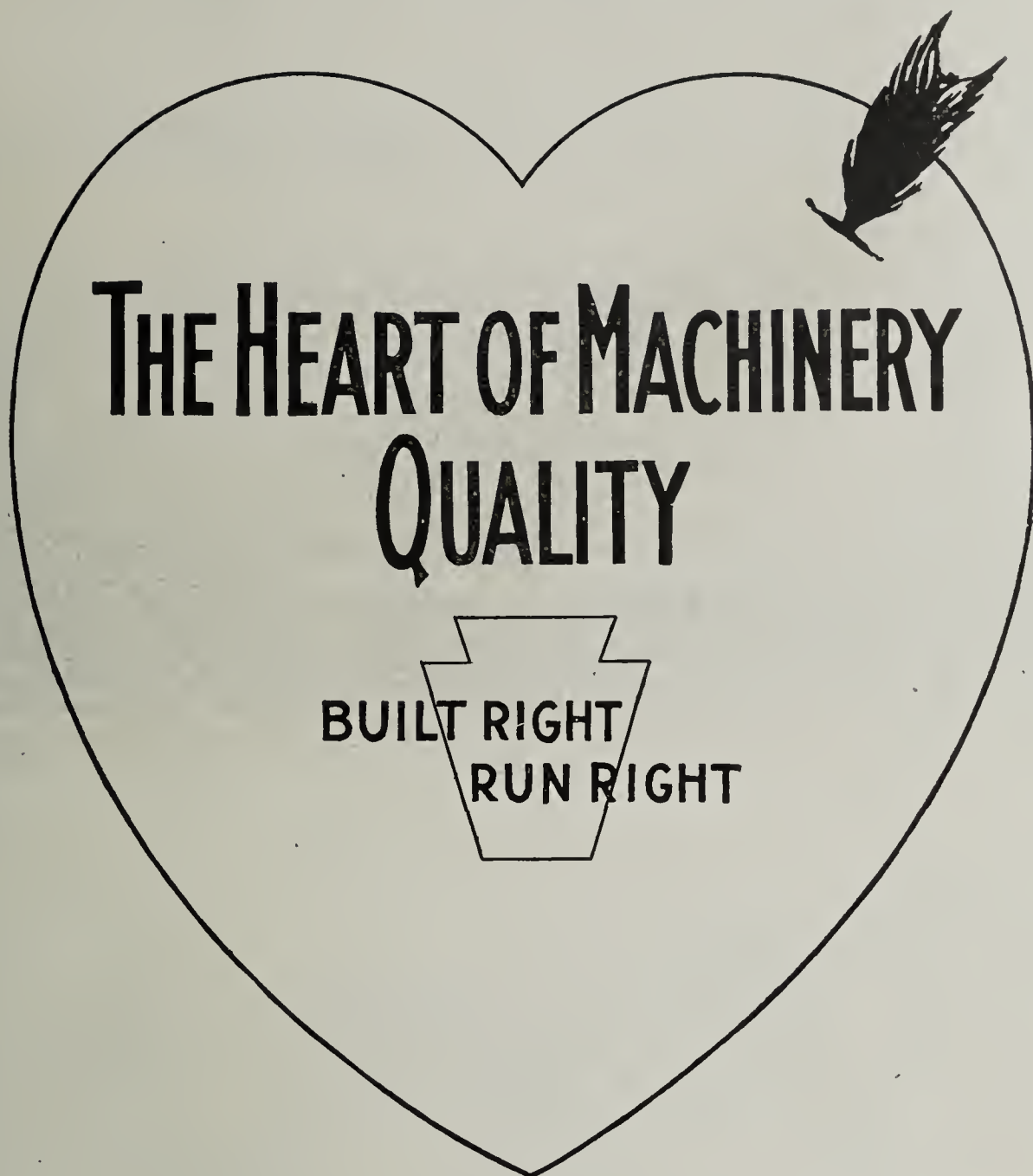
FOR SALE, WANTED, ETC.

FOR SALE—One Hercules soft-mud brick machine; little used and in perfect order. Price \$250.00. We use stiff-mud machinery only.

ASHAWAY CLAY COMPANY,
111 d Ashaway, R. I.

For Sale, Wanted, Etc., Ads Continued on
pages 377, 378, 379, 380.

The World's Largest Manufacturers of Clayworking Machinery.



BUCYRUS, OHIO, February 14, 1911.

The month of February is the month of hearts. St. Valentine has so decreed, and on this, St. Valentine's Day, we take occasion to call your attention to "The Heart of Clay Machinery Quality."

Our line of Clayworking Machinery has never been equalled either in extent or quality. We have led in the extent of our line because the Quality has brought us such a volume of trade that we have extended our organization, our factories and our scope until there is no manufacturer of Clayworking Machinery in the world where your real wants and needs can be so faithfully kept in mind. We build everything needed by the Clayworker for making Clay Products by all processes, and can therefore place in your plant that machinery which will be best suited to your conditions.

Building all our machinery in our own plants, we know the quality to be the best attainable. Our castings, forgings, etc., are made in our own plants, and are absolutely sound and of the best material. This practice of entrusting to no one the very vital elements of quality has done much to give the "Built Right, Run Right" line a long lead in advance.

Your interests are our interests, and no matter what you may require or what problems confront you, we will give your case our exacting attention, with the object of making your plant one more monument to our ability and a "going" example of our policy of supplying the machinery and equipment to properly and profitably produce Clay Products, no matter by what process. Correspondence is solicited on any Clay subject.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.

Are You Burning Money?



It does not matter what it is costing you to burn your brick, if it can be done for half as much you are wasting money by continuing as at present.

Even if your fuel bill is within what you consider reasonable, you are still wasting money if it can be split in two.

Not long ago a brick manufacturer, who was paying \$2.40 per thousand to get his brick through the kiln, commissioned our Kiln Department to investigate, and when we finished he was able to get a better burn, in less time, and at a cost of 74 cents a thousand.

In another case where it was costing 60 cents to burn per thousand brick our Kiln Department cut the cost to 17 cents.

The man who was paying 60 cents per thousand for fuel might have thought he was doing very well at that, but in reality he was wasting just as high per cent as was the man who was paying \$2.40.

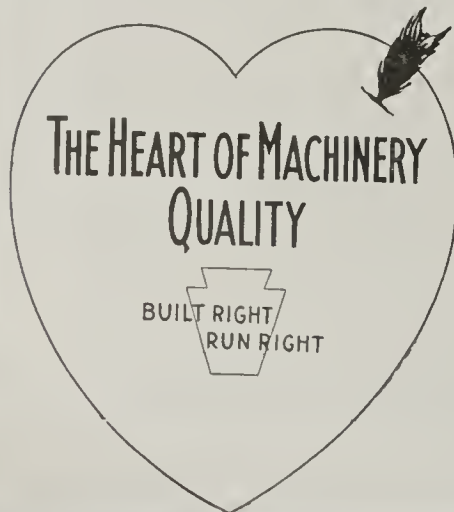
It has always been the policy of the American Clay Machinery Company to place each department of its organization in the hands of specialists. We have thought that the Clay Industry has grown to such vast importance, and the fight of competing building material has made the demand for the best of clay products so urgent, that the very best efforts were none too good for the Clayworker.

In carrying out this policy of specializing, The American Company has cut away from any one particular method of burning and is able to handle each problem on its own merits, keeping net results only in mind and thus making the interests of the manufacturer the paramount point.

We have secured the services of the very best and most able kiln men in both the United States and Europe. They have made a thorough and searching study of kilns and the burning of Clay Products. Naturally, having made this a study of years, they have mastered the problems which have seemed impossible to others and are able to do what others have failed in attempting.

When your product comes from the dryer it represents a half of the entire manufacturing cost, and yet its real value depends on how it comes from the kiln. Success or failure depends on the burning.

The best records show that the cost of burning clay products ranges from 35 to 55 per cent of the entire cost of the product. A moment's thought will convince you that this is greatly in excess of what it should be. The reason of this excessive cost is evident. You are consuming tons of coal for which you receive no benefit whatever. You may say this is impossible, but recent tests have shown that only 25 per cent of all the coal consumed in the average kiln is utilized in burning the ware.



Can you afford to throw away 75 per cent of your fuel just because your kilns are inadequate?

We will be glad to take up this burning question with you. If we can't save you money, we will tell you so. If we do save you money you can pay us from the savings, and you will thus be out nothing.

The American Clay Machinery Co.

BUCYRUS, OHIO

"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.

Unloading Device for Wet Pans

The illustration shows our six-foot wet pan with patent unloading device. The rim of the pan is composed of a strong cast-iron stationary rim held in place by being securely bolted to the tie bars of pan. This rim is made in sections for convenience in handling, and is also provided with an independent angle wearing rim proper. This rim has an opening or gate in one side to allow the ground material to pass out from the pan onto a conveyor or elevator. Attached to the legs of the pan are two bearings which support a shaft. This shaft is also supported by two additional bearings, which form part of the stationary rim. These last two bearings are located on each side of the openings in the rim. On this shaft is mounted and securely keyed a combined gate and scraper. At the outer end of the shaft is a hand wheel, as shown. When the material has been ground or mixed sufficiently to suit requirements the operator turns the wheel, which opens the gate and at the same time lowers the scraper, which scrapes the clay out of the pan onto the conveyor or elevator. After the pan is empty the wheel is again turned, which removes the scraper and closes the gate. On this shaft is also a notched wheel, and a pall so arranged that the scraper can be held in the pan or the gate be held closed and locked.

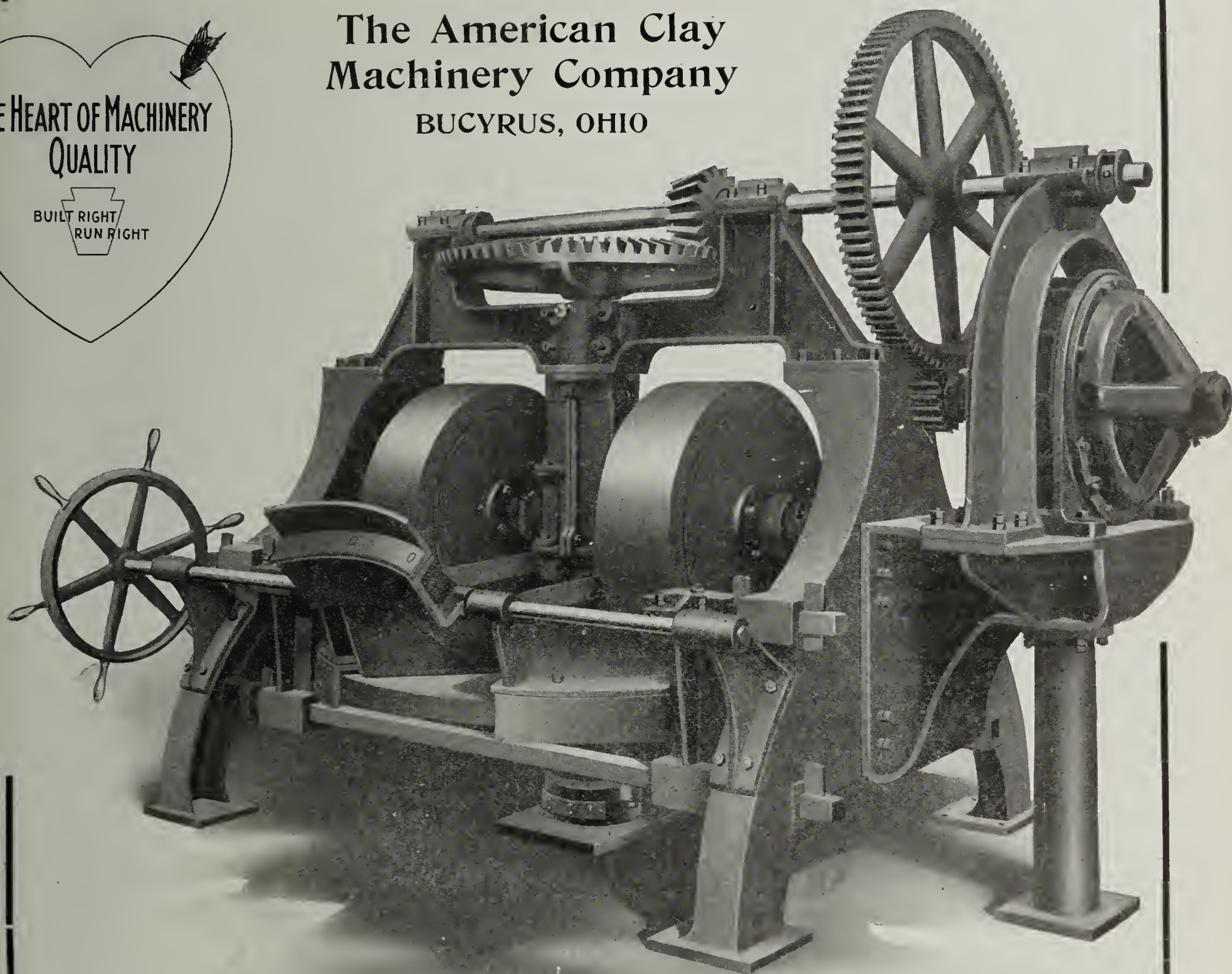
We build every machine and appliance needed by the Clayworker.

The American Clay Machinery Company

BUCYRUS, OHIO

THE HEART OF MACHINERY
QUALITY

BUILT RIGHT
RUN RIGHT



"A Quality Above All Others in Clayworking Machinery."

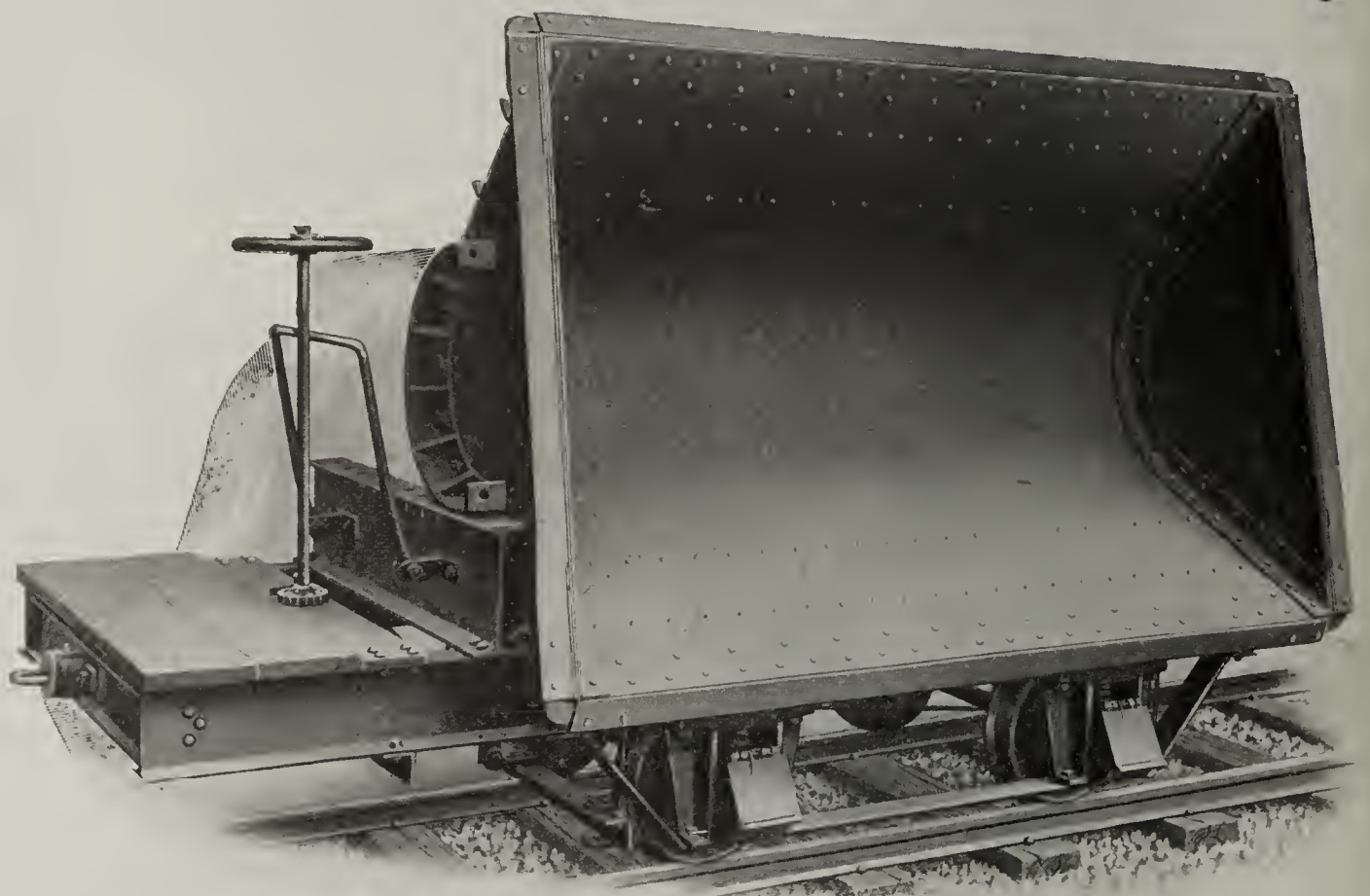
Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.

Steel "I" Beam Dump Car

No. 197 ROCKER DUMP CAR.

In order to lower the Clay Car expenses on the brick yard, we have designed the No. 197 Rocker Dump Car. The bed is made of heavy steel, reinforced, and has a capacity of $2\frac{1}{2}$ cubic yards. Steel rockers are bolted to each end of the bed, which rests on 12-inch "I" Beam rocker tracks. The "I" Beams are provided with holes in the top side which receives the projections on the steel rockers. In addition to the 12-inch "I" Beam rocker tracks the bed is supported by two heavy steel intermediate supports, all of which are riveted to the 8-inch "I" Beam steel frame. This main frame is securely riveted and braced. The trucks are designed according to the rules of the Master Car Builders' Association. The axles are 3 inches in diameter, on which are keyed heavy chilled wheels 17 inches in diameter. The trucks are provided with pedestals which guide Oil Boxes provided with oil cellars for holding oiled waste, which is placed against the under side of the revolving axles. A hinged lid is provided to protect the bearing from dust, also to permit the brass bearings being removed. The journal bearings are provided with springs to take the heavy shocks both in loading and jolting on the tracks. The pedestals are also braced by heavy straps bolted to them and to the main frame of the car. Double brake beams are provided on which are mounted one brake shoe for each wheel. All are operated by a brake wheel, staff and ratchet. The car with brake attachment is provided with an extended platform made of wood for the operator to stand on, and on each end of the car is securely bolted a draw head so that several cars can be coupled together.

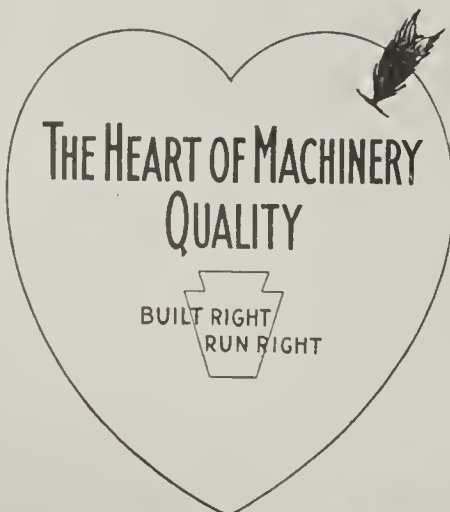


The car is also provided with heavy steel attachments to hold the bed of the car in an upright position while in transit, and also with heavy chains one end of which is attached to the bottom of the bed and the other to the sides of the frame. This prevents the bed from rocking off the frame.

The height of this car is 5 feet $5\frac{1}{2}$ inches; width over all, 5 feet 9 inches; length over all, 12 feet $1\frac{1}{2}$ inches. Wheel base, 48 inches. Track gauge, 36 inches.

No. 212 ROCKER DUMP CAR.

This car is the same in every way as the No. 197 car except that there is no projecting platform or brake attachment. All dimensions are the same except the length and weight. The length of the No. 212 car is 9 feet 7 inches.



The American Clay Machinery Co.
BUCYRUS, OHIO

"A Quality Above All Others in Clayworking Machinery."

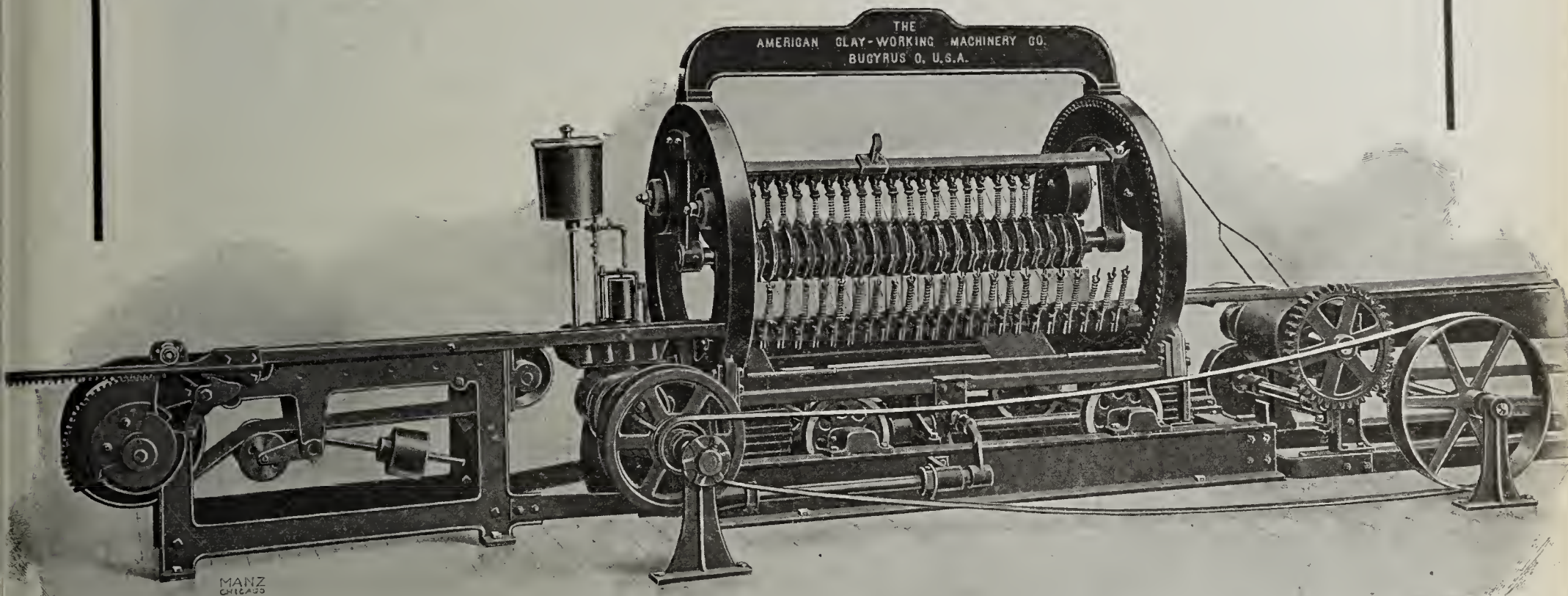
Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.

Automatic Cutter

The accompanying cut shows our No. 20 Automatic Cutter, which is one of a half dozen styles of automatic cutters we build. This cutter is simple, durable, accurate and rapid. It is compact, occupying the minimum of space, and overcomes the swelling and buckling of the bar of clay.

The rotary wire frame is driven by two large pinions in the center of the machine. These pinions are driven by a worm gear and worm, which gives a steady motion to the wire reel. The worm, or driving shaft, is set at right angles with the cutter and is driven with a friction clutch pulley. This friction clutch pulley is operated by the movement of the carriage which starts the wire reel in motion, and it is thrown out of gear by the rotating wire reel.



There are two sets of improved toggle wire fasteners, which permit more time for the wires to pass through the column of clay and leave them at rest in a horizontal position, which is the most advantageous position in replacing broken wires. This can be done without stopping the machine. The wires have a shearing action when passing through the bar of clay, making as perfect a cut as can be made with a wire-cut machine.

The wires are prevented from cutting the bar of clay before the proper time by means of a simple band brake and brake wheel. The carriage is kept in register with the moving bar of clay by a most simple register device. There is rotating motion to all its parts, so that any wearing of these parts does not affect the accuracy of their operation. The platens can be changed for cutting different thickness in a few minutes. The wire reel is carried on six track wheels, which are provided with eccentric pins to take up the wear. The cutter is built high-grade throughout. We also build other automatic cutters, as well as every machine and appliance needed in every branch of the clay trade.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

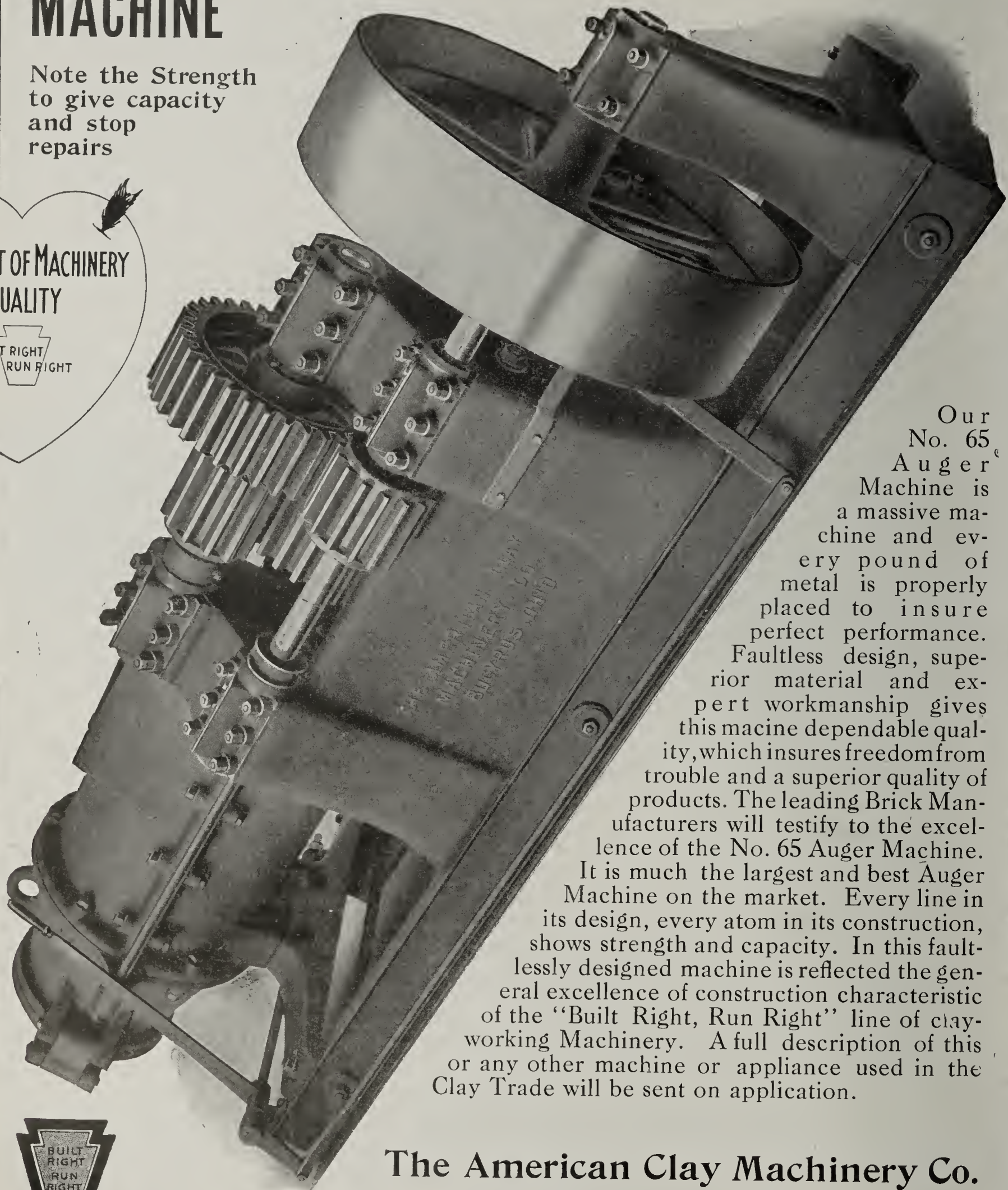
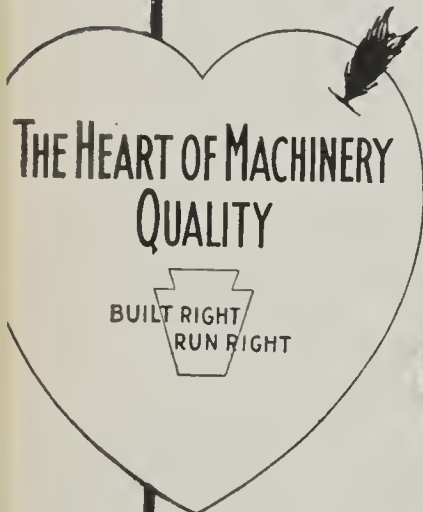
"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.

MONSTER MACHINE

Note the Strength
to give capacity
and stop
repairs



Our No. 65 Auger Machine is a massive machine and every pound of metal is properly placed to insure perfect performance. Faultless design, superior material and expert workmanship gives this machine dependable quality, which insures freedom from trouble and a superior quality of products. The leading Brick Manufacturers will testify to the excellence of the No. 65 Auger Machine. It is much the largest and best Auger Machine on the market. Every line in its design, every atom in its construction, shows strength and capacity. In this faultlessly designed machine is reflected the general excellence of construction characteristic of the "Built Right, Run Right" line of clayworking Machinery. A full description of this or any other machine or appliance used in the Clay Trade will be sent on application.

The American Clay Machinery Co.

BUCYRUS, OHIO, U. S. A.



"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.



What Users Say About the Centrifugal Screen!

We designed and built the Centrifugal Screen for successful operation. See what the users say:

"Our Centrifugal Screen screens the clay very fast. The men who operate the screen are pleased with results."—Columbus Plate Glass Co., Blairsville, Pa.

"The Centrifugal Screen has certainly surpassed our expectations. We have run the screen 60 days without a cent's worth of repairs. We believe it will run indefinitely without repairs."—Michigan Vitrefied Brick Co., Bay City, Mich.

"We have two of your Centrifugal Screens. One has more than paid for itself in labor saved. It is handling material for 100,000 brick per day. We shall use these screens exclusively in all our plants in the future."—Coffeyville Vitrefied Brick Co., Coffeyville, Kansas.

Don't these reports sound good to you?
The Centrifugal Screen will do as much for YOU!
Write us about anything you want.

We build every machine and appliance for the manufacture of clay products by all processes.

**The American Clay
Machinery Co.**

Bucyrus, Ohio

THE HEART OF MACHINERY
QUALITY

BUILT RIGHT
RUN RIGHT

SOFT MUD BRICK MACHINERY

There is many a clay which can best be worked on Soft Mud Machinery. To handle such clay on Stiff Mud or Dry Press machinery would prove a failure in the long run.

We build a complete line of Soft Mud Brick Machinery and appliances to meet the needs of such clays. We are not interested in selling you machinery which may prove a failure. We have the very machinery you require to make a success of your business, and that is the only machine we sell you.

Our Upright Stock Brick Machine is built for long and continuous use. It has many satisfied users who will cheerfully recommend it. Our line of Plunger machines is complete with a size range to meet your requirements. Our Eagle Horse Power and Eagle Steam Power machines are popular favorites in their class.

Every machine we build has a quality behind it attained only by faultless designing, excellent material and superior workmanship.

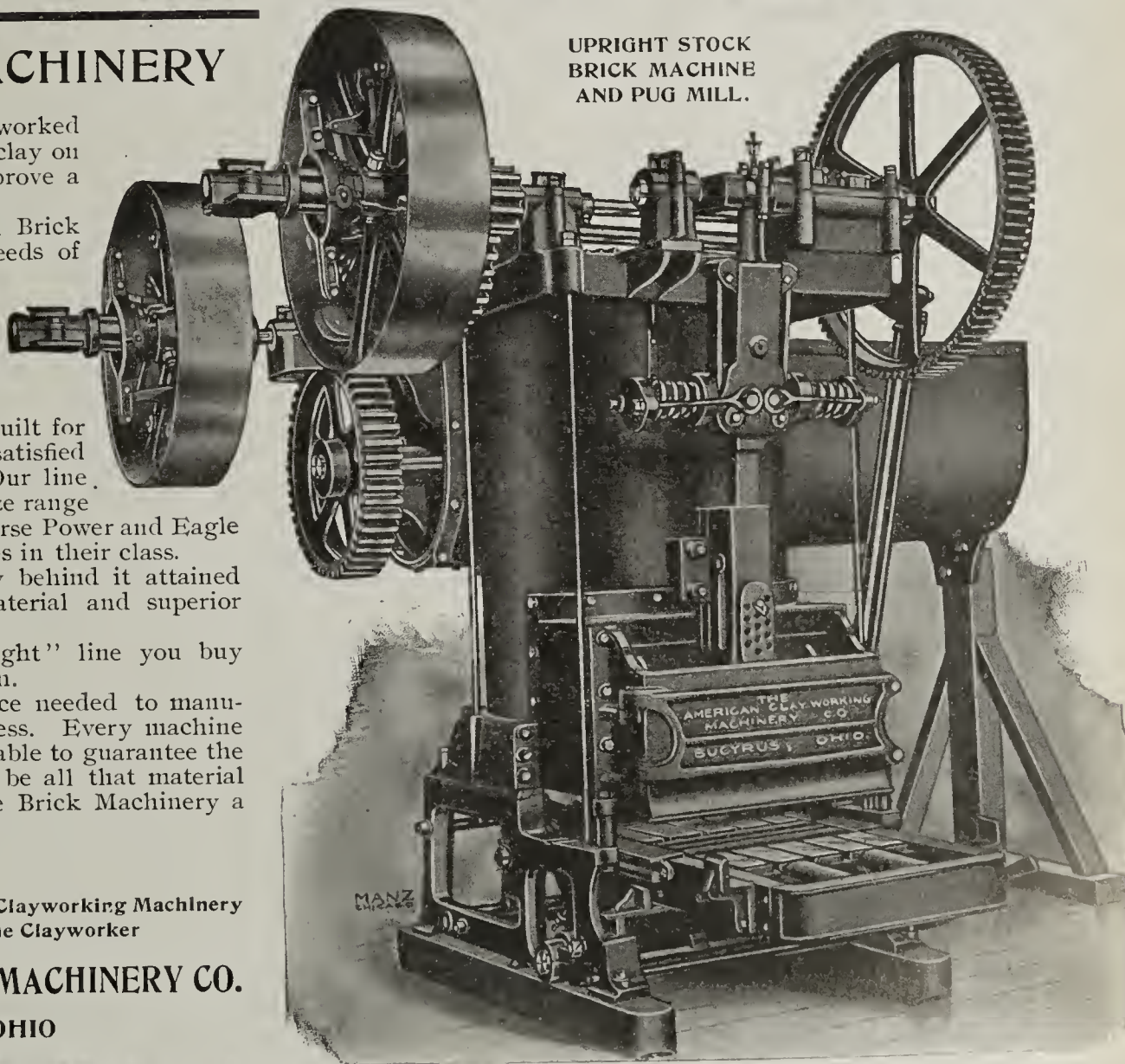
In buying the "Built Right Run Right" line you buy quality and that means successful operation.

We build every machine and appliance needed to manufacture Clay products by any known process. Every machine built in our own factories, so that we are able to guarantee the quality because we know that quality to be all that material and workmanship can attain. Sand-Lime Brick Machinery a specialty.

World's Largest Manufacturers of Clayworking Machinery
Everything Needed by the Clayworker

THE AMERICAN CLAY MACHINERY CO.

BUCYRUS, OHIO



UPRIGHT STOCK
BRICK MACHINE
AND PUG MILL.

"A Quality Above All Others in Clayworking Machinery."

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE OUTLOOK FOR building in San Francisco is considerably better than it has been. Operations have been of small consequence for the last month, as it has rained most of the time, the precipitation being the heaviest of any January on record; but notwithstanding this adverse condition, the valuation of new buildings, as shown by permits issued, amounted to \$1,750,841, a gain of about \$200,000 over the December record, and more than \$500,000 better than for January, 1910. There is a general feeling that the turning point has been reached, and that from now on for several years to come there will be a steady improvement. The rain, though unwelcome to some of the builders, has done great good through the country, where there was some anxiety over the crop outlook a month ago, and another active year of building in the interior towns is assured. Los Angeles is now ahead of San Francisco in building values, last month's record there showing a valuation of \$2,104,875, of which \$1,000,000 was for one building. The best previous January valuation in Los Angeles was \$1,908,455, in 1903.

The prospects, not only in San Francisco, but all over the coast, have been greatly improved by the decision of Congress favoring this city as the site for the Panama-Pacific Exposition in 1915. Between now and that time there will be a great deal of work in preparation for the event itself, while a large amount of building for private enterprises has been delayed for many months simply owing to uncertainty in regard to the Exposition. While few large office buildings will be required for some time, it will be necessary during the next few years to put up many hotels, apartment houses and small business structures. It is also highly probable that a number of large manufacturing plants will be built this year, both in San Francisco and Oakland, and brick still holds its position as the favorite material for this class of work. In the line of hotels and apartments, the architects have on the boards an unusually large number of buildings, attractively faced with pressed or vitrified brick and terra cotta, using a wide range of colors, glazes and polychrome designs.

The continued rain has had some effect on the manufacture of brick, though so far most of the plants have been able to keep their kilns going, and arrivals of common brick in San Francisco are about up to the average. As the immediate demand is limited, it has been impossible to make any notable advance in prices, though there is more steadiness to the market than at any time last year. Arrangements are being made for another cargo to be shipped north, which will help out the situation considerably.

C. Hidecker, of the Vallejo Brick and Tile Company and the Ione Fire Brick Company, says it has been impossible to handle any clay recently at either plant, but the kilns have continued in operation, and large shipments of the Vallejo sewer brick have been brought to San Francisco whenever the weather would permit.

The Ione fire brick are sun-dried before burning, and accordingly no brick can be made at this time of year. The company usually makes up enough during the summer to keep the kilns going all winter, but last summer, Mr. Hidecker says, the demand was underestimated. The kiln is still going, but all the material on hand will be burned by March 1, and no more can be made up before April. The brick made the past year were better than ever, and have found ready sale. The California market for fire brick, Mr. Hidecker says, is steadily expanding, largely in connection with the production of oil and its use as fuel. The use of fuel oil, however, greatly complicates the problem of the fire brick manufacturer, as he cannot know how the brick will be used or what they will be expected to stand. Oil combustion in general gives them very hard

usage, requiring a material as dense and impervious as possible. The company is constantly experimenting along this line, and expects to make a further improvement in its product next spring.

The annual meeting and banquet of the San Francisco Masons' and Builders' Association was held last month at the Palace Hotel. The Association made an innovation at its last banquet by having the ladies present, and the event was so successful that it has been decided to make this the regular custom. J. J. Phillips, the new president, was toastmaster, but only one regular speech was made, being by S. H. Kent, president of the Builders' Exchange. The remainder of the program consisted of musical features furnished by several members of the Association.

The most notable event in January, aside from the announcement of the decision on the Panama-Pacific Exposition, was the convention of the American Institute of Architects, which made its first official visit to the Pacific coast. The visitors were royally entertained by the local chapter, and, while the weather was not all that could be desired for sight-seeing, the architects had a good opportunity to witness the progress made in the reconstruction of the city.

Work has been steadily progressing on the improvements at the Port Costa Brick Works, but the wet weather has interfered with the contemplated reopening of the plant, and manufacturing will probably not be resumed before the middle of the month. The company has considerable business on hand, and is anxious to start work as soon as possible.

There has been considerable talk of late about new oil refineries, which would require large quantities of both common and fire brick. In addition to the improvements of the Standard Oil Company's plant at Richmond, Cal., a site has been secured in southern California, and it is believed that arrangements will soon be made for a new refinery there. A local oil interest has also purchased a tract of land near Martinez, with the supposed intention of starting a refinery.

The plant of the Los Angeles Pressed Brick Company, at Richmond, Cal., is keeping up its operations on a large scale, much of the material being required for manufacturing plants in the vicinity of the works. Quite a lot of the new face brick is being turned out, and a fair amount of local business has been secured for this product, with prospects of an active demand later in the year.

The pressed brick and terra cotta for the upper portion of the Sacramento County Court House will be furnished by the local firm of N. Clark & Sons. Another large job taken by this firm within the last few weeks is the material for the First Church of Christ, Scientist, in San Francisco, which will require a lot of special polychrome work, in addition to terra cotta, brick, etc.

The Midway Brick Company, operating in one of the principal oil fields of California, has filed articles of incorporation at Bakersfield, Cal., with a capital stock of \$25,000. The incorporators are E. L. Burnham, J. C. Sloan, F. P. Bolstad, J. W. Key and R. N. Fay.

The Spokane Asbestos Fire Brick Company, of Spokane, Wash., is making arrangements for the erection of a \$10,000 plant.

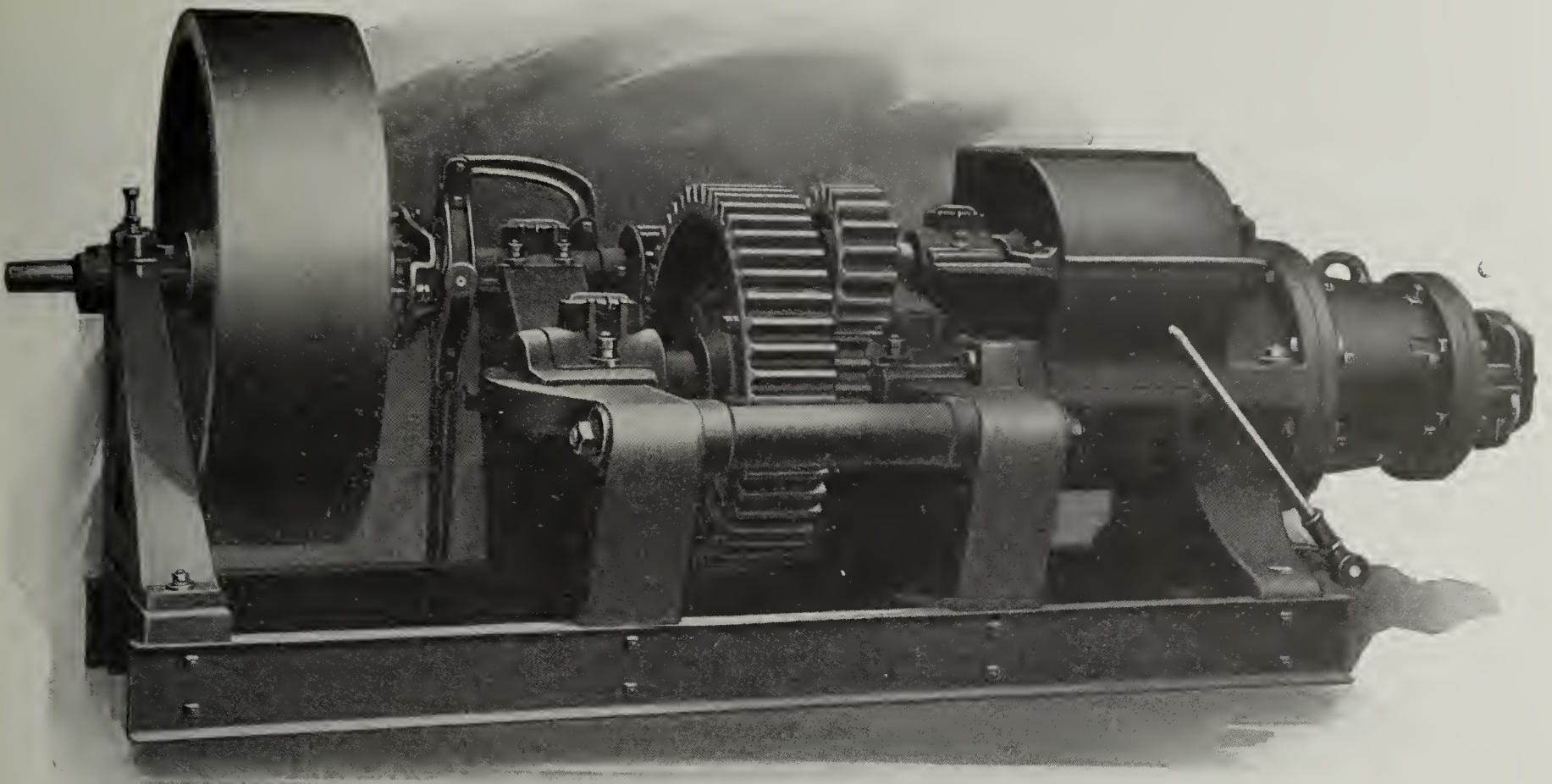
The Lovegren Lumber Company has purchased a large tract of land in Patton Valley, Ore., and proposes to install a modern brick plant in addition to its lumber mills.

The Oakland Paving Brick Company is making steady progress on its new plant near Decoto, Cal., and will be ready to burn brick for its own use in about a month. The first output will be used for the construction of several larger kilns and one or two dryers. A lot of machinery is due to arrive within the next few weeks.

SUNSET.

San Francisco, Cal., Feb. 4, 1911.

It is necessary for Congress to be in session once in a while, but what's the use for finance and industry to stop, look and listen every time?



Model "G A" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 432-435.



Barrett's PAVING PITCH



Gay Street, Columbus, O. Brick Pavement filled with Barrett's Paving Pitch in 1888.

For Block or Brick

Whether the pavement be of Brick, Wood Block, Granite Block, or any other kind of block, Barrett's Paving Pitch makes the ideal filler. It adds to the strength and durability of the pavement by making it watertight and bonding each block to its neighbor.

In bonding the blocks Pitch acts as a waterproof, elastic cushion, yielding to the blocks as they expand in hot weather and stretching back again as they contract—always sticking tightly to the lateral surfaces of the blocks.

Pitch thus takes the place of both filler and expansion joints; in other words, *every joint is an expansion joint.*

No other filler has all these qualities.

Asphalt will disintegrate under the action of water. It will yield to the *expansion* of blocks, but will *not* adhere to them when they contract.

Sand is not waterproof.

Cement, when it has "set" is rigid, and, even with expansion joints, causes "blowouts" and long cracks in the pavement. Furthermore, it makes the pavement intolerably noisy.

Thousands of barrels of Barrett's Paving Pitch have been used all over the United States and have given complete satisfaction in every instance. Pitch is thoroughly efficient.

Send for Booklet.

BARRETT MANUFACTURING COMPANY

New York
Pittsburg

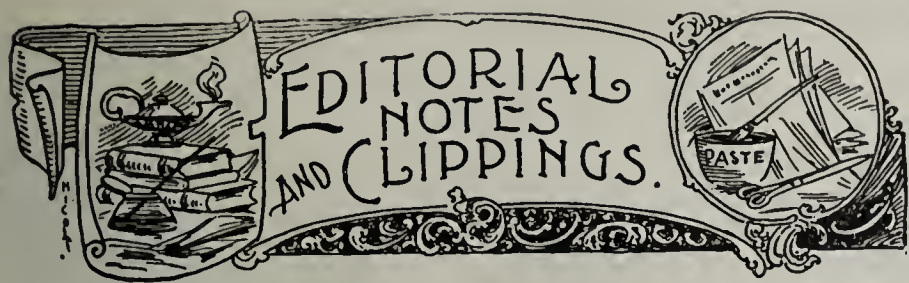
Chicago
Cincinnati

Philadelphia
Kansas City

Boston
New Orleans

Minneapolis
Seattle

St. Louis
London, England



The tile plant of I. A. Baldrige at Stonington, Iowa, was completely destroyed by fire recently.

W. H. Warren and J. H. Irving are promoting the establishment of a pottery at Grafton, W. Va.

Gustave Boesel, of New Bremen, Ohio, contemplates the erection of a brick manufacturing plant at Sidney, Ohio.

The Walker & Frank Brick Company, Detroit, Mich., contemplate the erection of a new brick plant at Spring Wells, Mich.

Charles B. Ver Nooy has been elected treasurer of the Illinois Brick Co., Chicago, Ill., to fill the vacancy caused by the death of J. H. Gray, which occurred last month.

The American Tile Company, of Muscogee, Okla., has been incorporated with \$500,000 capital stock. The incorporators are M. B. Lewis, A. E. Perry, J. M. Wilkinson and others.

Articles of incorporation of the Lewiston Brick and Tile Plant have been filed by G. J. Weideman, J. E. Lane and N. J. Littlejohn. The company has an authorized capital of \$75,000. The plant will be located at Lewistown, Mont.

At the convention of the Western Ontario Clay Products Association at Chatham, Ont., John Wardell, of Blenheim, was elected president, and A. W. Waeland, of Chatham, secretary and treasurer.

Chas. Breisinger & Son, brick manufacturers at Bucyrus, Ohio, recently purchased a tract of ground on which they will erect a new brick plant, which they hope to have ready for operation early in the spring.

The Wichita Falls (Texas) Brick and Tile Company has commenced operations at its new plant, turning out 100,000 brick every day, which is more than double the amount put out before the new plant was built.

At the annual meeting of the Savage Mountain Fire Brick Company, Frostburg, Md., recently the following officers were elected: President, Chas. C. Gorsuch; vice-president and treasurer, Jno. A. Caldwell; secretary, H. C. Gorsuch.

The administrator of the estate of Nikalo Stanch, who was an employe of the Mason City Brick and Tile Company, Mason City, Iowa, has brought suit against that company for \$10,000 damages. Mr. Stanch was killed by a slide of clay in a clay bank.

The Metropolitan Brick Company, of Canton, Ohio, has certified to an increase of from \$125,000 to \$300,000 capital stock for their Moberly, Mo., paving brick plant. The increased capital stock is to take care of proposed extensive improvements in the Missouri plant.

G. W. Kennedy, for many years manager and treasurer of the Manitowoc Clay Products Company, Manitowoc, Wis., has retired from the company. H. M. Clark and Elmer Leach will have entire control of the company in the future. They operate one of the largest yards in that part of Wisconsin.

C. C. Long, of Columbus Junction, Iowa, has made a number of improvements in his brick and tile yard this winter which will enable him to more fully meet the demand for his products. He has put in a full line of tile machinery and a new cutting table in addition to a number of minor improvements.

At the annual meeting of the stockholders of the Boone Brick and Paving Company, of Boone, Iowa, Judge J. L. Stevens was elected president and A. W. Payne, T. A. Ashford, B. M. Huntley, F. M. Ballon and Dr. J. H. Noyes, of Ogden, were elected directors. The other officers of the company will be elected later.

Emmet Cullen, manager of the brickmaking plants of Victor Cushwa & Sons, of Williamsport and Hagerstown, Md., and of the Conococheague Brick Company, Williamsport, died at his home in Williamsport, Md., January 14, following a week's illness from pneumonia. Mr. Cullen was a son-in-law of Victor Cushwa, who is state vice-president of the N. B. M. A. for Maryland. He was 53 years old and was connected

with every movement to advance the interests of his home town. A widow, two daughters and one son survive.

C. A. Barbour and others have incorporated the Houston Brick and Tile Company, Houston, Texas, with \$25,000 capital stock.

The Marshall Pottery, of North Marshall, Texas, was badly damaged by fire recently. The loss is estimated at about \$4,000, on which there was no insurance.

Pasco, Wash., is to have a new brickyard. J. E. Bennett and F. R. Dethart, of Grangeville, Wash., have purchased land at that place on which they will erect a brick plant.

The Ridgeville Brick and Tile Company, of Ridgeville, Ind., has filed notice of increase of capital stock from \$15,000 to \$20,000. T. A. Almonrode is president of the company.

A very fine grade of pottery clay has been discovered on the farm of A. L. Harris, Glasgow, Ky., and a movement is on foot to organize a stock company for the purpose of erecting a pottery.

J. B. Spragins will enlarge his brick plant at Ardmore, Okla. The prospects for the erection of brick buildings and residences in Mr. Spragins' territory are such that he wants to be ready for the demand.

In a recent letter renewing his subscription to THE CLAY-WORKER F. W. Alhorn, of Morganfield, Ky., writes: "We have had a prosperous year, having sold all of the tile on both plants here and at Uniontown, Ky., and practically all of the brick."

The Toronto Fire Clay Company, of Toronto, Ohio, will increase its output of face brick to 100,000 per day. An additional selling force will be organized in the near future and F. P. Cuthbert will have charge of same, with offices in the Oliver building, Pittsburg, Pa.

The office of the Ottumwa Brick and Construction Company, at Ottumwa, Iowa, was completely destroyed by fire late in January. The fire spread to the pottery sheds adjoining, but was extinguished before much damage was done. The loss is estimated at \$1,500.

Work at the new plant of the D. W. Haeger Brick and Tile Works, at Coal City, Ill., is progressing rapidly. Six kilns have been completed and six others are under course of construction. Switches have been laid from the main railroad track to the coal mine and work is being pushed as rapidly as possible.

Mr. John Richardson, for many years connected with the Savage Mountain Fire Brick Co., Frostburg, Maryland, and Clearfield Brick Co., Clearfield, Penn., died at his home, Sewickley, Pa., February 3rd, of pneumonia. Mr. Richardson was past eighty years old, and well regarded with the trade for the last two generations.

The annual meeting of the Fond du Lac Press Brick Company, Fond du Lac, Wis., was held recently, at which time the following officers were elected for the ensuing year: President, Robert Zinke; vice-president, A. J. McCreery; secretary, E. H. Korrer; treasurer, M. T. Simmons. The company will install new machinery for making wire-cut brick and drain tile.

At a recent meeting of the stockholders of the Montello Brick and Tile Company, Reading, Pa., the following directors were appointed: Lambert A. Rehr, A. J. Brumach, J. G. Mohn, Jacob B. Fricker, Nathaniel Ferguson, W. W. Light and Howard L. Boas. The authorization of a mortgage indebtedness of \$500,000 with which to put several plants in operation has been certified to.

The Blair Silica Brick Company is rushing its new plant at Claysburg, Pa., to completion as rapidly as possible. The plant when finished will have a capacity of close to 100,000 brick every day. The company states that they have booked orders that will take the output of the plant for nearly two years. As soon as the plant is finished the company will build a number of houses for their workmen.

The Clinton Metallic Paint Company, of Clinton, N. Y., is making quite a point of the fact that among the various makes of brick and mortar colors on the market the "Clinton" colors are the only colors imitated. They point to the fact that in all lines it is only the best that is imitated, and they have a distinction in putting out the only line of colors that has interested the imitators. As the Postum man says, "there must be a reason." The genuine "Clinton" always has

(Continued on page 375.)



Another Order of Four Car-Loads of Clayworking Machinery

Making About One and One-Half Acres of PIONEER CLAY-WORKING MACHINERY Used by One Concern

The W. S. Dickey Clay Mfg. Co., Kansas City, Mo., the largest manufacturer of sewer pipe in the world, who has been buying our machinery for the past quarter of a century, sent this order a few days ago.

Can it possibly mean that the W. S. Dickey Clay Mfg. Co. does not know a good thing when they see it? Or, does it mean that they do know a good thing when they see it, and that our machinery is giving them entire satisfaction, and superior to all other makes? THAT IS JUST WHAT IT DOES MEAN. Shrewd, experienced buyers as well as practical men in their line, know a good thing when they see it and operate it.

How about the other fellows, such as

The Alberta Clay Products Co., Medicine Hat, Alberta, Can.
Minnesota Farmer' Brick and Tile Co., Austin, Minn.
Lehigh Clay Products Co., Fort Dodge, Iowa.
Denny-Renton Co., Seattle, Wash.
Capital City Sewer Pipe Co., Sacramento, Cal.

Pacific Sewer Pipe Co., Los Angeles, Cal.
San Antonio Sewer Pipe Co., San Antonio, Tex.
Pomona Terra Cotta Co., Greensboro, N. C.
National Drain Tile Co., Terre Haute, Ind.
Wm. E. Dee Co., Mecca, Ind.

The Taplin-Rice-Clerkin Co.

The Clay Machinery Folks of the United States and Akron, Ohio

EDITORIAL NOTES AND CLIPPINGS—Continued.

their "little yellow side label" on the package, a sign of purity and excellence.

The Pierpont Brick Company, of Roanoke, Va., has installed an electric plant and hereafter will operate their plant by electricity.

The Western Clay Products Company, of Chicago, has recently been incorporated with \$10,000 capital stock by R. H. Green, Wm. E. Dee and W. H. Gilbert.

The Sedalia Brick and Tile Company, of Sedalia, Mo., has been incorporated by Jerome Meyer, W. H. Graham, W. K. Bente and others. Capital stock, \$50,000.

Ground has been broken for the new plant of the Ellwood Brick Company at Ellwood City, Pa., and the plant will be pushed to completion as rapidly as possible.

The Trumbull Brick Company, at Leavittsburg, Ohio, will improve and enlarge its plant. New machinery will be installed and the capacity of the plant materially increased.

J. E. Tarver is at the head of a company that will establish a large brick plant near Augusta, Ga. It is understood that the new plant will have a capacity of 100,000 brick per day.

American Enamel Brick Company has been organized at Des Moines, Iowa, to manufacture enamel concrete brick. J. C. Mardis and W. B. Hanes, of Des Moines, are at the head of the enterprise.

The Little Rock Manufacturing Company is the name of the concern recently organized at Little Rock, Ark. Leon Newmainville, of that city, is at the head of the concern, which will be incorporated in a short time.

The Burke Brick Company, Rochester, N. Y., is the title under which the face brick business started by Mr. E. J. Burke in 1890, will be known hereafter. Mr. E. J. Burke is president and John F. Burke secretary and treasurer of the company.

At the annual meeting of the Donnelly Brick Company, New Britain, Conn., an entire change was made in the list of officers. President and treasurer, James M. Curtain; secretary, Henry Donnelly. The company predicts an unusually good season for 1911.

R. H. Nebrang, of Upland, Ind., has purchased the brick plant of J. W. Lupher, at Tullahoma, Tenn. Mr. Nebrang will make a number of improvements in the plant with the view of enlarging the capacity of same and will also install machinery for the making of drain tile.

Hervey Haigh, of Catskill, N. Y., builder of the Haigh continuous kiln, has recently sold a kiln to the American Fire Brick Company, of Spokane, Wash. Capacity of 65,000 brick per day. Mr. Haigh, in a recent letter, says: "The January CLAY-WORKER should be in the office of every brickmaker in this country."

Papers of incorporation have been filed by the Terra Cotta Tile and Pressed Brick Company, of Houston, Texas. It is said the chief products of the company will be paving brick and the plant will have a daily capacity of 100,000 brick. Mr. McConnell, of Dallas, Texas, and Clement Watson, of New Waverly, Texas, are the prime movers of the concern.

The Ricketson Mineral Paint Works, Milwaukee, Wis., never miss an opportunity to advertise the mortar colors and dry iron ore paints. Mr. Bogk, secretary and treasurer, writes that they were the only people making an exhibit of mineral colors at the big cement show at Chicago. He says that their material fills up the pores in cement, making it denser and tougher.

The Main Belting Company, whose headquarters are at Philadelphia, Pa., have just opened up an office at Seattle, Wash., of which Mr. Edward C. Tubbs is manager. The office is located at 316 Occidental avenue, where they carry a large stock of various sizes of leviathan belting ready for immediate deliveries, and where they will be pleased to welcome any of the clayworking craft.

The Kansas Buff Brick and Manufacturing Company has moved its general office from Neodesha, Kas., to its works at Buffville, Kas., four and one-half miles north of Neodesha, a town of about 500 population, composed entirely of their own employes. Branch sales offices and display rooms have been opened at 220-222 Reliance building, Kansas City, Mo., and at Wichita, Kas. They have invited friends to visit them both

at the offices and the works, and announce that they will take pleasure in showing any one interested in the manufacturing of brick through their plant.

The L. H. Martin Tile Company has been incorporated for the manufacture and sale of clay products at Dwight, Mo. C. L., V. H. and I. B. Martin are interested.

The Memphis Press Brick Company has been incorporated at Memphis, Tenn., with \$50,000 capital stock. The incorporators are J. S. Cobb, J. W. Massey and N. W. Greenwood.

The Brillion Brick and Tile Company, of Antigo, Wis., has been incorporated with \$10,000 capital stock. The company has taken over the plant of Albert Boettcher, which will be improved and enlarged.

Mr. J. T. Washburn, of Saugerties, N. Y., one of the largest brick manufacturers on the Hudson river, died at Tampa, Fla., February 11. He was 71 years old and was one of the best known brick manufacturers of eastern New York.

Theodore H. Swan announces that he has opened an office and exhibit room at 245 Powers building, Rochester, N. Y., for the sale of facing bricks, terra cotta fireproof and Hodon tile building blocks. He has withdrawn from the New York Press Brick Company.

The Charter Oak Brick Company has been incorporated by W. J. Jordan and others of New Haven, Conn., as successor of the Phoenix Brick Company. The company will at once begin business at the plant of the latter company which they purchased at receiver's sale recently.

The Oliver Spring Brick and Tile Company's plant at Oliver Spring, Tenn., has resumed operation after having been closed down several weeks. The company turns out a superior grade of fire brick and has orders on hand that will keep them running for some time to come.

The plant of the Manown Brick Manufacturing Company, at Manown, Pa., was burned to the ground January 31, entailing a loss of \$50,000. Owing to a flood the plant was surrounded by water and the firemen could not reach it. The origin of the fire is unknown. This is the second time in three years the plant has been burned.

Phillips & McLaren Company, Pittsburg, Pa., write that 1910 was an exceptionally good year for them and 1911 bids fair to equal it. During the months of December, 1910, and January, 1911, they shipped 341,920 pounds of new pans. This does not include the weight of any repair parts furnished during that time. Here is hoping they will keep that record up right straight through the year.

Thomas M. Harwood, secretary and treasurer of the Sunset Brick and Tile Company, of Gonzales, Texas, writes that from all indications the spring will open up with a big volume of business. They have about four million brick on hand at the present time, but expect to have most of the stock cleaned out before spring opens up. Mr. Harwood expected to go to the Louisville convention, but, much to his regret, was detained at home.

The immense plant of the United Brick Company, of Conneaut, Ohio, has resumed work after a two-months' shut-down, during which time the plant was remodeled and the capacity doubled, so that now they will turn out on an average a million brick a month. The demands for the Dunn wire-cut lug brick, which this company will specialize, will keep the plant running full time, and may result in another increase of capacity during the summer.

The Quinton Clay and Brick Company is the name of the new organization recently incorporated to develop coal fields and establish a brick and tile manufacturing plant at Quinton, Okla. The officers of the company are: J. M. Postelle, president; H. D. Garretson, vice-president; E. J. Due Pree, treasurer, and Mrs. Olie Walker, secretary, all of Oklahoma City, with the exception of Mr. Garretson, who lives in Quinton. The company is capitalized at \$600,000.

The J. Walter Miller Company, of Trenton, N. J., has purchased the plant of the Bordentown Brick Company, at Bordentown, N. J., which they will operate in connection with two other plants they own. The three plants will give them a combined capacity of 50,000,000 brick a year, all of which will be sold through the Independent Brick Selling Company, with offices in the Commonwealth building, Trenton, N. J. Mr. Miller states that the prospects for business for 1911 are better than they have been for four or five years past.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE ACTIVE season of building has been a little slower in getting started in 1911 than it was a year ago, and as yet there has not been as much heavy work planned as in previous years. There is a reason for this, for conservatism has been urged, preached and practiced so much during the past few months that it has become a difficult task for matters to resume in active progress, even after conditions tended to encourage it. With bankers for some months past decrying everything that indicated anything more than great care and caution, and with large operators in every line rather inclined to go slow, it is no wonder that there have been inclinations to take things slow and sure. But conditions are working past the necessity for this sort of thing, and already business men and others are finding that they need to spread out and to have more room, more building and better facilities. And so they are considering enlargements, additions, improvements or new structures.

So in a rather quiet way the active season of 1911 is slowly developing and while it is by no means as active as it was a year ago, there is nevertheless a nice line of new work developing. Through the Northwest there are a number of good-sized structures in view. The Twin Cities each have a fair number of good-sized structures, while Duluth has the promise of a great many new buildings of consequence.

All this is very satisfactory, but the real question, after all, is how much brick will be used, and how will the demand be as compared with other years. And the answer is rather favorable to brick. There will be a good demand for brick, which will, if continued, hold its own against the volume for 1910 in a year which may not equal the building totals of 1910, indicating a gain for brick. Predictions are difficult to make with assurance for changes are easy.

Steps have been taken in St. Paul and are to be followed in Minneapolis, toward the development of trade schools for boys who are about to leave school. In St. Paul it is found that boys are inclined to leave school at from the sixth to the eighth grade, and long before they reach the time when they may take hold of the manual training of the high schools. Less than 4 per cent. of the boys starting in the grades ever graduate from the high schools, so if the trades are to be dependent upon the manual training of the high schools for the supply of mechanics for the future, immediate or distant, it will be obvious that the supply will make wages something high. But they have offered a course in manual training to boys in the grade schools, working two hours a day in the afternoons, at the manual training departments of the high schools, after the high school classes are out. These boys are given credit for their manual work upon their academic standing, so they will keep up with their classes in the regular academic line. They must keep up their regular studies in order to maintain the manual work. It is found to be a great incentive, and they have shown a steady advance in their academic work, while their advance in manual training is phenomenal. The course was started by the Builders' Exchange of St. Paul, which stood the bills. At the end of four months the progress was so good that the Board of Education included in its budget for 1911 an appropriation for continuing the work, and the classes are to be increased from the original figure of 100 to 300. Bricklaying is a course which is to be added as soon as it seems feasible. The boys are turned out in woodworking and the Builders' Exchange is willing to take any boy who can get a certificate of ability from his teacher and find him a job where he can make more money for himself than he ever could if turned adrift, either

by his own dropping out of school in the middle of the term or by not going back at the new term, and taking anything which an unskilled lad could take up.

The recent convention of the Northwestern Lumbermen's Association in Minneapolis brought in a number of clay product exhibits. The Hydraulic Press Brick Company had a full showing of its lines. The Plymouth Clay Products Company, of Fort Dodge, Iowa, was represented, as was Fowler & Pay, of Mankato, Minn., and others.

The Builders' Exchange, of St. Paul, gave its annual banquet January 25 at the new Hotel Saint Paul. The menu was printed upon a cardboard box the size of a brick. These were brought in by the waiters in mortar hods and distributed to the guests.

The general offices of the Hydraulic Press Brick Company, which have been maintained at Menominee, Wis., for a long time, have been removed to Minneapolis, where they are located with the sales offices at 211 South Fourth street, in the annex to the Security Bank building. The Minneapolis offices in the new quarters have proved to be large enough to accommodate the force from the general office, and it was decided to merge them for the quicker work and business reasons generally.

The Builders' Exchange of Minneapolis gave an "At Home" party February 7 in their rooms, 17 South Sixth street, to members and their ladies. There was a good attendance, and a pleasant evening was spent. Dancing concluded the evening's entertainment.

Ira C. Jones, of the Minneapolis Brick and Tile Company, Minneapolis, is spending a few weeks in California.

January building totals for St. Paul showed a good gain, being \$443,954, against \$354,592 for January of 1910. The first five days of February had the heaviest total of any in history, reaching \$800,000.

Tentative plans are being prepared for an elaborate art museum to be erected in Minneapolis at a cost of \$200,000.

The S. T. McKnight Company, Minneapolis, will erect a modern four or five-story white enameled brick office building at Second avenue, South, and Fifth street. It will cover a quarter-block and will be of the general architectural arrangement of the building on the other corner of the same block, the Security Bank building.

The George J. Grant Construction Company, St. Paul, received the general contract for the new seven-story warehouse for Finch, Van Slyck & McConville, St. Paul, wholesale dry goods. The exterior walls will be of pressed brick. Cost about \$600,000.

H. L. Stevens & Co., of Kansas City, Mo., received the general contract for the erection of the Dr. G. G. Eitel Hospital building at West Fourteenth and Spruce Place, Minneapolis. It will be five stories and basement, pressed brick exterior walls. Cost, complete, \$150,000. This same firm of contractors also has the general contract for rebuilding the Brunswick Hotel building at the corner of Fourth street and Hennepin avenue. It will be five stories high, with foundations to carry ten stories, and will be arranged in E shape, with the open courts toward the street, instead of toward the alley, as so many hotels do. This will give all the rooms of the building a street frontage.

Earl D. Brown, of Minneapolis, contemplates the erection of a four-story brick apartment building at Tenth street and Second avenue, South, to cost about \$75,000.

The Business League of St. Paul has had plans prepared for a four-story building to be exclusively for manufacturers' agents, to be erected at Fourth and Jackson streets. Cost about \$100,000.

The Travelers' Aid of the Young Women's Christian Association of Minneapolis, contemplates the erection of a new building at Seventh avenue near Seventh street. A building to cost \$40,000 is projected.

The Minneapolis Gas Light Company is having plans prepared by Long, Lamoreaux & Long, architects, for a four-story office building to be erected adjoining the present building. Foundations will be put in for a twelve-story building.

The Carr-Collier Company, sash and doors and millwork, Minneapolis, will erect a brick and mill construction warehouse to be four stories, 150x150 feet in size. Bell, Tyrie & Chapman, architects.

T. WIN.

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FOR SALE, WANTED, ETC.

WANTED—A practical pottery man
 with capital to take an interest in and
 manage an up-to-date pottery located
 in Illinois. Address BOX 2, R. H.,
 2 1 c Care Clay-Worker.

FOR SALE.

One Potts disintegrator, good as new.
 Price \$45.00.
 BROOKLYN BRICK COMPANY,
 2 2 d Brooklyn, Ind.

WANTED—To engage as superintend-
 ent with a building brick concern.
 Have the experience necessary to in-
 sure the best success. Experienced
 erecting engineer withal. Address
 J. G. J.,
 2 tf d Care Clay-Worker.

WANTED.

At once, by a large Ohio concern,
 manufacturing sewer pipe, tile and oth-
 er special machinery, a competent rep-
 resentative for the Southern States,
 Southwest and Pacific slope. One who
 is thoroughly practical in the line from
 experience. Must be a hustler, a busi-
 ness getter and capable of giving the
 proper representation between the buy-
 er and seller. Strong references re-
 quired. Address BOX 2, A. B. C.,
 2 1 L Care Clay-Worker.

FOR SALE—One American Blower
 Company 100-inch $\frac{3}{4}$ housed fan, used
 less than one week.
 TUNA VALLEY PRESSED BRICK CO.,
 12 tf d Bradford, Pa.

FOR SALE.

Martin brick machine, pug mill, shaft-
 ing, pulleys, Martin steam dryer, steel
 pallets with cable system, all complete.
 33,000 daily capacity. All as good as
 new. F. H. EGGERS,
 12 tf d Cleveland, Ohio

FOR SALE.

Onethree-kiln tile plant in Ohio. Ev-
 erything new and most modernly
 equipped. Good clay and excellent mar-
 ket. Bad health reason for selling. Ad-
 dress BOX 8, R. B. C.,
 12 tf d Care of Clay-Worker.

FOR SALE.

One Model AA Marion steam shovel,
 shop No. 265; shovel has recently been
 equipped with new boiler, new dipper
 handle, new trucks and a complete set
 of sheaves, and in good working condi-
 tion. This shovel is capable of digging
 clay for one machine making 100,000
 seven-pound brick per day. Price,
 \$1,500, on C., B. & Q. tracks, Galesburg,
 Illinois.
 THE PURINGTON PAVING BRICK
 COMPANY.
 2 2 L Galesburg, Ill.

FOR SALE—Well-equipped open yard
 brick plant. Railroad sidetrack and
 also wagon trade. Supplying Athens,
 population 18,000. Excellent clay. Big
 bargain. S. C. UPSON,
 1 3 d Athens, Ga.

FOR SALE—One Leader Manufactur-
 ing Company brick machine, one
 Kells machine, one Big Wonder and one
 Quaker, and a disintegrator. All in
 good running order. Also three en-
 gines and three boilers. Each from 40
 to 50 h.p., which I desire to sell out-
 right. For full information, address
 D. P.,
 1 2 cm Care Clay-Worker.

FOR SALE.

A brickyard in South Carolina, lo-
 cated on Southern railway. All or
 part interest in one of the best brick
 propositions in the Piedmont section of
 South Carolina, 65 acres, one mile from
 city of 10,000; 15 acres the bed of clay
 is from 10 to 15 feet deep. Railroads,
 S. A. L.; A. C. L.; So. & Piedmont, and
 Northern, under construction. Cus-
 tomers in all cities of the Piedmont.
 Equipment, 40,000; wire-cut machine,
 crusher, pug mill, hoist, car and hand
 repress. Necessary dryer and kilns,
 power, etc. J. R. NICHOLS,
 2 1 cm Greenwood, S. C.

(Continued on next page.)

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—36 acres brick clay land adjoining Minneapolis, with trackage and river front. O. A. ZIEROLD, Century Bldg., Minneapolis, Minn.
2 1 cm

FOR SALE.

Wrought Iron Soft Mud Rack Cars, less than one-third cost. One 4x6 Triplex Power Pump.

McKEESPORT BRICK CO.,
McKeesport, Pa.
2 1 c

FOR SALE.

FOR SALE—First-class stiff-mud machine, automatic cutting table; capacity 50,000 to 75,000. Also two represses; all practically good as new. Address X 22,
2 1 d Care Clay-Worker.

WANTED.

To get into correspondence with a live, up-to-date brick plant in need of a superintendent or manager of long experience. Familiar with every detail and can guarantee satisfaction. Address BOX 2, City,
2 1 d Care Clay-Worker.

MANAGER WANTED.

A first-class manager to take full charge of a modern brick plant of 100,000 capacity. Everything new and buildings fireproof. Must be able to take \$5,000 to \$10,000 interest in the company. Must have good references. Address TULSA,
2 1 dm Care Clay-Worker.

CLAY LANDS FOR SALE.

A large tract of land near Perth Amboy, containing heavy deposits of valuable clay and sand. On Lehigh Valley railroad, and water front of 200 feet on Raritan river. Always navigable. Excellent facilities for shipping and manufacturing. WM. TUNISON,
23 Smith st., Perth Amboy, N. J.
2 1 cm

RARE OPPORTUNITY.

A thoroughly equipped brick plant, located on two railroads, is offered for sale. Inexhaustible supply of red and buff shale, fire clay and coal underlying property. Competent management will net purchaser \$30,000 per annum. Settlement of estate makes it necessary to dispose of property at a sacrifice. Full information, address

A. A. FORDON,
1312 Ford Bldg., Detroit, Mich.
2 1 cm

WANTED—Position as superintendent of first-class brickyard, making all kinds of brick. References given.

C. W. FOCHT,
2 1 c Alton, Ala.

WANTED—Position as superintendent of brick works and brick construction; practical in both branches. Address BOX 2, A. E. W.,
2 1 d Care Clay-Worker.

FOR SALE.

Fire brick plant in West Virginia, or prefer forming a company with a good, practical man with money. Address WEST VIRGINIA,
2 2 cm Care Clay-Worker.

FOR SALE—An almost new equipment of heavy steam power Quaker S. M. brick machine, with elevator, 2 D. D. trucks, 2 barrows, dump take, 24 kilns, doors and grates, 6,000 pallets.

F. H. SHULTZ,
2 1 c Treynor, Iowa.

FOR SALE.

Soft-mud brick plant and ten to thirty acres excellent clay. Yard on belt line and located in city of 20,000, which has best of transportation facilities. Cash or terms.

HENDERSON BRICK CO.,
1 tf d Henderson, Ky.

WANTED

Well-known, responsible party wants for New York trade grey and buff speckled, flashed, iron-spot and rough-face brick. Can command large trade. Address, stating kind and quantity that can be supplied and lowest cash price, X. Y. Z.,
1 2 d Care Clay-Worker.

WANTED—An active, experienced superintendent to properly handle modern stiff-mud common brick plant; 50,000 daily capacity, which will be increased later. Applicant must know his business thoroughly, handle negro labor efficiently and furnish amply satisfactory references. Location near Savannah, Ga. Address GEORGIA RED BRICK COMPANY,
2 1 d Pooler, Ga.

WANTED.

The management of a brick plant, southern location preferred. 20 years' experience in selling and manufacturing of brick and tile. Can handle all kinds of clay and am familiar with both stiff and soft mud machines and dry presses and the arrangement of setting and burning of face, flashed and all kinds of brick, any kind of fuels and kilns and construction of same. Can furnish the very best of references as to ability, etc. Address EDWARD,
2 1 c Care Clay-Worker.

WANTED—To buy a cheap second-hand upright drain tile machine, with dies to 12 inches, or a small sewer pipe press. E. FINCH,
2 1 c 1852 E. 55th St., Cleveland, O.

WANTED.

The address of M. C. Williams, who was formerly at 701 N. Gibson street, Princeton, Ind. Address BOX 2, D. W.,
2 1 d Care Clay-Worker.

WANTED.

Situation by a thoroughly experienced enamel brickmaker and burner of all kinds of enamel ware. Have had extended experience in both this country and across the water. Can give the best of references. Address BOX 2, W. S. B.,
2 1 c Care Clay-Worker.

WANTED—By the Little Falls Fire Clay Company at their paving brick plant at Palmer, Wash., the following: Hackers, pitchers, setters, press-feeders. Would like to get in correspondence with a first-class burner for Youngren producer gas kiln. References required. LITTLE FALLS FIRE CLAY CO.,
324 Perkins Bldg., Tacoma, Wash.
2 1 c

FACTORY SITE IN DAYTON, OHIO.

Long term lease; privilege of re-leasing indefinitely; 566 feet railroad frontage by 264 feet deep; one and half square from general freight yards; switch privileges secured. Title clear and unincumbered. Dayton has 1,000 factories, is central for shipping, plenty good help. No labor difficulties. For plats and other information address J. E. BOYER,
303 W. Monument Ave., Dayton, Ohio.
2 1 2p

FOR SALE.

As I am going out of the brick business, I have the following items, which are in good order, for sale:
1 A Martin power brick machine.
Pug mill and belt sander.
1 Potts clay crusher.
2 large steam boilers.
1 60 h.p. Atlas engine.
1 80 h.p. Atlas engine.
10,000 wooden pallets, 34x10x4½ inches.
150 24-inch gauge 6 ft. long Atlas brick cars.
1 Cummer dryer fan, 20-inch blade.
54½ inches high, 2 7-16-inch shaft.
2 Atlas car transfers.
1,500 feet, 12 lbs. to the foot, iron rails.
600 feet, 16 lbs. to the foot, iron rails.
6 single-wheel Martin brick barrows.
JOHN WILSON,
3031 Stillson Ave., S. E.,
2 tf d Cleveland, Ohio.

WANTED—160 dryer cars for stiff-mud brick.

CALHOUN CLAY PRODUCTS CO.,
1 2 d St. Louis, Mo.

WANTED—Position as superintendent or burner or two burners. Can furnish best of references; 25 years' experience with all kilns and clays. Address

L. D. R.,
1 2 cm Care Clay-Worker.

FOR SALE—Complete set of brickyard machinery, consisting of one 4-mold Simpson dry press machine; one Steadman pulverizer, engine, boiler, shafting and pulleys. GILICK BROS.,

319 W. Steins St.,
12 3 c St. Louis, Mo.

FOR SALE OR LEASE—A big deposit of white clay recently discovered within 300 yards of railroad. Adjoining other successful clay properties. For further information address, SO. MOUNTAIN MINING & IRON CO.,

12 3 cm Pine Grove Furnace, Pa.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,

FRANK P. CLEVELAND,
965 Adams Express Bldg.
12 tf d Chicago, Ill.

WANTED.

General superintendent for a small, well-established architectural terra cotta and pressed brick plant on Pacific coast. References, experience, age and state wages wanted. Must be able to handle men. Address

BOX 2, SAN,
2 1 d Care Clay-Worker.

ATTENTION.

Letters addressed to this ad. put you in touch with a young clayworker experienced in brickyard management, designing, construction and engineering. Am seeking position with firm considering additions, with engineer designing plant, or as superintendent's assistant. Technical education. References. Address

BOX 1, OHIO,
1 1 d Care Clay-Worker.

FOR SALE OR LEASE—Pressed and common brickyard, adjacent to live city; excellent railroad facilities; high prices; big permanent demand; winter dryers. Successfully operated for years. Ready to run with trifling outlay. To the right parties liberal arrangements will be made by present owner. Capacity from fifty to one hundred thousand daily. Address

BOX 1, ALLIS,
1 3 cm Care Clay-Worker.

FOR SALE—Cummer clay dryer, good as new. Perfect condition. A great bargain; very cheap. Full particulars on application. Address

BOX 12,
12 1 1 Dryer, care Clay-Worker.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.

T. B. TOWNSEND BRICK AND CONTRACTING CO.,

1 tf d Zanesville, Ohio.

WANTED—Position as manager or superintendent by a capable man, who has given special attention to burning. Is thoroughly experienced in the manufacture of paving, face, building brick, conduit and tile. Prefers location in West or Southwest. Address MICH.,

1 1 d Care Clay-Worker.

ATTENTION.

ROOFING TILE MANUFACTURERS.

Our new process for manufacturing shingle roofing tile offers advantages over any method known to the trade. Correspondence solicited.

RAESSLER & HEDRICH,
117 Coulter Bldg., Los Angeles, Cal.
2 1 c

FOR SALE.

At the plant of the Ohio Terra Cotta Brick Company, at Fredericksburg, Ohio, one 12-foot pug mill, one 777 stiff-mud machine, one automatic cutting table, all Raymond make. Used to manufacture less than two million brick.

J. B. HAMMOND,
1 2 d Bolivar, Pa.

WANTED.

As manager or superintendent stiff-mud or dry press face, paving or common brick plant; 20 years' practical and technical experience as expert burner. Gilt-edged references as regards character, ability and success. Address

BOX 2, H. C.,
2 1 c Care Clay-Worker.

FOR SALE.

Martin style A brick machine repair parts, catalog value over \$200; Martin sand grinder and sifter.; one deep well working barrel, 6-inch; lot of iron and wood pulleys; list value about \$635. Make offer, all or part. Address

BOX 2, ALLEN,
2 1 lp Care Clay-Worker.

ATTENTION.

Plaster molds made and clay tested for sewer pipe, tile, terra cotta and brick by an expert. Samples furnished and instruction given; \$6,000 plant used. E. FINCH,

1852 E. 55th St., Cleveland, Ohio.
2 1 lp

WANTED—Situation general manager paving or front brick plant. Have always been a success. Good references furnished. Address

SUCCESS,
2 2 d Care Clay-Worker.

WANTED—By a man of first-class ability, a position as superintendent, head burner, or both in combination, on a face brick proposition equipped with down-draft kilns. Address

BOX 2, J. J. K.,
2 1 d Care Clay-Worker.

FOR SALE.

Best bargain in a going face and common brick plant in western Pennsylvania; less than 50 per cent on the dollar; easy terms. Only plant in town 60,000 population; capacity 30,000 high-grade rough-faced flashed shale brick. Plant running on orders for the larger cities in the East and Middle West. Full details, price and terms to responsible parties only. W. B. TRIMBLE,

2 1 c 400 Lewis Block, Pittsburg, Pa.

FOR SALE.

A good brick plant, in excellent condition. Capacity, 50,000 brick per day. Located in eastern Virginia. A bargain to a quick cash buyer.

NOTTU & CO.,
2 1 dm Norfolk, Va.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

P. MITTLER,
Robbins, Tenn.

BRICK PLANT FOR SALE.

Location near city of 30,000, connected with five railroads and on a macadam road. Only brick plant in county and supplies 80 per cent. of the brick used in this section at \$6.50 per thousand F. O. B. cars.

Fine bed of clay, Chambers machinery; new plant, been in operation only three years. Established trade and good quality product. Good proposition for any one wishing to engage in brick business. Address

BOX 432,
1 2 cm Wilmington, N. C.

(Continued on next page.)

FOR SALE.

One 150 h.p. gas engine, in good condition; also a number of extra parts for same.

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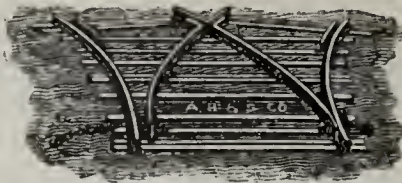
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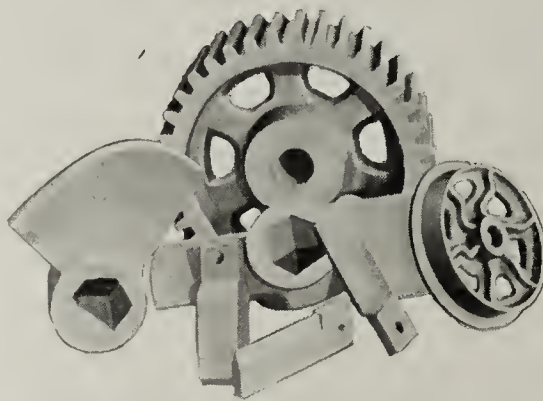
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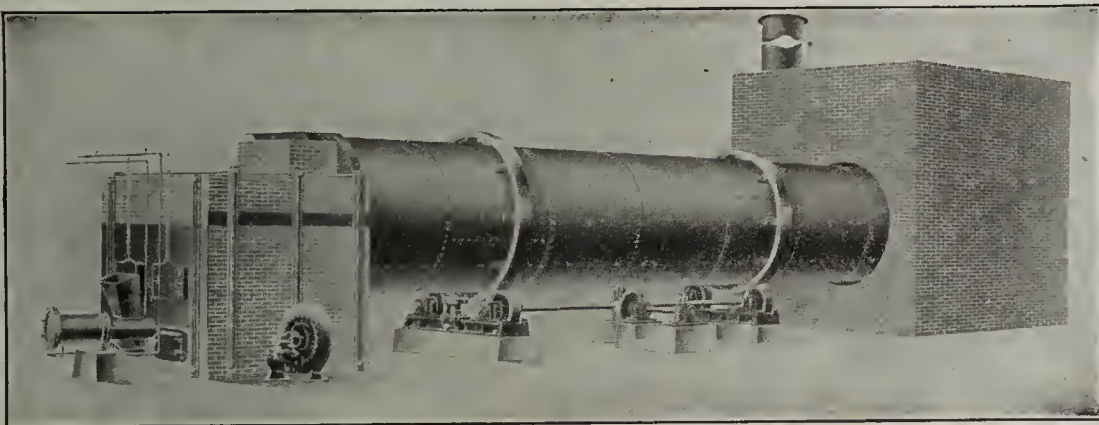
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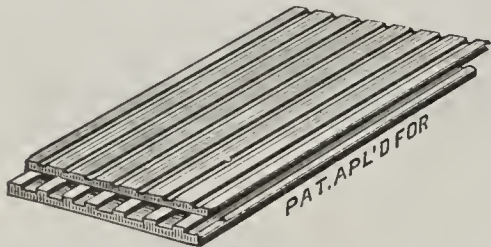
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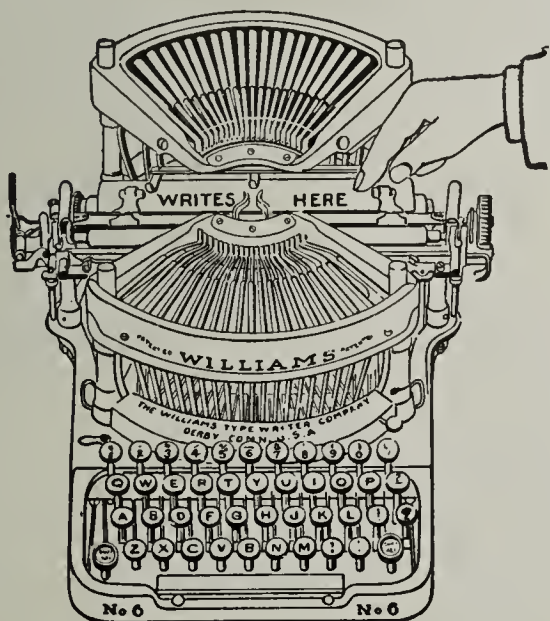
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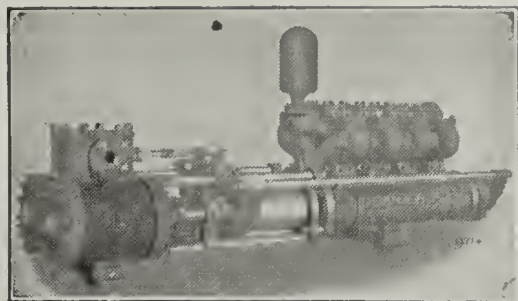
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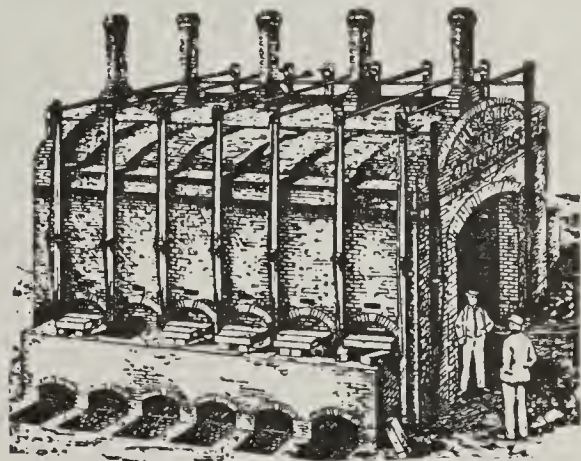
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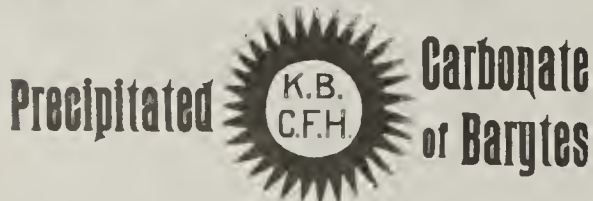
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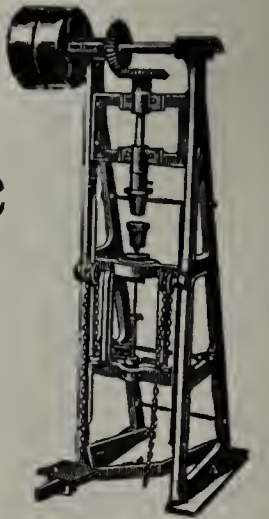
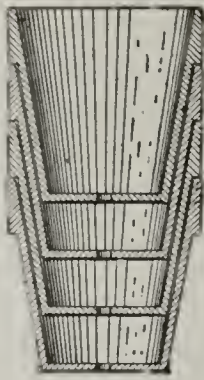
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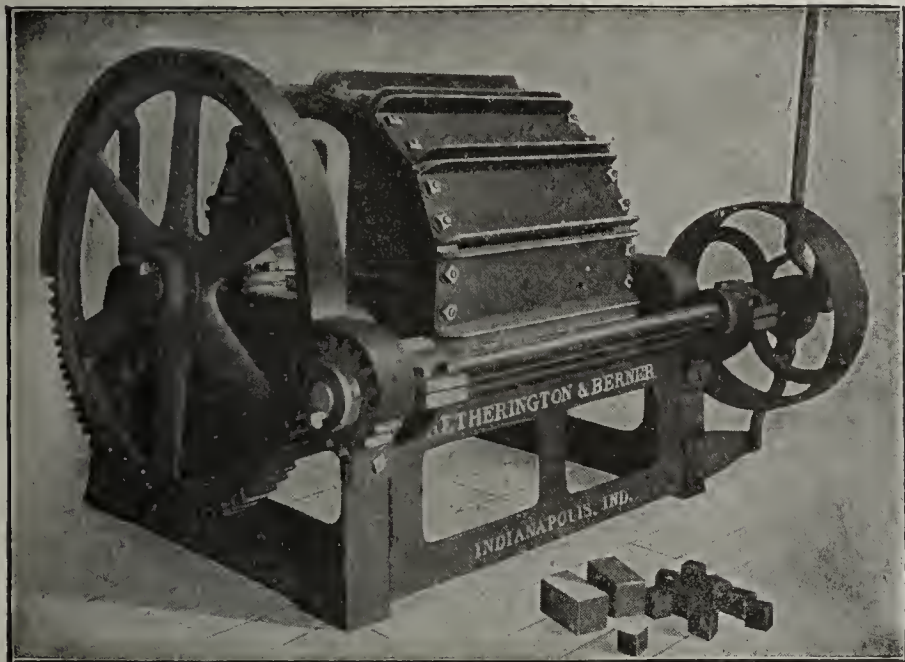
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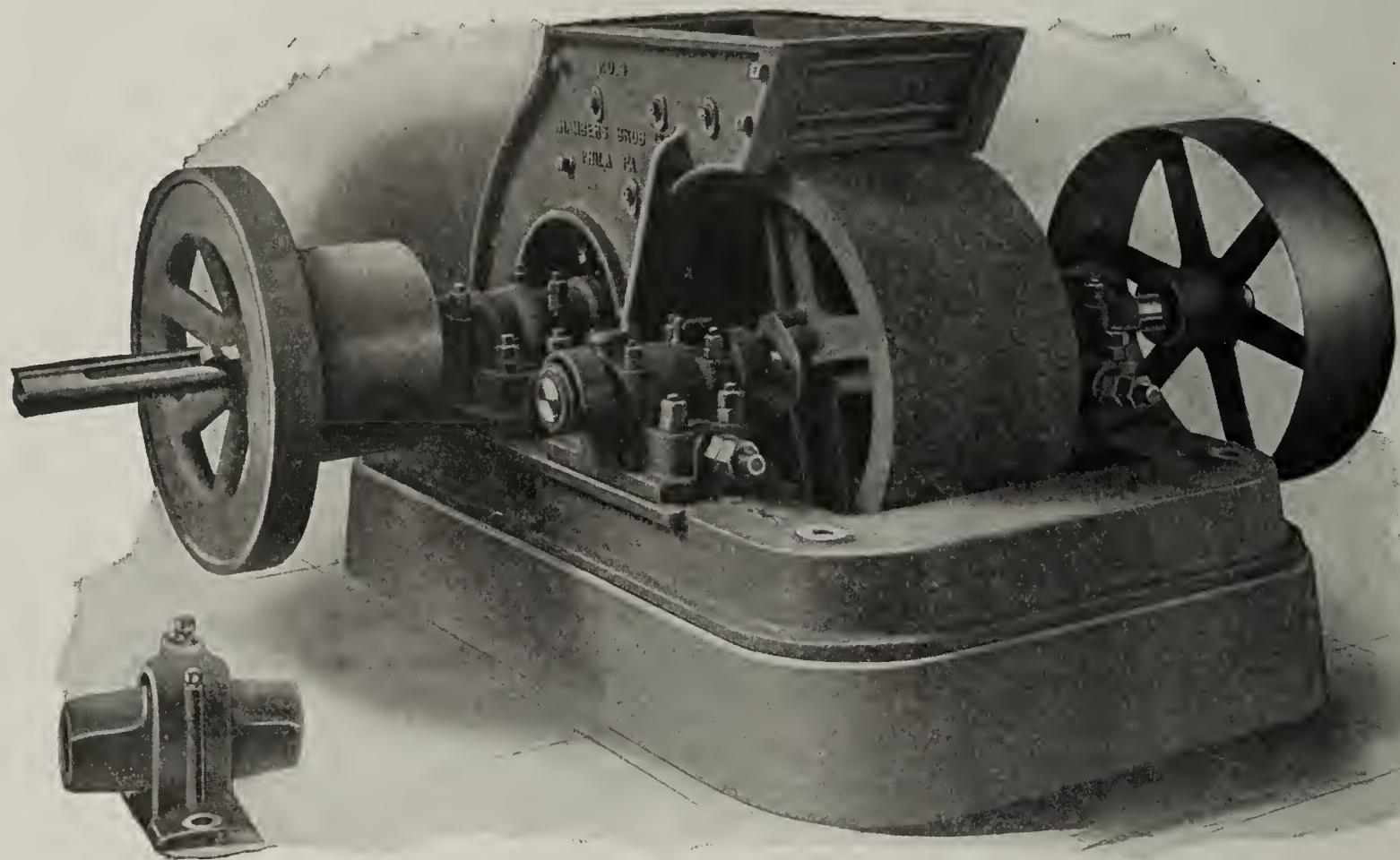
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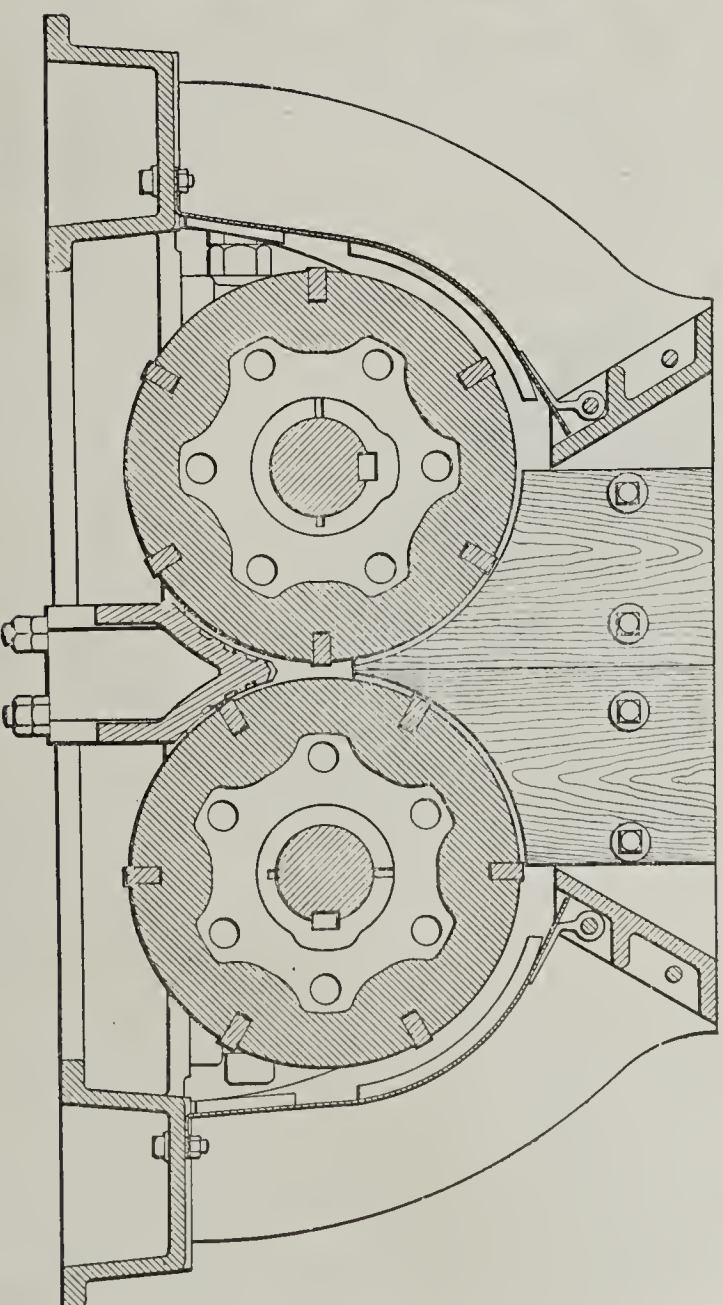
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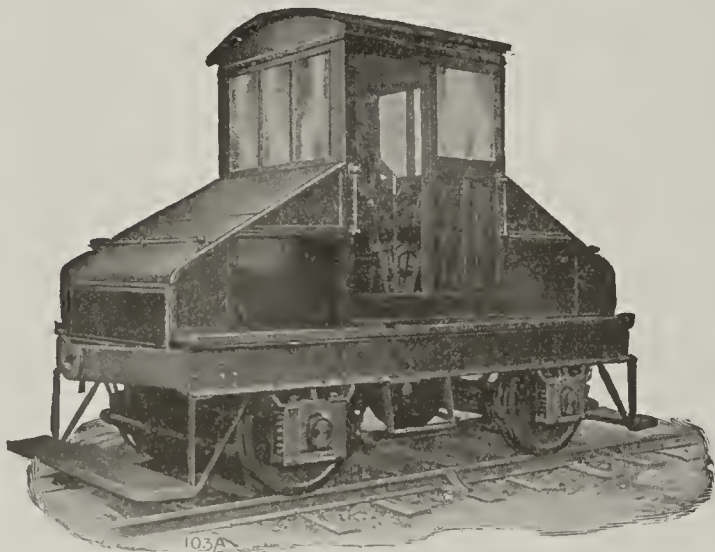
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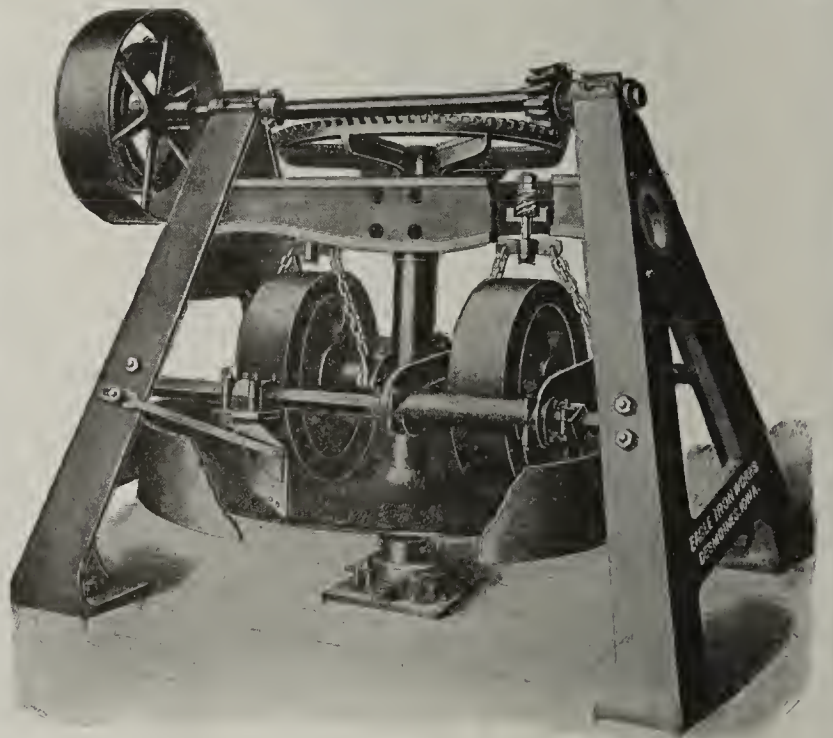
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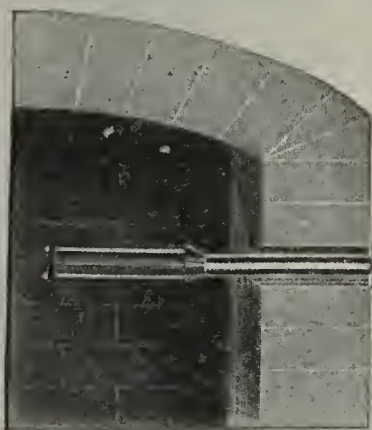
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◻ The illustration is that of a Morehead Return Steam Trap and Boiler Feed Installation at the plant of Sankey Bros. Manufacturers of Brick, Pittsburgh, Pa.

CLAY HAULAGE

Reduce cost of transportation
by using a

DAVENPORT INDUSTRIAL LOCOMOTIVE



Built for the Chicago Retort & Fire Brick Co.

Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways

Write us for particulars.

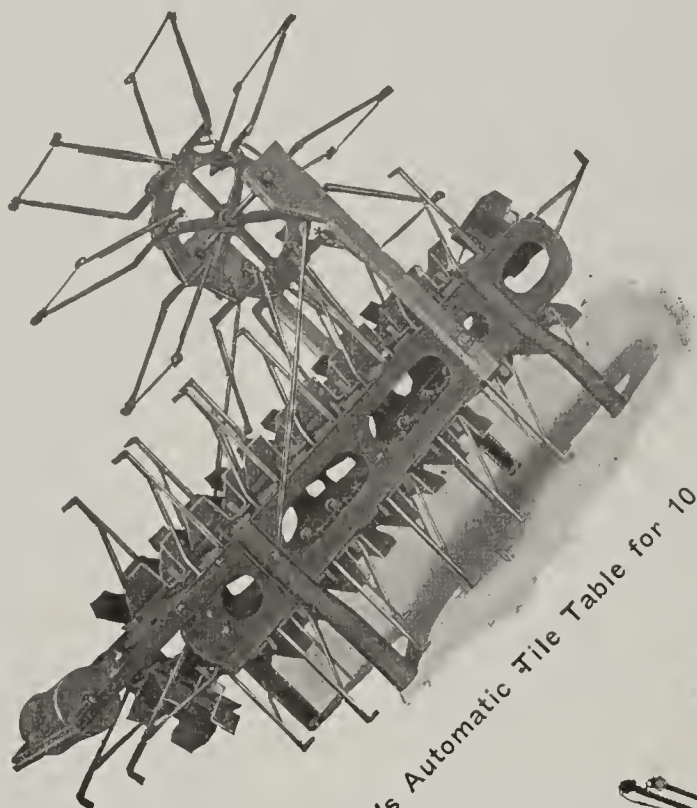
Davenport Locomotive Works,
Davenport, Iowa.

BRANCH OFFICES

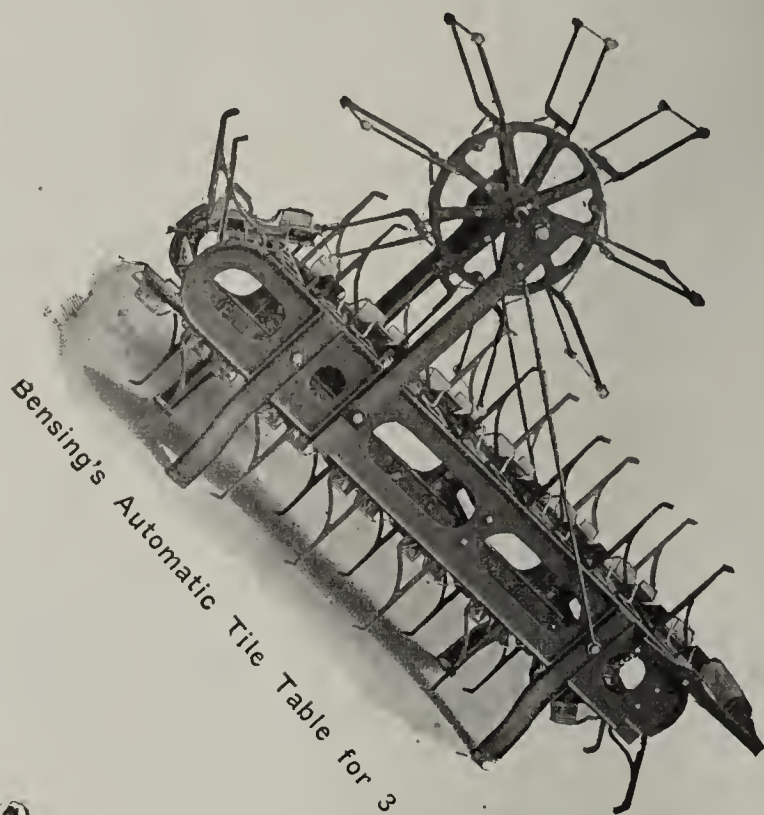
Chicago, 12 & 14 So. Canal St.

Minneapolis, 107 Third Ave. No.
Seattle, 1215 First Ave. So.

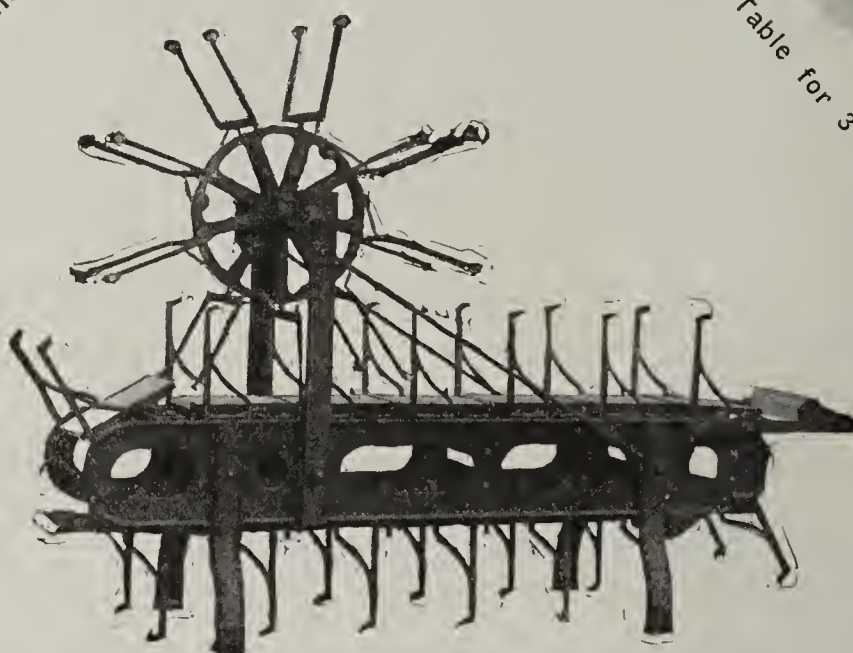
F. H. Hopkins & Co., Montreal, Que., Canadian Representative.



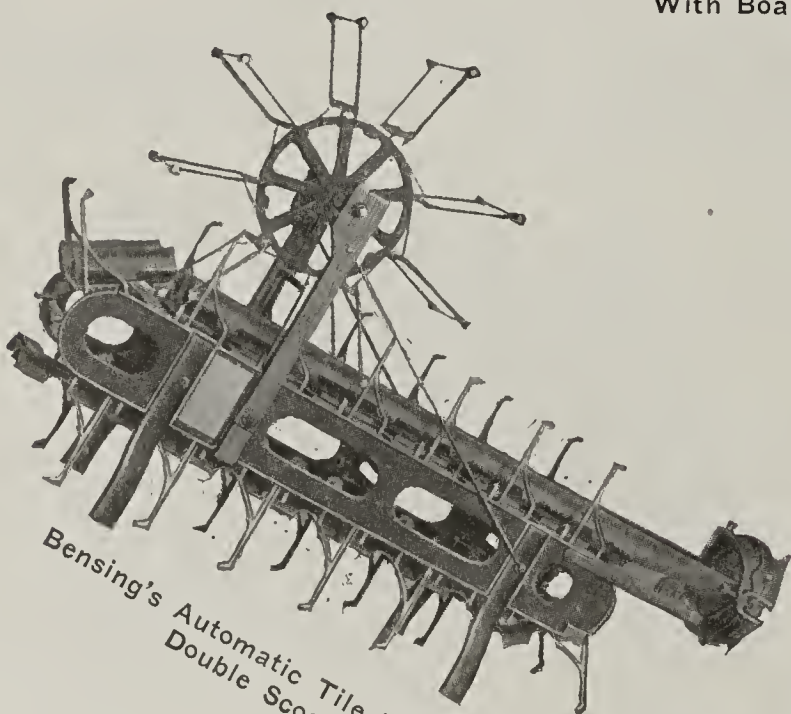
Bensing's Automatic Tile Table for 10 and 12-Inch.



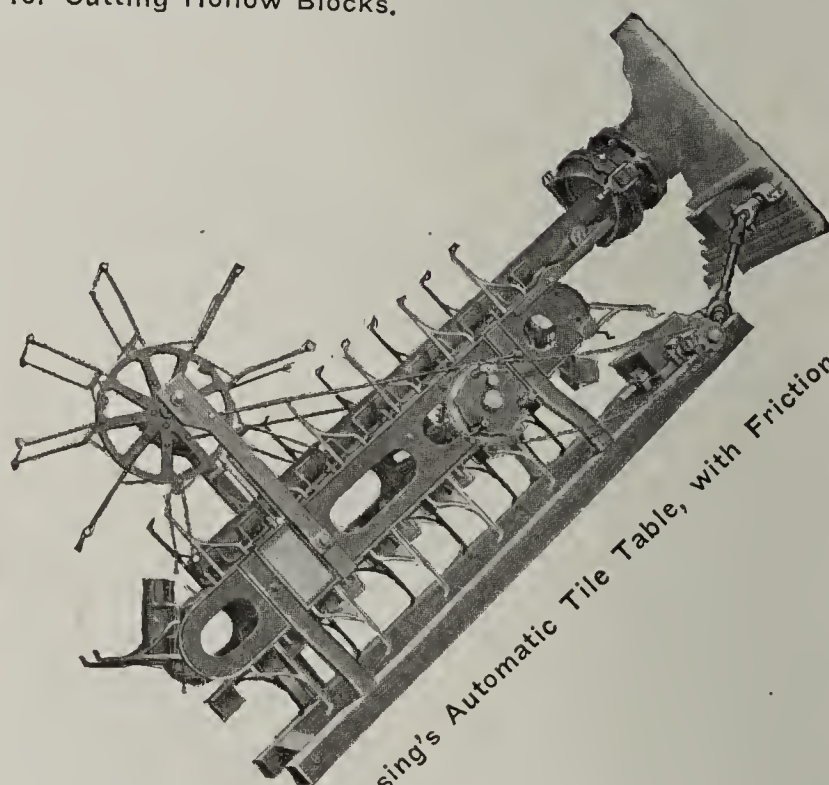
Bensing's Automatic Tile Table for 3 to 8-Inch.



Bensing's Automatic Tile Table,
With Boards for Cutting Hollow Blocks.



Bensing's Automatic Tile Table, with
Double Scoops.



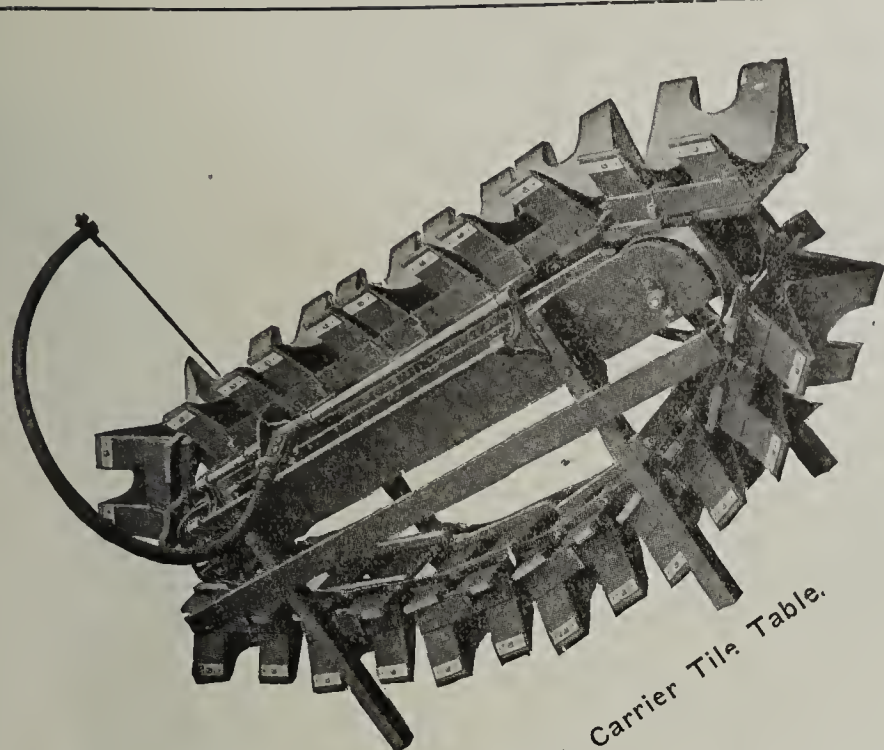
Bensing's Automatic Tile Table, with Friction Drive.

The J. D. FATE CO., Plymouth, Richland Co., Ohio

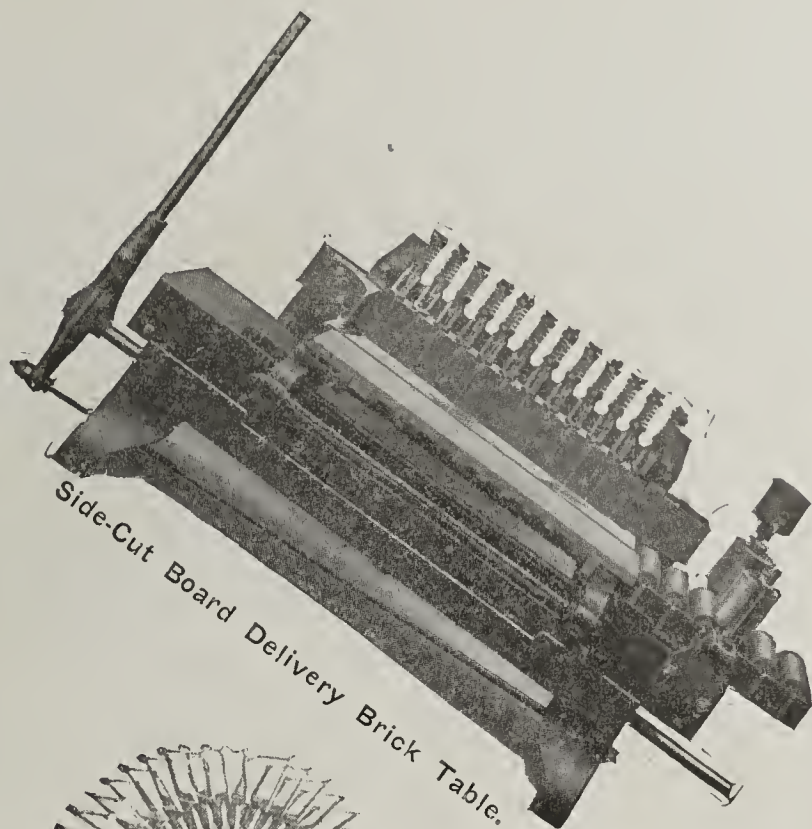
New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

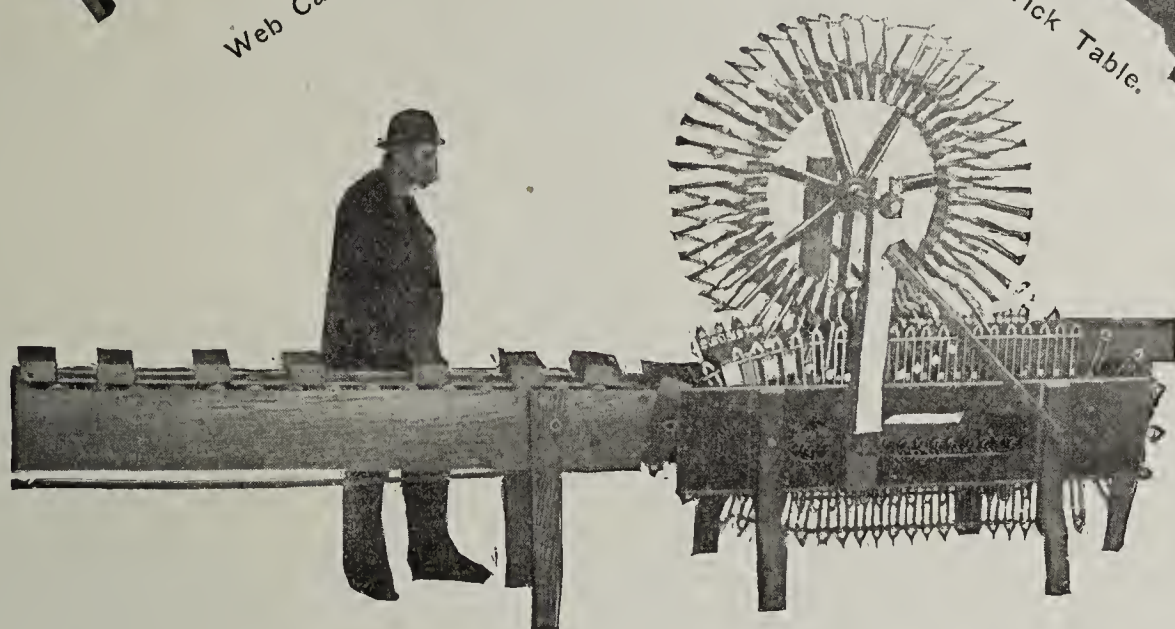
Mention THE CLAY-WORKER.



Web Carrier Tile Table.



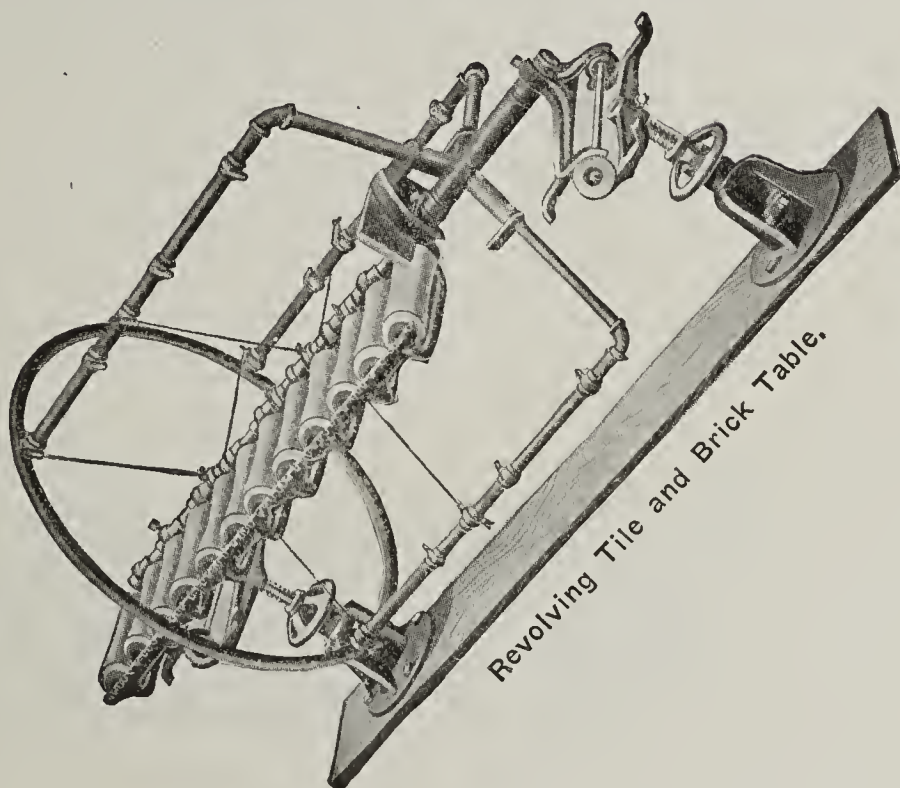
Side-Cut Board Delivery Brick Table.



Mr. Jacob Bensing and His First Automatic Side-Cut Brick Table.



Bensing Automatic Roofing Tile Table, with Friction Drive.

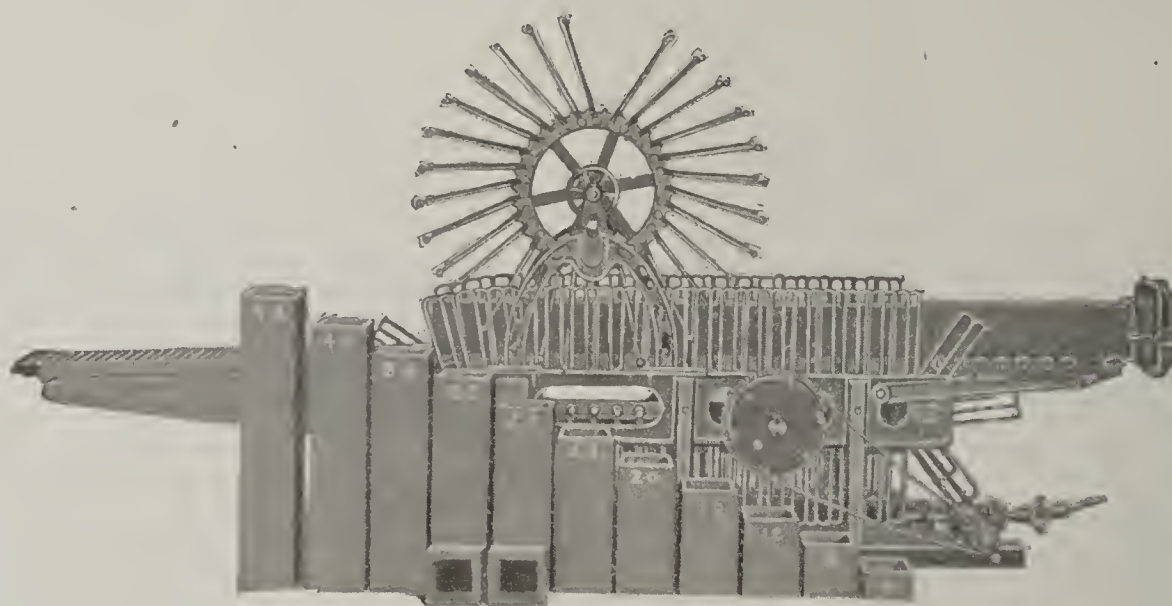


Revolving Tile and Brick Table.

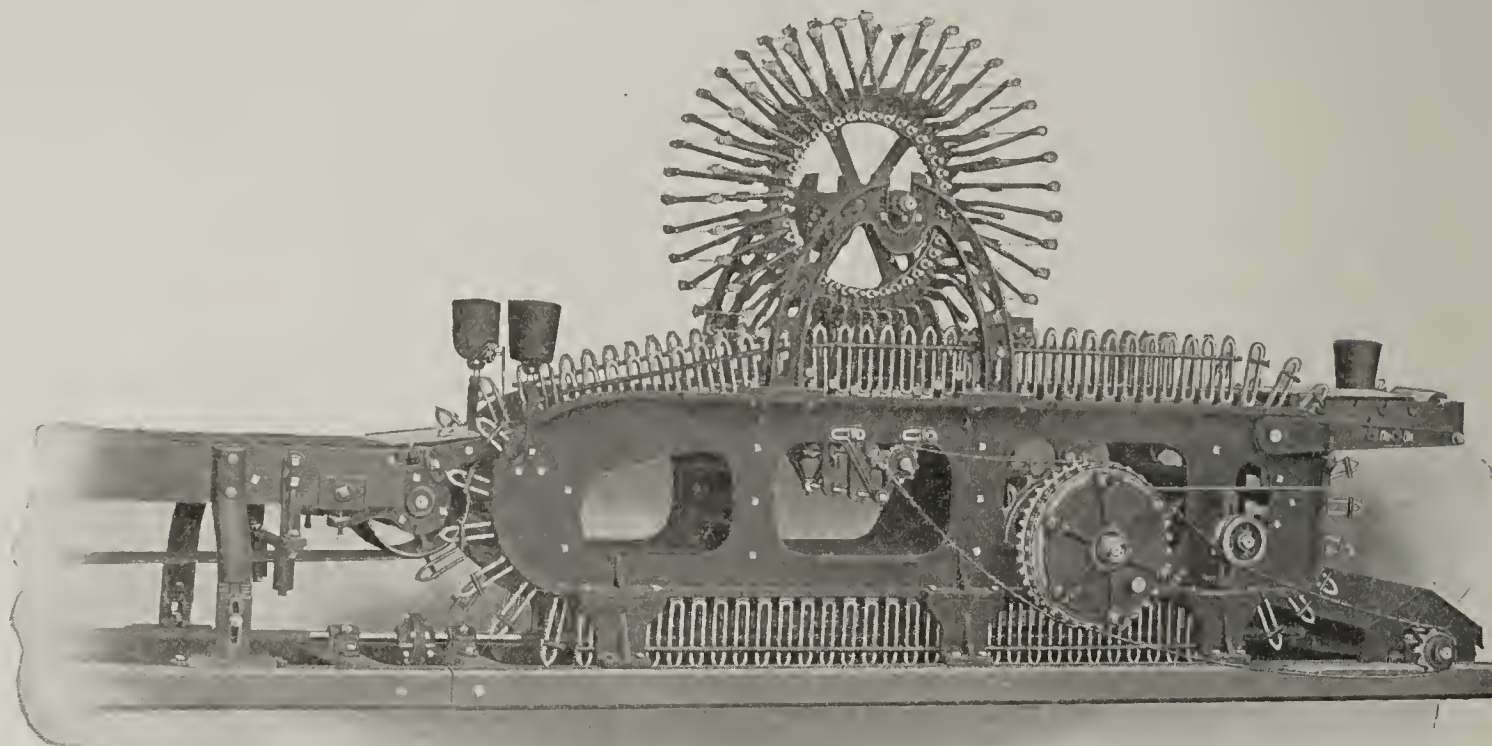
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.
THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

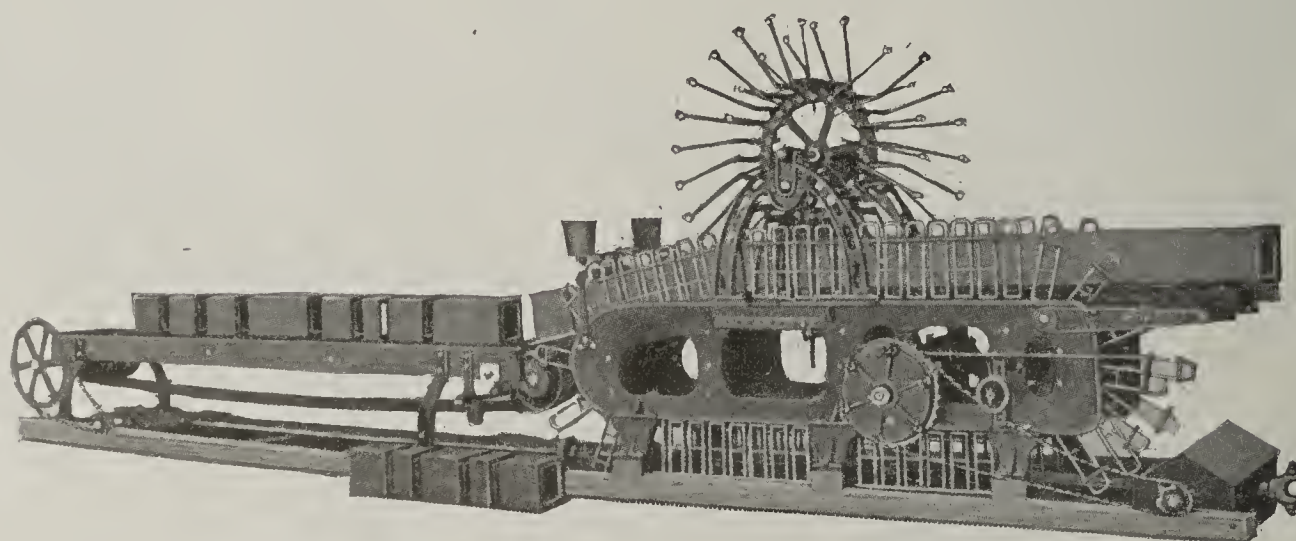
Mention THE CLAY-WORKER.



Bensing's Automatic Side-Cut Brick Table for Hollow Blocks.



Bensing's Automatic Side-Cut Brick Table.

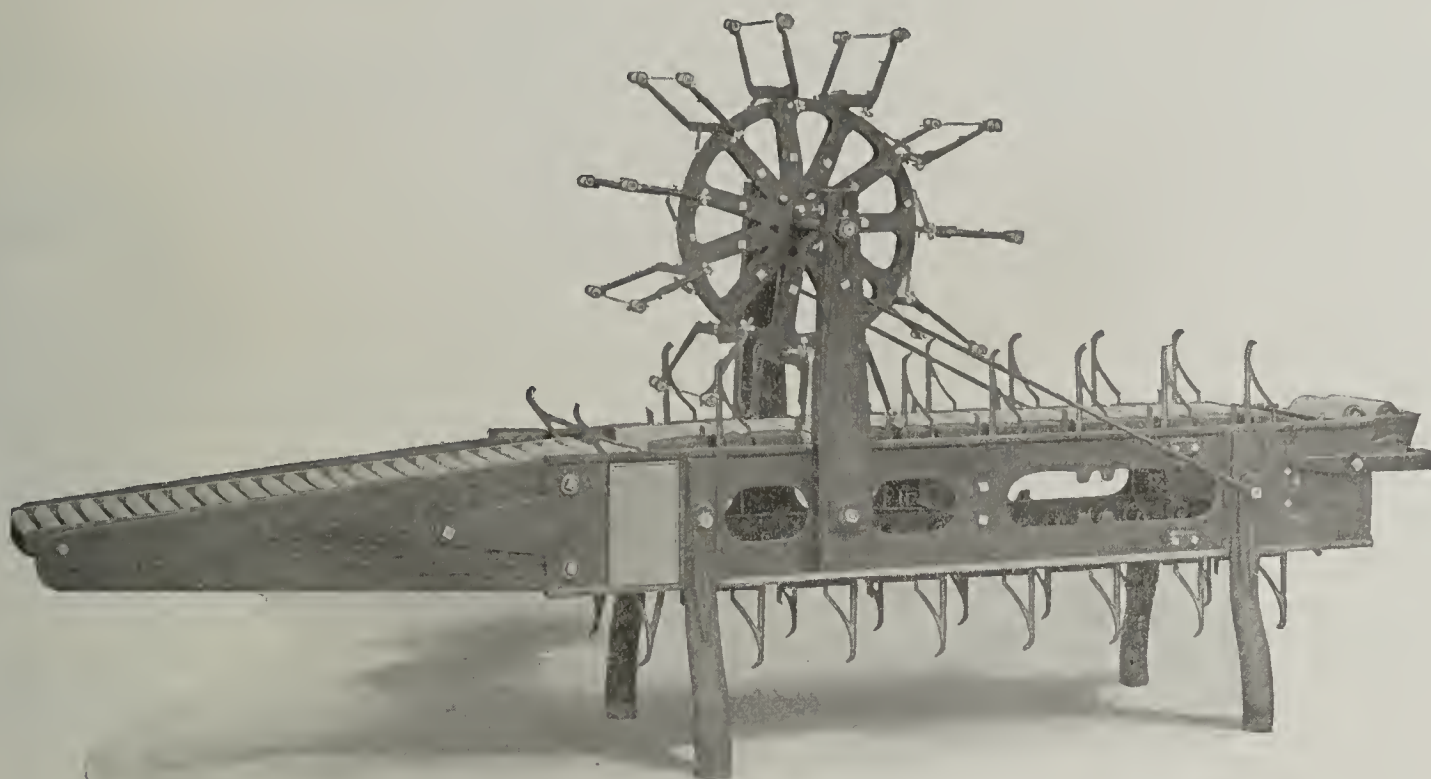


Bensing's Automatic Side-Cut Brick Table for Face Blocks.

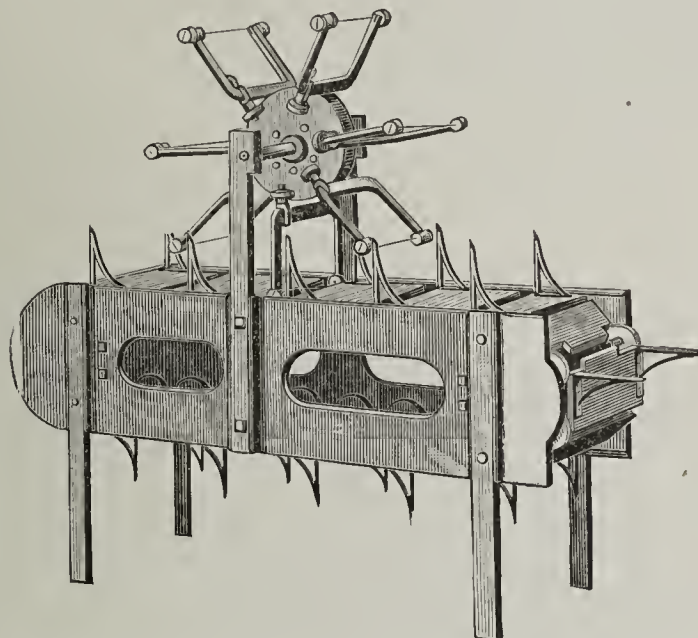
The J. D. Fate Co., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.
THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

Mention THE CLAY-WORKER.



Bensing's Automatic End-Cut Brick Table with Roller Delivery.



Bensing's First Automatic End-Cut Brick Table.



Bensing's Automatic End-Cut Brick Table, with Belt Delivery.

The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.
THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

The C.-W. Vest Pocket Kit

The
Handiest
Combination
Ever
Invented

18 TOOLS IN ONE.



AN ARTICLE OF REAL MERIT.
CAN BE USED IN A THOUSAND WAYS
AROUND THE HOME AND OFFICE.

This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

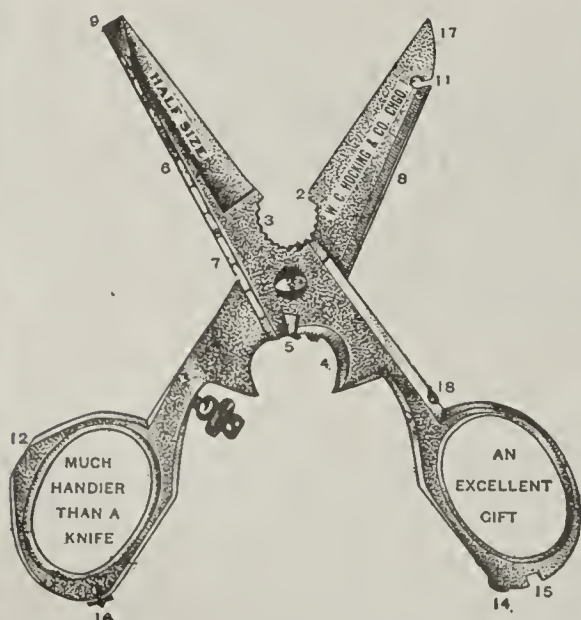
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every **new subscription** to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE C.-W. VEST POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued.

beginning with the.....issue. Enclosed find \$

Name

Postoffice

Street and Number

County.....State.....



The Columbus Feeder.

Three Sizes. Any Capacity.

AUTOMATIC FEEDING

of Pulverizers

means increased capacity,
less strain upon machinery
and less labor.

of Pug Mills

increased capacity and better product,
with less skill and attention.

Send for Catalog.

PATENTS { May 9, 1907
Nov. 15, 1910

THE ONLY PIANO WIRE SCREEN

The wires of which
are prevented from
spreading apart.

Also Other Superior
Patented Features.

Any Capacity
Sent on Trial.

Ask for Catalog.

OTHER SPECIALTIES



Draft Gages,
Thermometers,
Pyrometers—
Recording or indicating.

Elevators,
Conveyors,
Pulleys,
Belting,

Wire—
For all purposes.
Furnace Doors,
Kiln Bands & Castings,
Repairs.

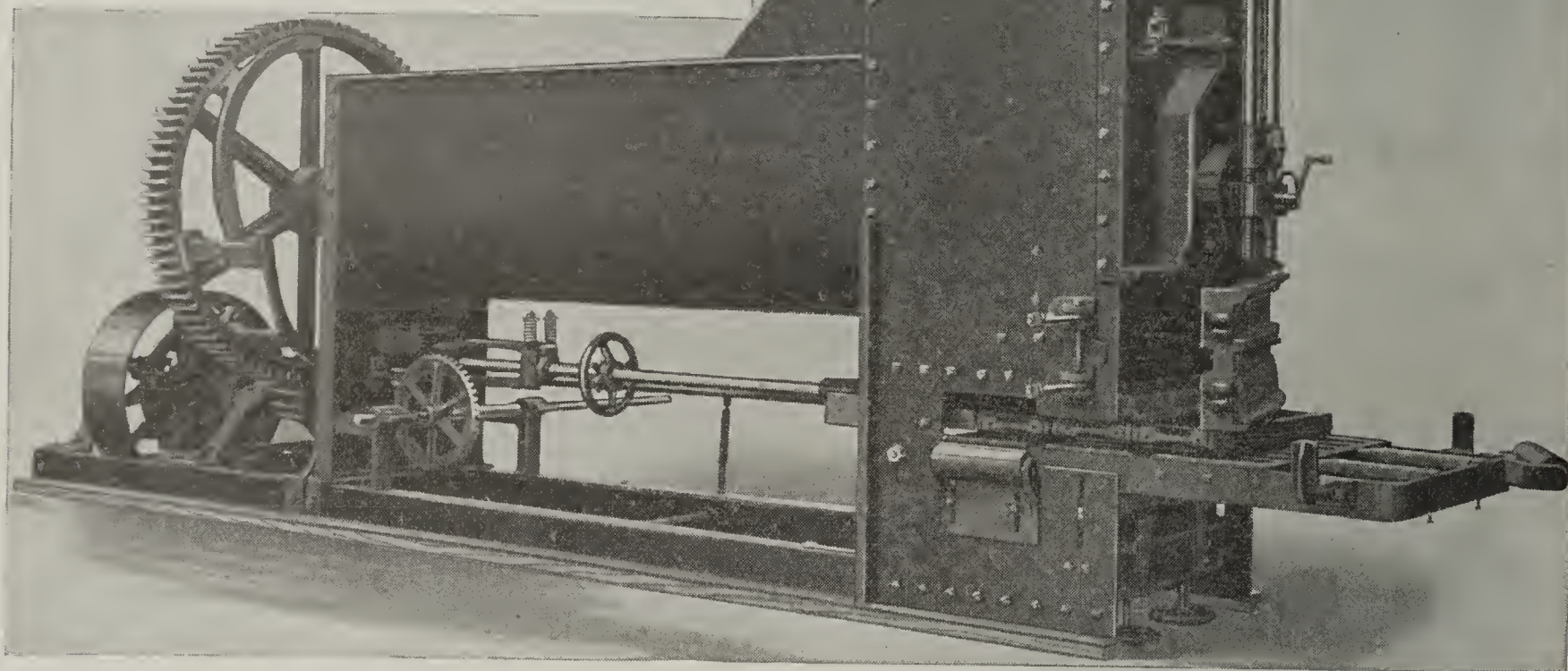
Write for Prices.

The Ceramic Supply and Construction Co.
Contracting Engineers and Machinists. COLUMBUS, OHIO

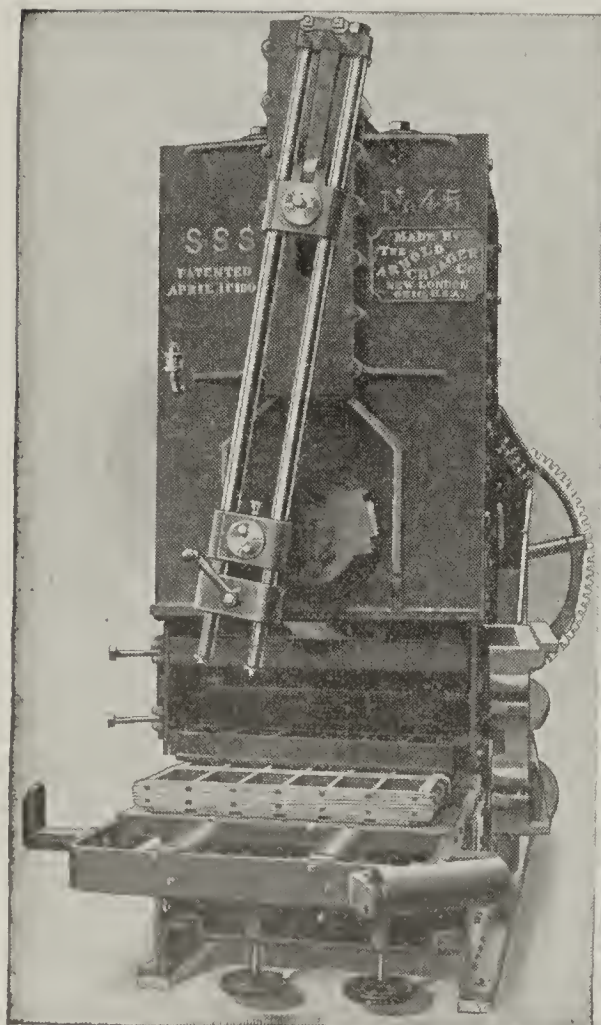
The Simplest, Fastest and Most Reliable Soft Mud Machine

on the Market to-day—Price \$1000.00

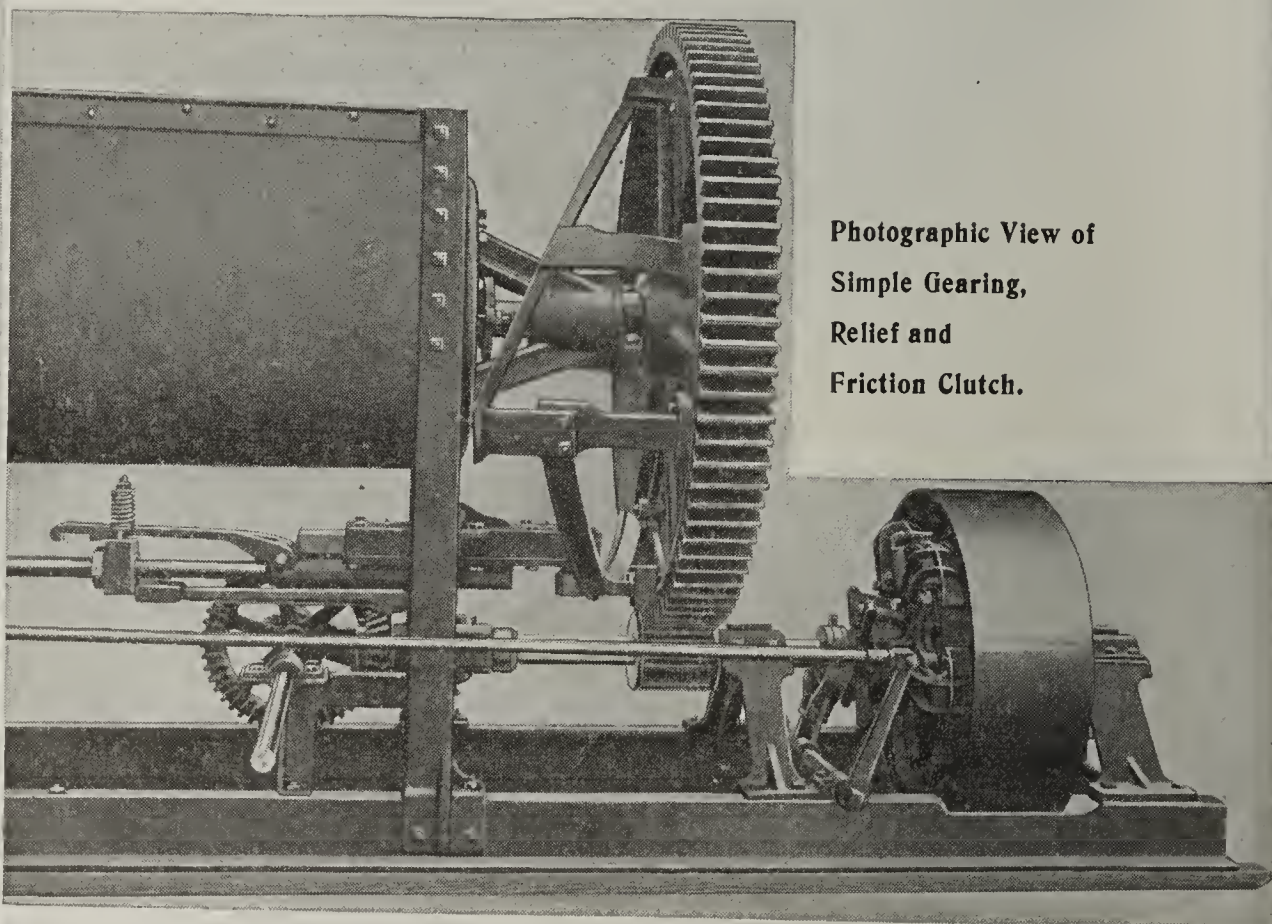
IMPORTANT NOTE:—Seven Perfect Brick,
4¼ in. wide, can be made on this wonderful
Machine at one time.



Side View of Most Positive and "Fool-Proof" Machine Ever Made.



Front View.



Photographic View of
Simple Gearing,
Relief and
Friction Clutch.

Write for Detailed Information and Names of Parties Using Them.

THE ARNOLD-GREAGER CO.

NEW LONDON—OHIO—CINCINNATI

Mention THE CLAY-WORKER.

Our CUTTING TABLES are RIGHT

Hundreds of Successful Clayworkers are Using Them

HERE ARE A FEW FACTS WORTH
THINKING OVER

No. 35 MARION AUTOMATIC TILE CUTTER

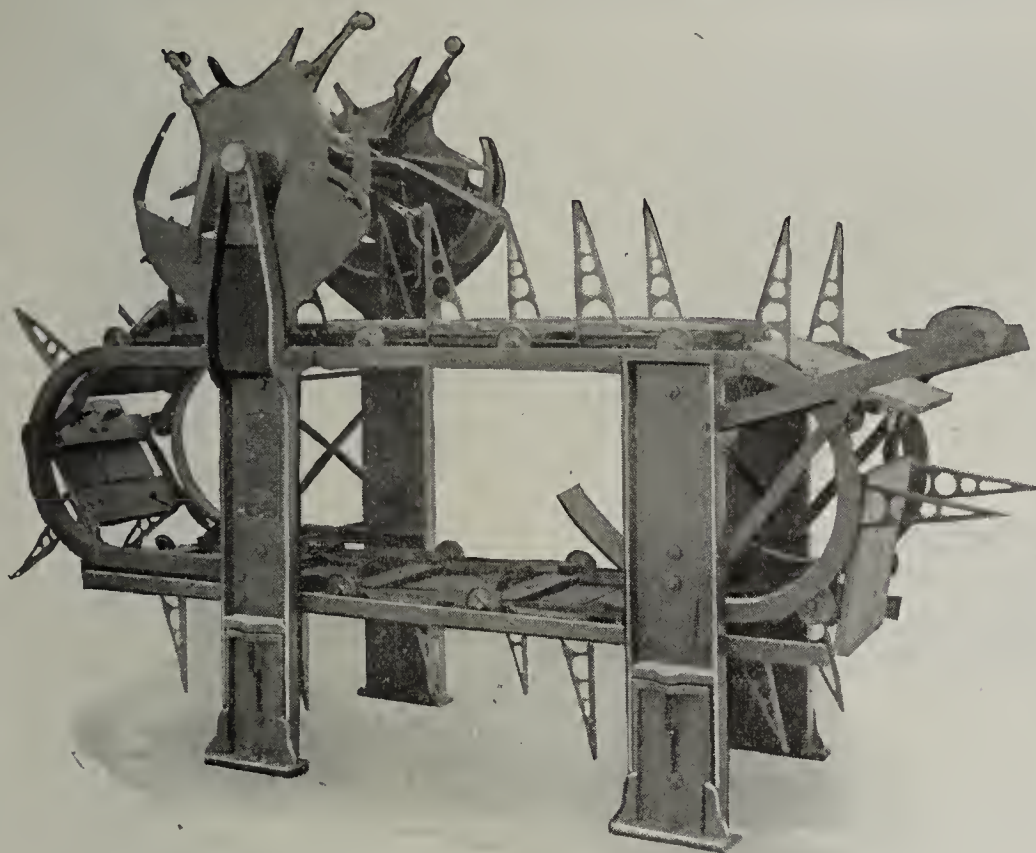
This machine is a triumph in the art of tile cutting. A great deal of clay and power has been wasted in the past on account of the necessity of cutting off stub ends if a good article was desired. This machine cuts off no stub, the whole bar being continuously cut into the desired lengths. It also makes it possible to get the complete capacity of your tile machine when making small tile. The machine cuts blocks as well as tile, and cuts them absolutely square. Its range in tile is from 2½ inches to 7 inches (inclusive) in diameter.

Capacity, 2,000 3-in. tile per hour.

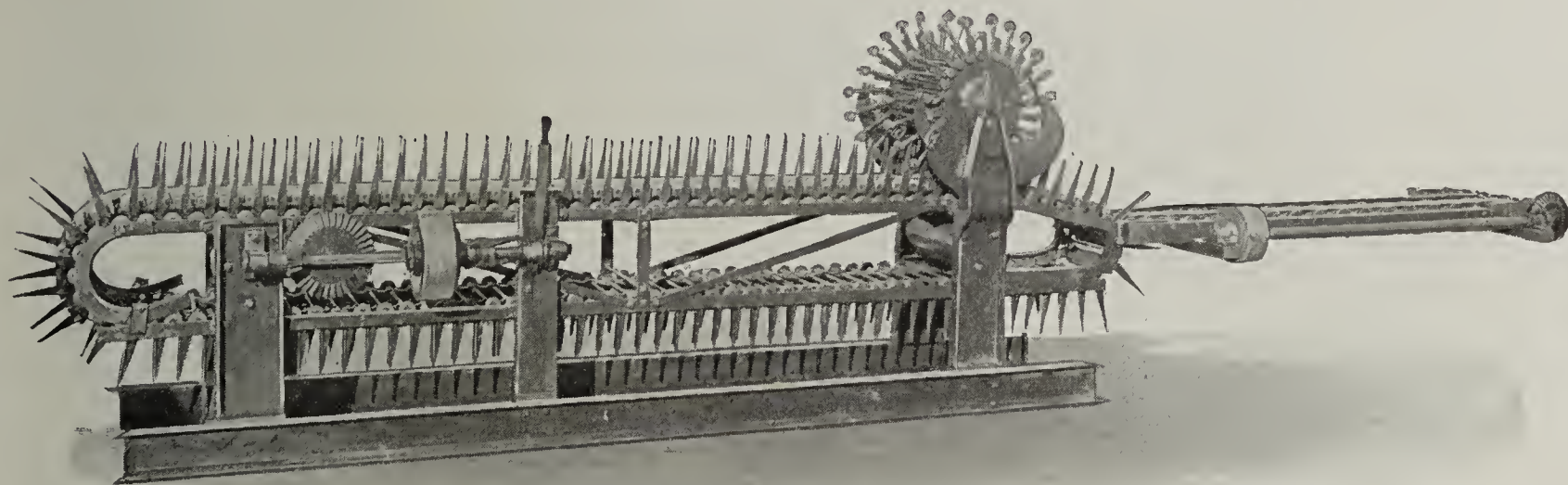
Weight, 900 lbs.

Wire carrying frames are adjustable, and the broken wires can be easily replaced while machine is in operation.

Working parts of machine work on roller bearings.



No. 35 Marion Automatic Tile Cutter



Above is a cut of our NO. 25 MARION AUTOMATIC SIDE CUTTER, which is, without doubt, the simplest automatic side brick cutter on the market. Note the **simple** friction device, any degree of friction can be had by simply moving the lever back and forth. Note the strong angle steel frame, which keeps the weight of the machine down so that it can be easily handled. Note the wire holding the device, which is built on the piano principle, allowing the wire to be stretched to high tension without danger of breaking.

The machine can be directly connected, or can be fitted as per cut to run from a pulley. Capacity can be adjusted to conform to the output of your brick machine.

Note that the wire carrying frames being adjustable, the broken wires can be replaced without stopping the machine. This is a very important feature, and the feature alone places this cutter far in the lead.

Another important feature is that the length of cut on this machine can be changed to suit requirements.

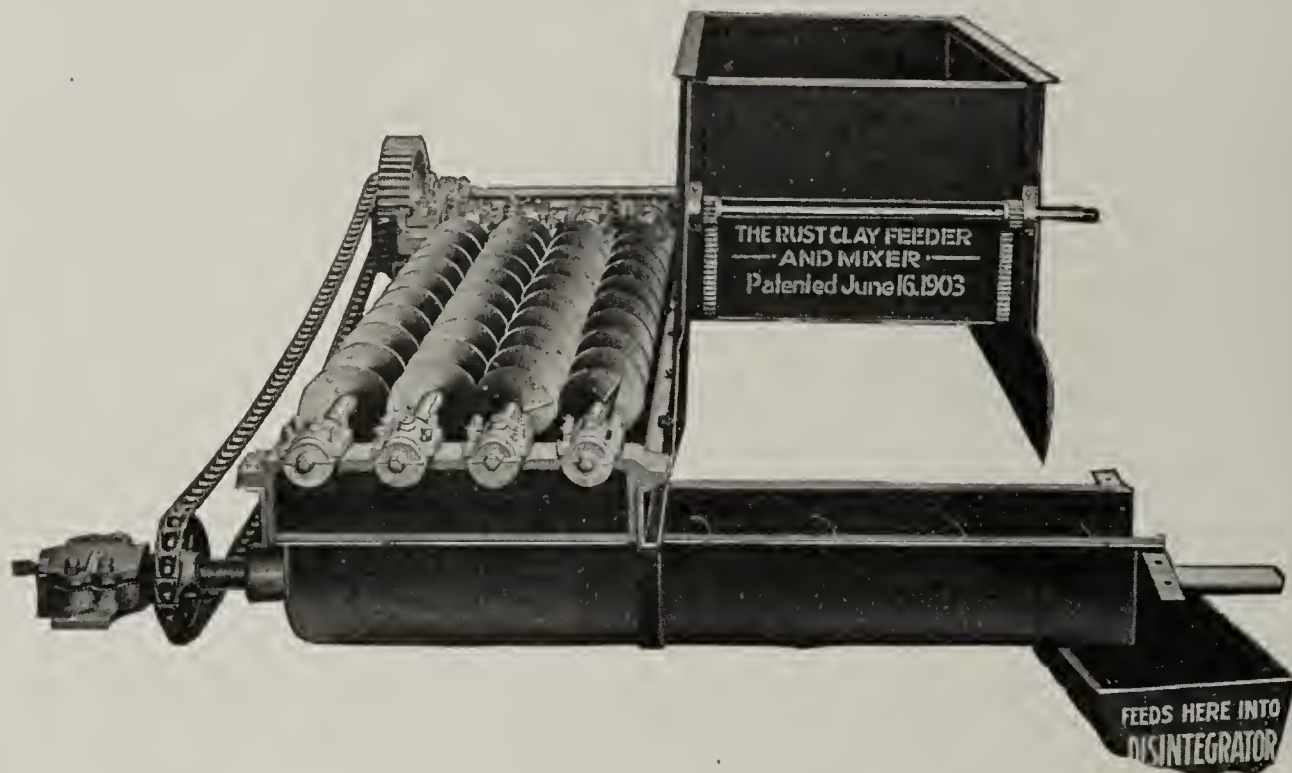
Marion Machine, Foundry and Supply Co.

All Canadian orders will be shipped
from our Canadian Branch

P. O. Box 156, Marion, Indiana

Why Do Hundreds of Clayworkers Use The Rust Clay Feeder and Mixers?

There Are Many, Many Reasons. Here Are Some of Them



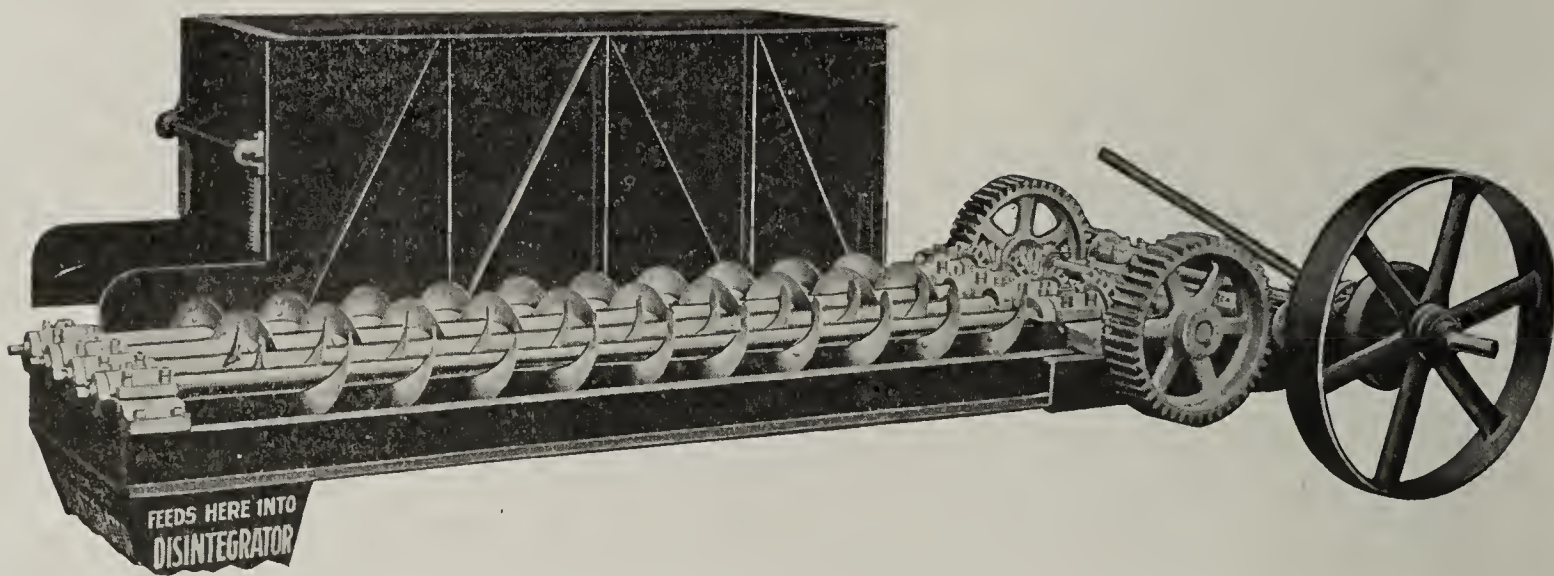
Type A, Extra Heavy Right and Left Side Delivery Rust Clay Feeder, Box Removed

The principal reason is because it will save them the labor of one to two men, and paid for itself the first year from the wages thus earned.

That is enough reason. But there are others.

The quality of the work is another reason. It mixes the clay perfectly and tempers it for further use to which it is put.

The feed is so regular that it does not vary ten bricks per hour, and the machine has a capacity of from 10,000 to 100,000 bricks per day, the quantity being regulated at will by raising or lowering the end feed gate, or by increasing or lessening the speed of the pulley. It requires only 2 H.P. to operate a full load, and this power is more than saved because of the steady and even feed.



Extra Heavy Right and Left Type A, Rust Clay Feeder and Mixer, Box Removed

The Rust Clay Feeder has been brought out in response to the demand for a better method of mixing and feeding clay in brick and tile factories and all clayworking plants. It has been in successful operation for seven years. The saving in labor, increase of production and improvement in product which it effects, makes it a necessity to the up-to-date clayworker.

WRITE FOR OUR LATEST CATALOGUE

Marion Machine, Foundry and Supply Co.

P. O. Box 156, MARION, INDIANA

All Canadian Orders will be shipped from our Canadian Branch

Mention the fact that you saw this advertisement in THE CLAY-WORKER.

Don't Blame the Coal-Man

THE OLD WAY



THE MARION WAY



The Coal-man is responsible only for price and quality of the coal you buy. In order to deliver every ounce of heat energy to the boiler, you must *clean the flues*. And cleaning flues does not mean in the old way, the ineffective, dirty way, at the expense of temper, time and labor. It means the right way, the simple, safe and economical way, which is THE MARION WAY.

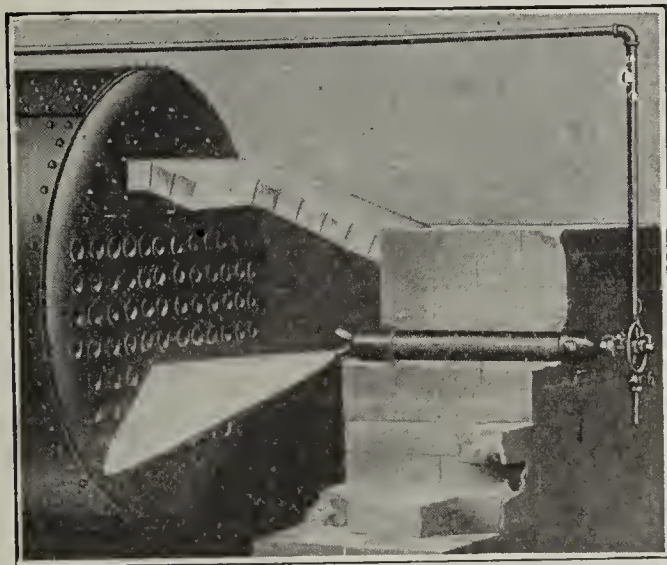
WHAT WE SAY

The Marion Flue Blower will remove every particle of soot from your boiler tubes without fuss or labor, and do it at a guaranteed saving of 10 per cent.

You do not have to take anyone's word but your own, because we agree to send it to you on

30 Days' Free Trial

and if it fails to make good, simply send it back and we pay freight charges both ways.



WE HAVE LETTERS OF THIS KIND
BY THE HUNDREDS, AND YOU MAY INVESTIGATE
ANY THAT YOU CARE TO

WHAT USERS SAY

Enclosed find check for blower, and must say that it is giving us every satisfaction, and quite a saving in fuel. Decatur Packing Co.,
Decatur, Ind.

The Flue Blower I bought of you has given good satisfaction. I think it saves over 10% in fuel.

A. Mericle,
Ft. Jennings, Ohio.

The Marion Flue Blower which we installed is giving very satisfactory results.

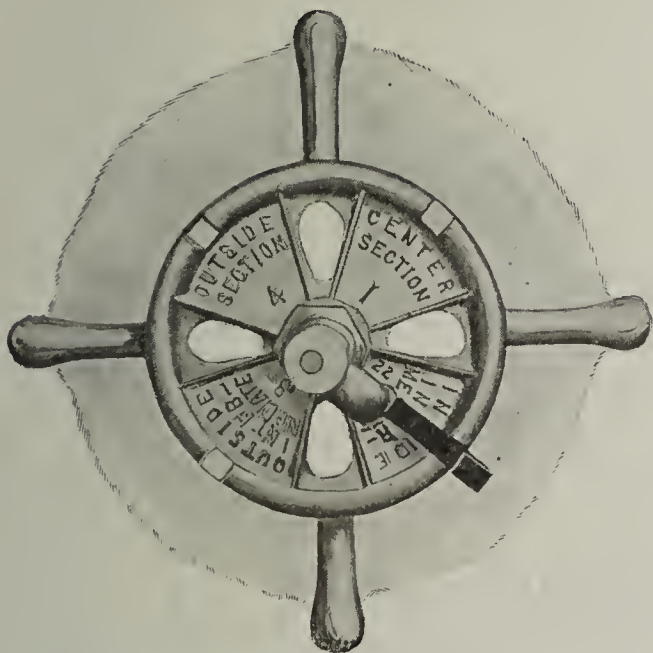
Highland Fire Clay Co.
G. E. Thomas, Supt.
St. Louis, Mo.

We have used two of the Marion Flue Blowers for six months, and find them to be all that is claimed for them, and find them to be a great saver of fuel.

Nord-Buffum Pearl Button Co.,
Louisiana Missouri.

The Flue Blower installed on trial is satisfactory. Please ship us four more.

J. I. Case Plow Works,
W. M. LaVenture,
Mgr. Purchasing and Traffic.



This illustration shows the hand wheel control which automatically indicates the operation of the blower at all times.

Our booklet illustrates and tells all about the MARION FLUE BLOWER. Tells how the Blower is installed and operated, and how and why it does all and more than we claim for it. It also tells in plain language how long we guarantee it to withstand the terrific heat of the combustion chamber without any expense for repairs.

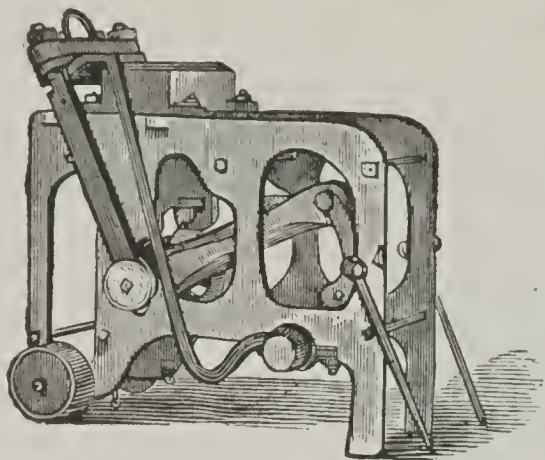
You will find this booklet full of interest. A postal starts it your way, and your way and the only way is the MARION WAY.

All Canadian orders shipped from our Canadian factory

Marion Machine, Foundry and Supply Company

P. O. Box 156

MARION, INDIANA

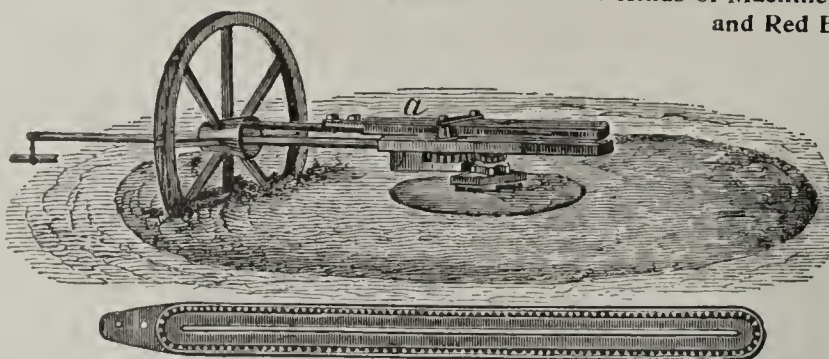


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



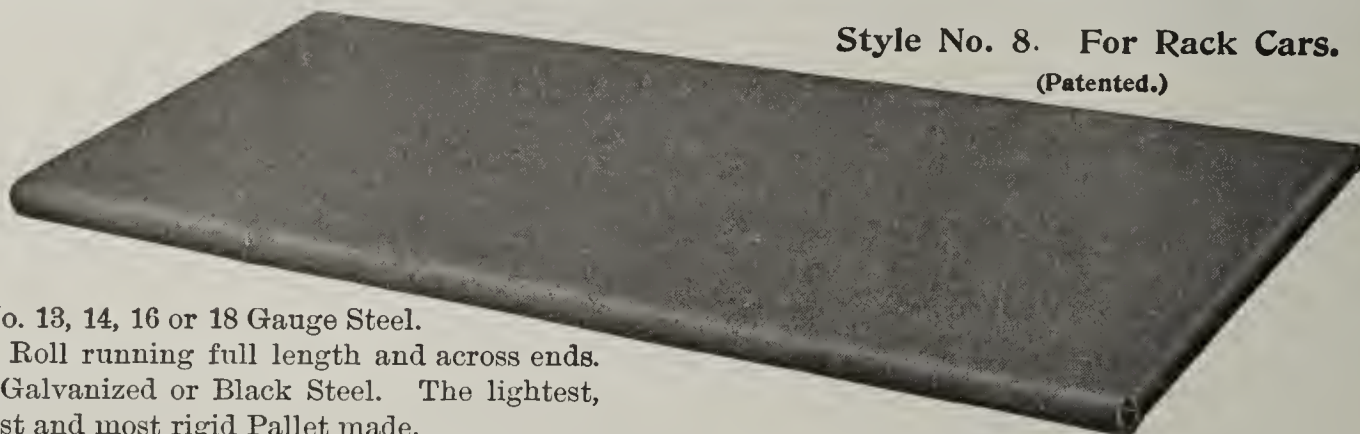
These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

Did you meet us at Louisville
Convention and get the

Facts and Figures

on the

FRINK METHOD OF BURNING
CLAY MATERIALS?

If not, get them now by writing

The Frink Pyrometer Co.

LANCASTER, OHIO

DO YOU know how much more it costs you in the end to use cheap and inferior brick in your kiln construction and repairs? Why not use the best and cut down expenses? We can furnish what you want and save you money. We are

Pioneers in Refractory Materials.

We make High Grade Fire Brick and Silica Brick from the best ganister and flint clays in Pennsylvania; Fire Brick for Kilns, Coke Ovens and Boiler work an important part of our business.

Locomotive Tile and Shapes for all purposes a specialty.

Phenix Fire Brick Company
Bolivar, Pa.

THE FIRE CLAYS of Carter and Rowan Counties, Kentucky, are not surpassed in quality by the fire clays of any other district on the continent.

We recently secured from the largest consumer in the world the largest contract ever booked by a Kentucky manufacturer. Why? Because the trade acknowledges the superior quality of our material, the high standard of our workmanship and our capacity is equal to any demand.

Let us supply the Fire Brick for your Kiln Construction and Repairs and save you money.

The Kentucky Fire Brick Company
Portsmouth, Ohio

Bolivar Face Brick Co.
BOLIVAR, PA.

Makes Six Lines of Brick that Are Winners.

1. Matt Glaze, Impervious White, Blue Grey, French Grey.
2. "Velour Line" in rough effects, including White, Grey, Buff, Golden, Brown, Red and Gun Metal.
3. Terra Cotta finish in Spotted Creams, Grey, Buff and White.
4. Smooth or plain Buffs, Greys and Iron Spots.
5. Vitrified Paving Brick and Blocks in Fire Clay and Shale.
6. Fire Brick and Fire Clay for Kilns, Coke Ovens and Boiler Settings.

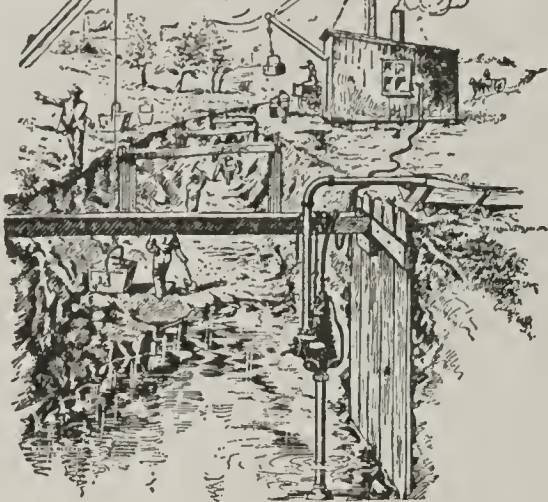
**LARGEST LINE OF IMPERVIOUS FACE BRICK
OF ANY MANUFACTURER IN AMERICA.**

Agencies Desired.

Correspondence Solicited.

Bolivar Face Brick Co.
BOLIVAR, PA.

PULSOMETER STEAM PUMP



ALWAYS READY

A pump that has no easily deranged inside or outside mechanism, no rods to score, no projecting or breakable parts to be injured by rough-usage;—one that is not likely to become choked or clogged by the mud, grit and sediment encountered in

DRAINING CLAY PITS

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Operates as well suspended as stationary, and may be raised and lowered as occasion demands without interrupting its work.

Often Imitated. Never Equaled.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.
Chicago Office, 223-231 No. Jefferson St.

JUST THINK!

A continuous kiln that will save one-half your fuel and cheaper in construction than round or rectangular down draft kilns. Can be handled to produce the same results as round down draft kilns and use coal, wood, gas or oil for fuel. This kiln is in compartments, and the chambers can be made to hold from Fifteen to Fifty Thousand each of common brick. Is especially suited for burning paving brick and can be built any capacity, to suit any location. Say a plant that wants to make Fifty Thousand brick per day, the kiln will cost Eleven to Thirteen Thousand Dollars. Let me figure on your work.

GEORGE W. OGAN,

108 Logan Ave., DANVILLE, ILL.

ORIGINAL Boss SYSTEM	DRYING	ORIGINAL Boss SYSTEM	BURNING	ORIGINAL Boss SYSTEM
DRYING AND BURNING	THE BOSS SYSTEM OF BURNING BRICK Originators of the idea of applying air under pressure to brick kilns. Brick kilns equipped with the Boss System are not subject to the whims of the elements—the heat wave cannot be interrupted, disturbed or destroyed. Don't burn brick with all coal force, but use the original BOSS SYSTEM of burning, which will enable you to make use of the natural forces and save one-half of your fuel bill. John C. Boss Company Elkhart, Indiana Write for Catalogue MONGER BUILDING Infringers will be prosecuted.			DRYING AND BURNING
	ORIGINAL Boss SYSTEM	DRYING	ORIGINAL Boss SYSTEM	BURNING	ORIGINAL Boss SYSTEM

Mention THE CLAY-WORKER.

NO DRYING SCREENING or "RAINY DAYS"

For the man that owns

A DIESENER.

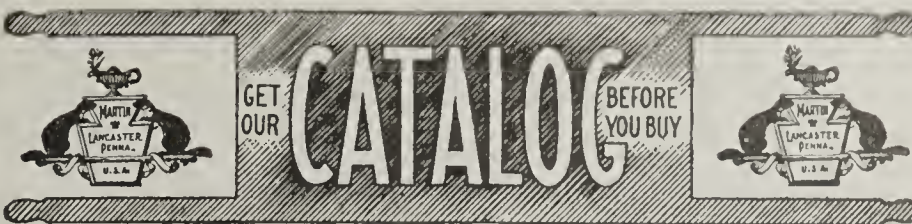
The Diesener Clay Cleanser and Homogenizer is the only machine in existence which removes objectionable matter from clay in its original wet condition through 1-16 in. slot.

**You Have to See It.
It's Too Marvelous to Believe.**

**RICHARD G. HOFFMANN,
La Grange, Ill.**

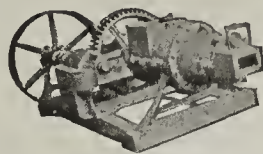
Send samples of clay prepaid to W. A. JONES
FOUNDRY AND MACHINE CO., Chicago, Ill.

"WE FURNISH EVERYTHING THE BRICKMAKER NEEDS"



THE HENRY MARTIN BRICK MACHINE MFG. CO.

**LANCASTER,
PENNA.**



No. 2 Brick Machine



Trucks



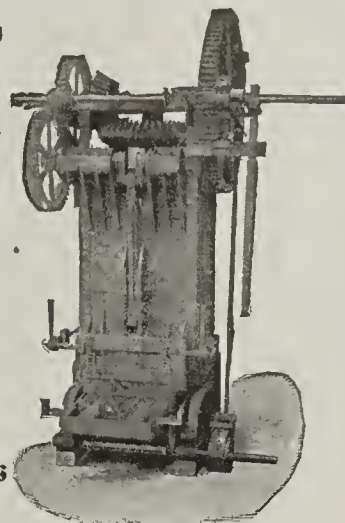
Hoisting Drums,
Rock Crushers,
Elevators and
Dry Pans.



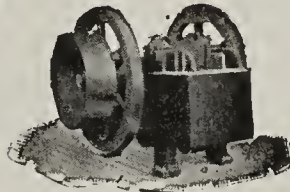
Clay Working
Engineers
and Designers
of Complete
Modern Clay-
Working Outfits and
Crushing Machinery.

Plans and specifications
Gladly Mailed With

Catalog, on
Application



Brick Machines for
Soft Mud Steam Power
30,000 Capacity
Animal Power
20,000
Capacity
Write Us



MARION STEAM SHOVELS ARE IDEAL FOR BRICKYARD REQUIREMENTS



Model 35—C. H. Klein Brick Co., Chaska, Minn.

The material and workmanship entering into the construction of our Excavating Machinery is the best the market affords, therefore it is **EFFICIENT, RELIABLE AND DURABLE.**

We also build

ELEVATOR AND DIPPER DREDGES—DRAG-LINE EXCAVATORS—BALLAST UNLOADERS.

THE MARION STEAM SHOVEL COMPANY, Dept. 3, MARION, OHIO
Chicago: 1442-3 Monadnock Block. New York: 50 Church St. San Francisco: 718 Monadnock Bldg.

OUR REVOLVING SHOVELS

swinging in a complete circle, will dig and deliver your material in any direction.

For moderate outputs, this is the most economical machine, as it can be operated by one man.

OUR STANDARD SHOVELS

are also in great favor—the larger models satisfactorily meeting requirements where a high cut is necessary.

You Can Save Money

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these whether literary or technical, we offer at prices that will net a saving of 25% to 50% on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

The Clay-Worker Clubbing Offers:

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CLAY=WORKER.....\$2.00	
Good Roads..... 1.00	
Review of Reviews.... 3.00	
Value.....\$6.00	
CLAY=WORKER.....\$2.00	
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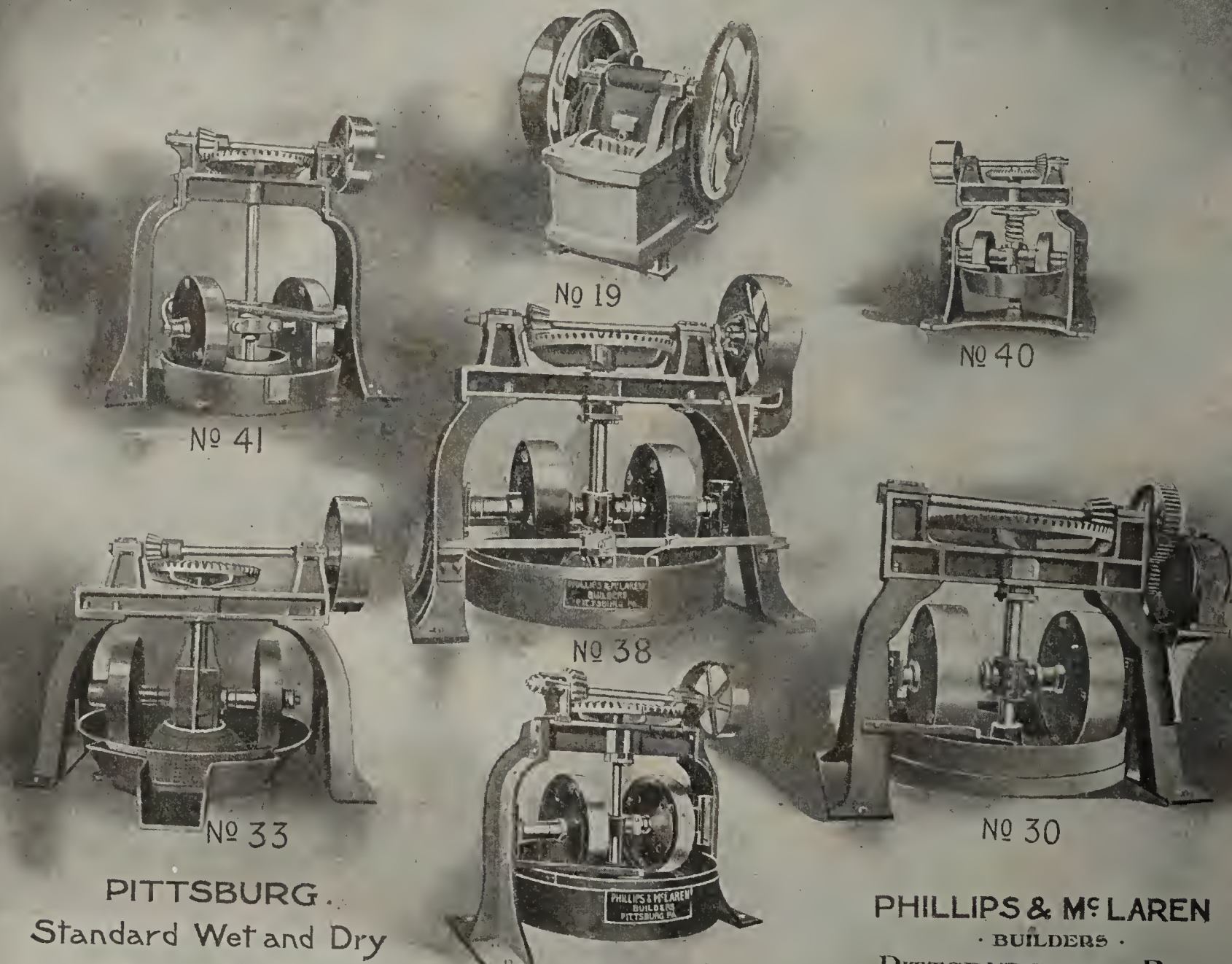
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Dries a larger variety of clays and a greater number of clay products, and produces a much larger percentage of uniformly dried ware than any other type of progressive dryer. It is the most economical dryer to install, because—

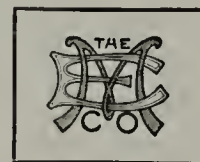


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A full description of this dryer is given in our Bulletin, which we will take pleasure in sending upon request.

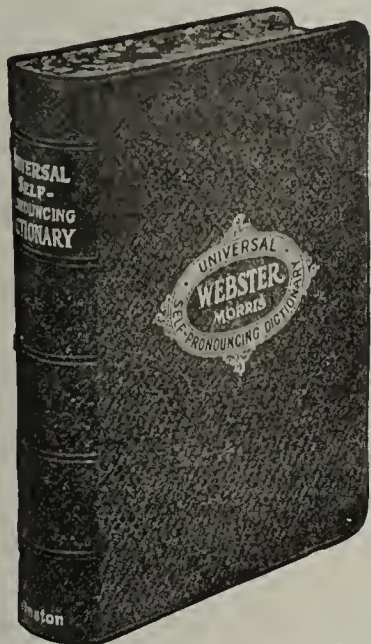
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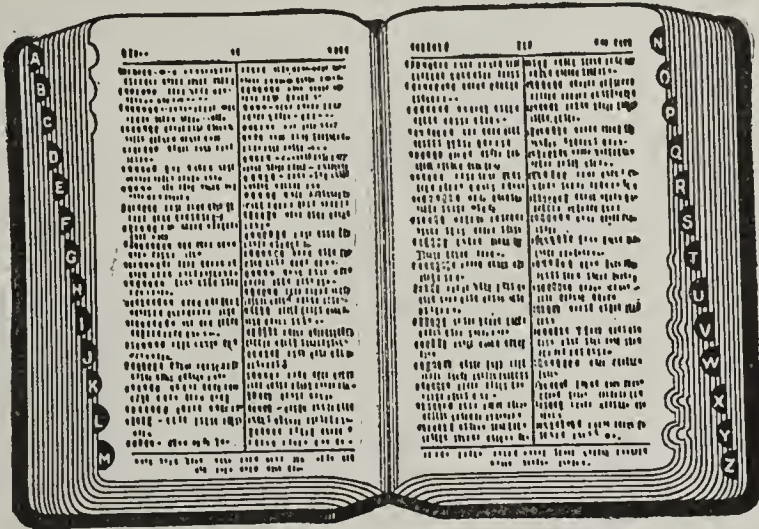
==THE NEW UNIVERSAL== —SELF-PRONOUNCING— **DICTIONARY**

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The Pronunciation of Each Word is shown by a clear and properly accented system of phonetic spelling.

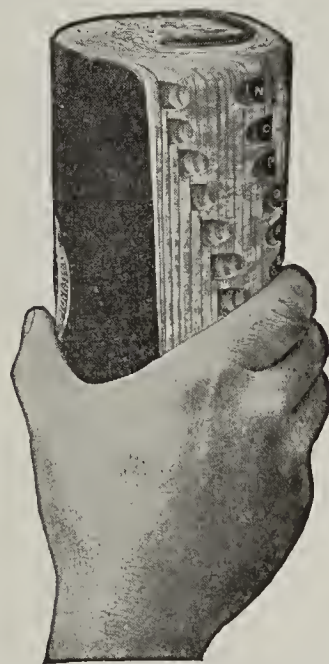
The Synonyms and Antonyms are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.

Each Word and Its Derivatives are separately indexed instead of the suffix words and prefix words being crowded in with the definitions, an expedient used to save space, but with a loss of clearness and utility.

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WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



A Typical Thew Shovel

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Our 13 Ton Shovel with $\frac{5}{8}$ yard dipper will handle any ordinary clay for outputs up to 100 M brick.

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Any of the above machines will handle double the output specified with a full working crew of engineer, fireman and two laborers on the ground.

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Our 35 Ton Shovel with $\frac{3}{4}$ yard dipper is suitable for all ordinary shales up to 125 M brick per day.

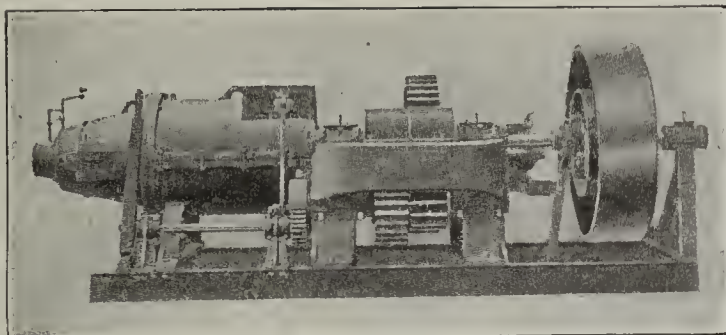
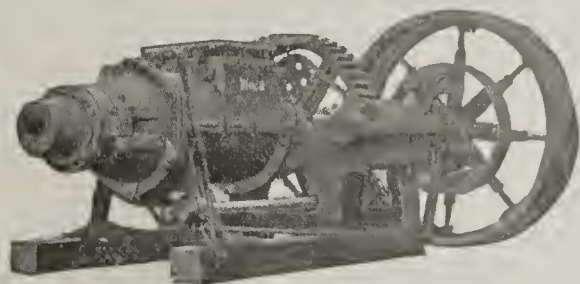
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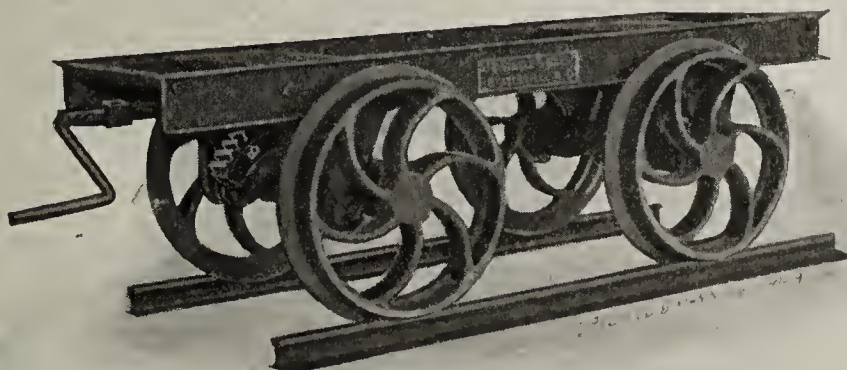
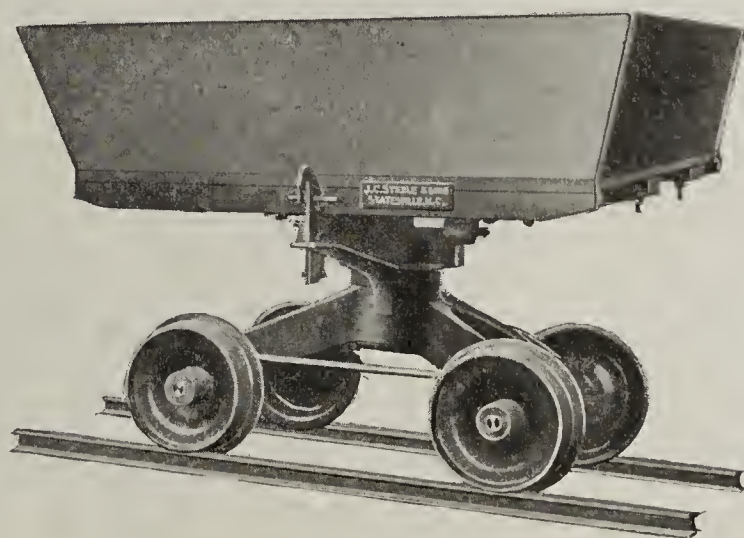
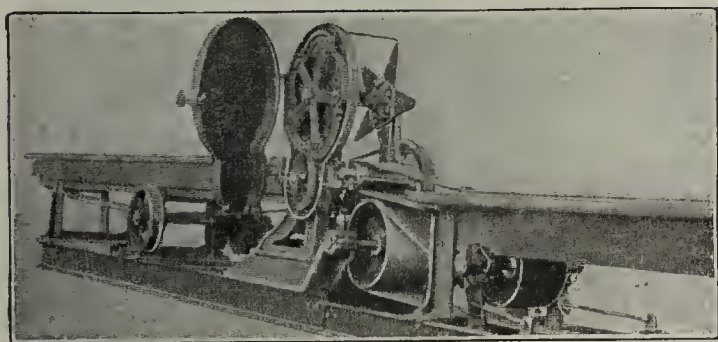
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FIVE SIZES Brick Machines. Also End and Side-Cut Cutters, Pug Mills, Disintegrators, Granulators, Hoisting Drums, Clay Cars, Brick Trucks, Tile Machines, Kiln Doors and Grate Bars.

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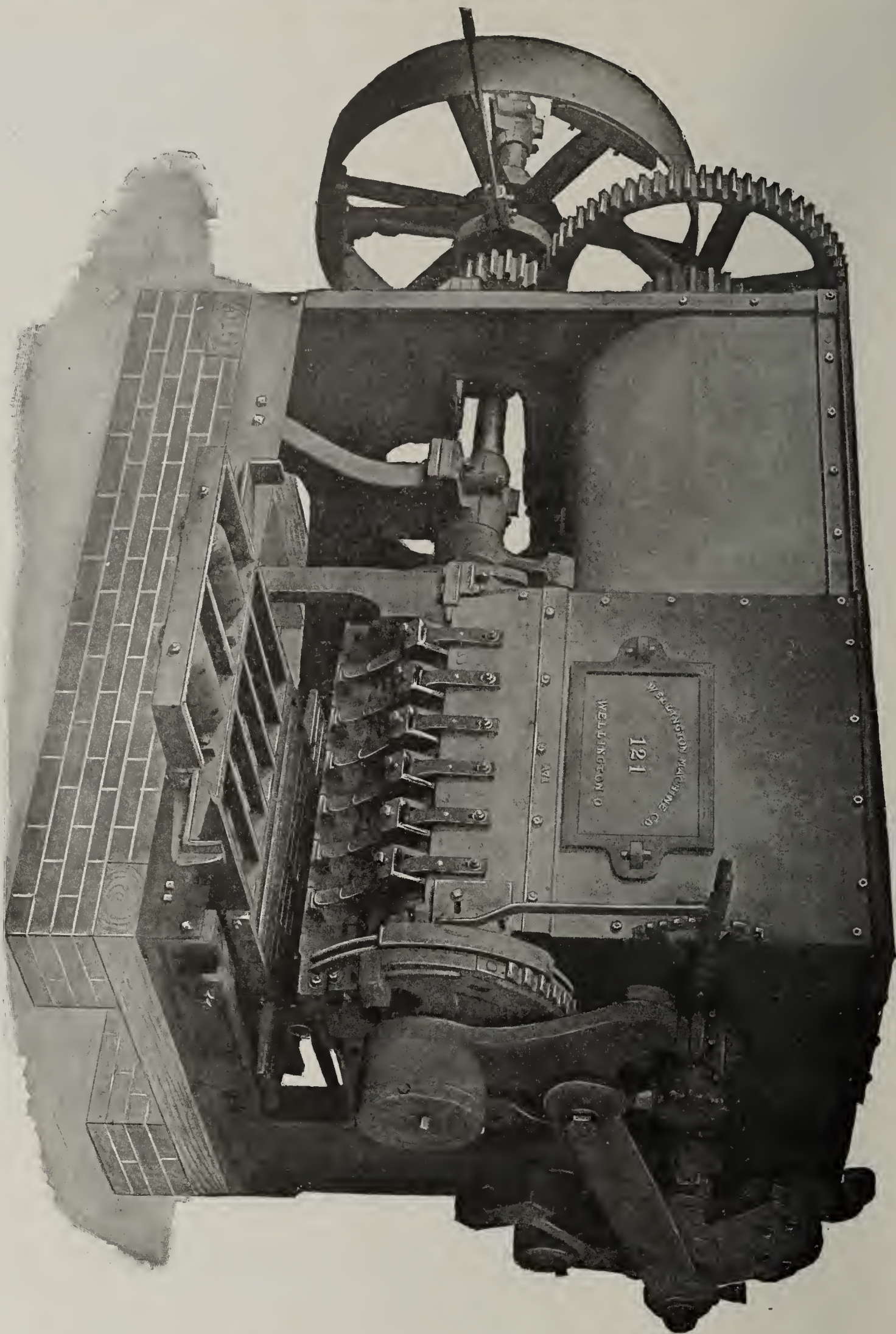
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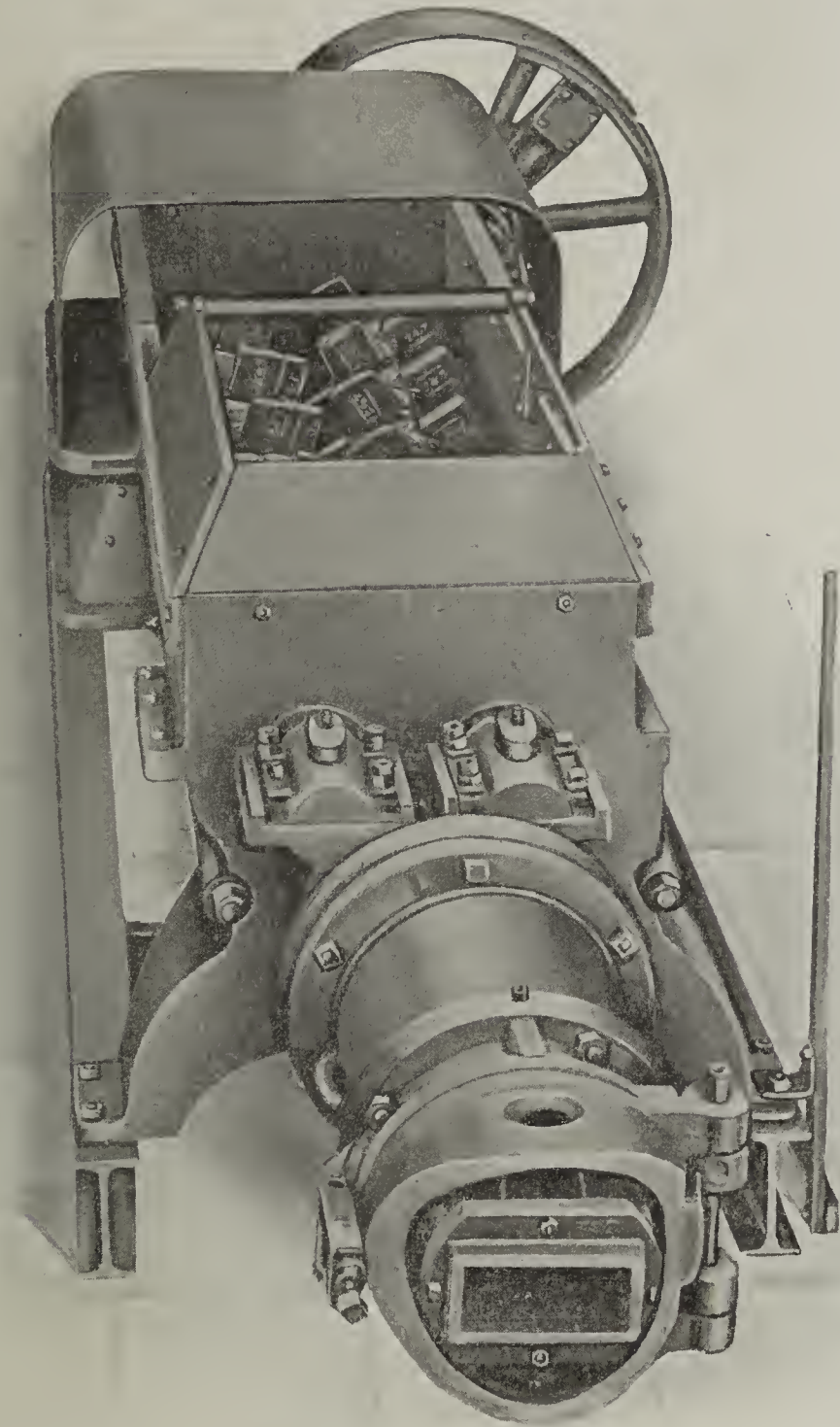
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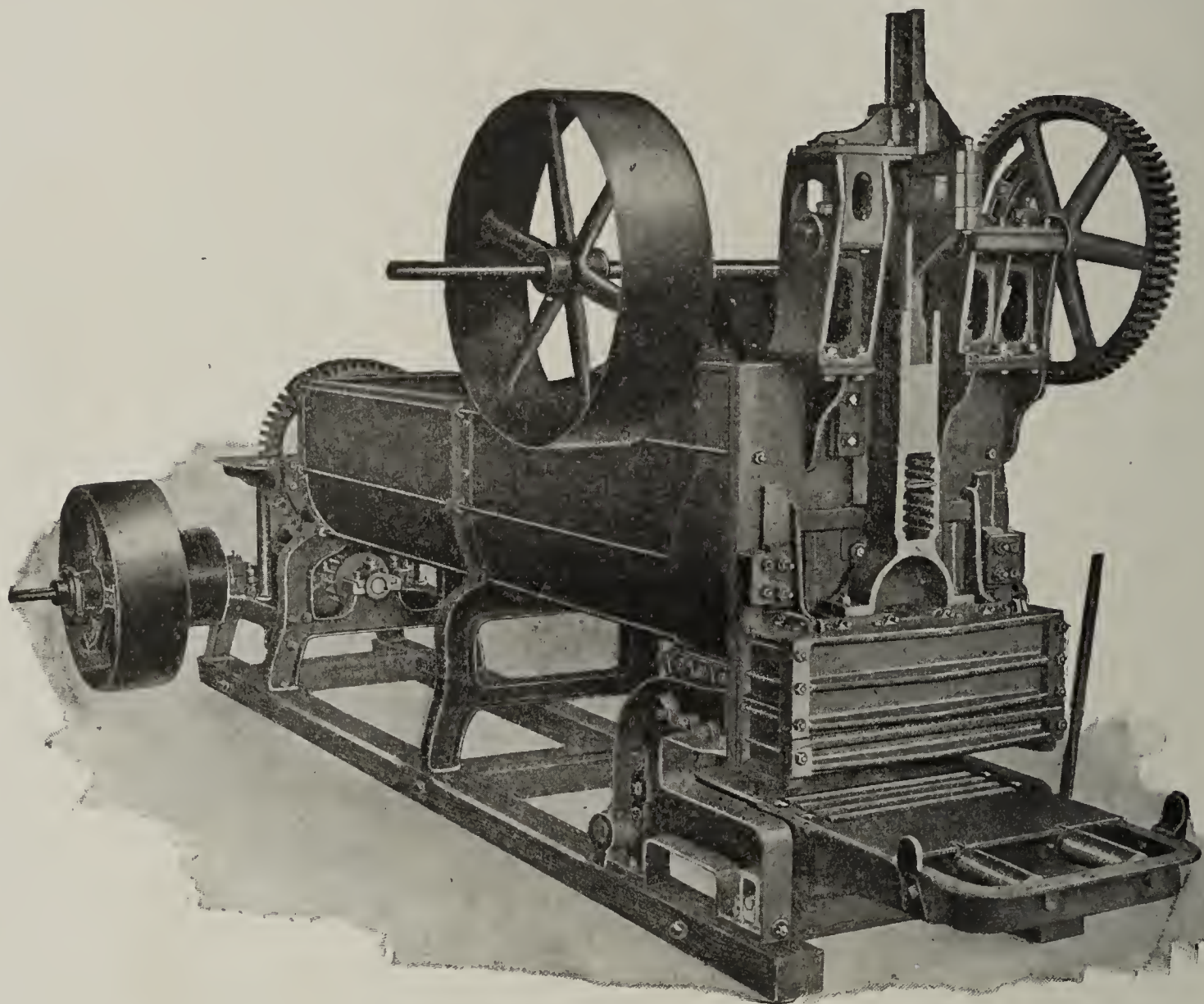


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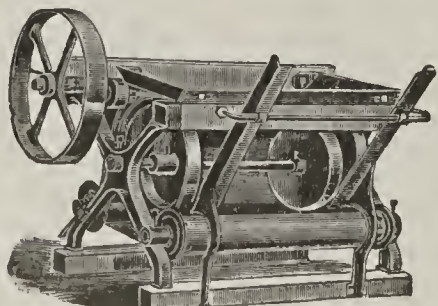
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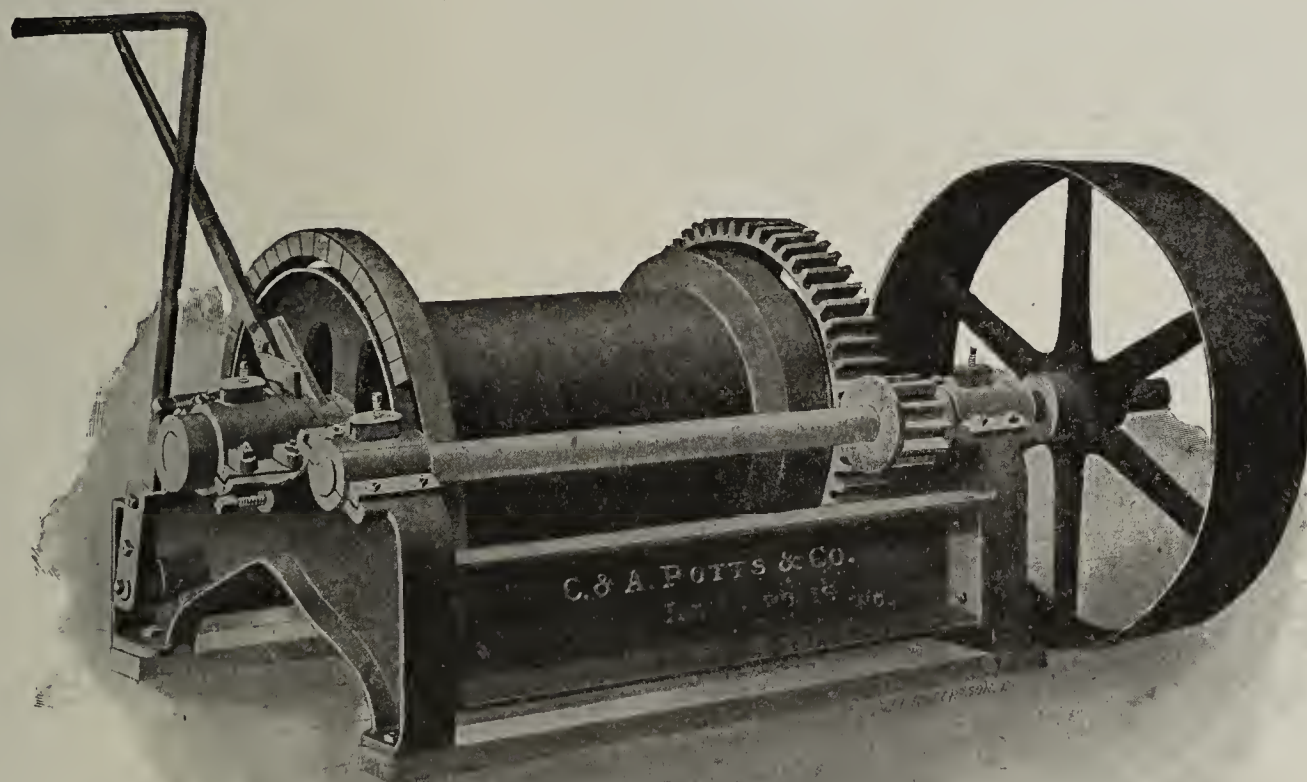
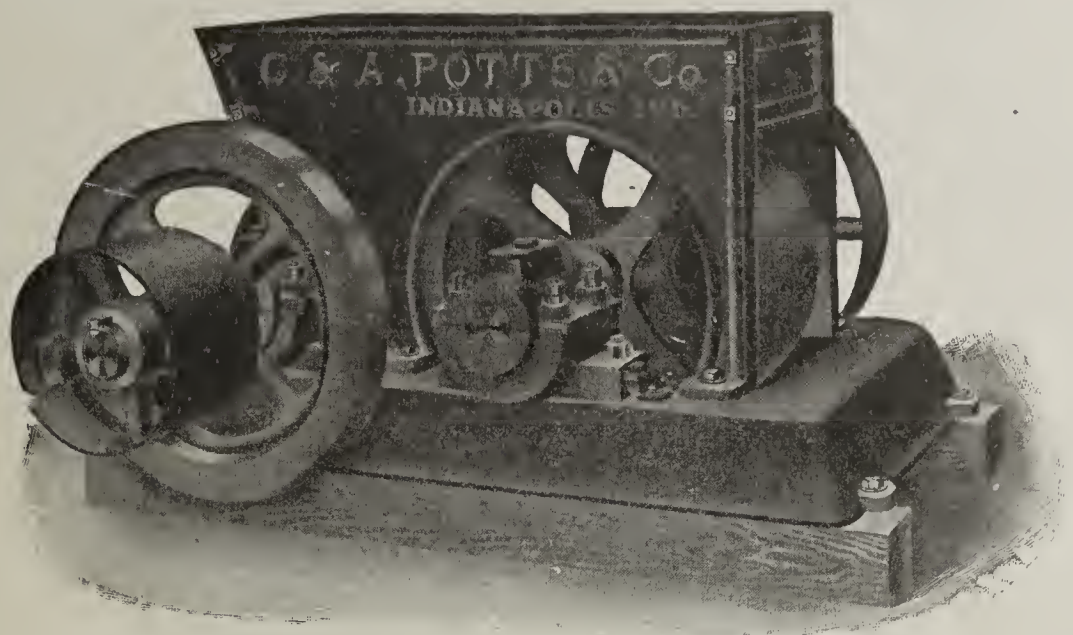
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Self-contained, either spur or bevel gear, to suit any location. Try one.*



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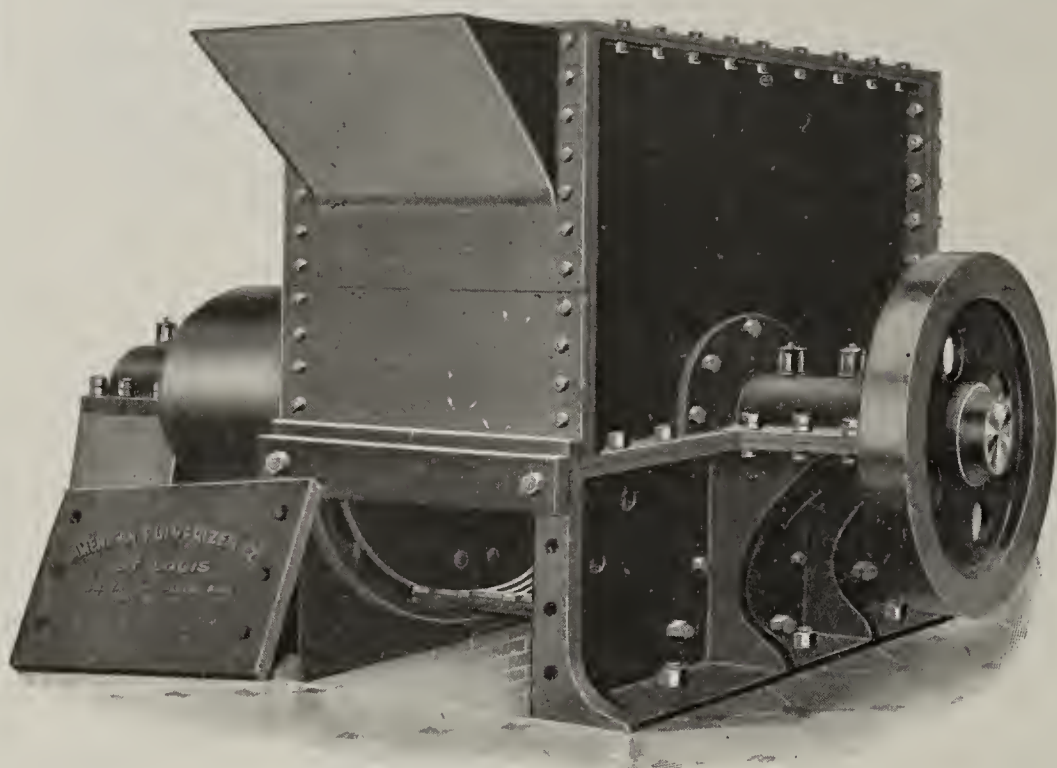
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INDIANAPOLIS, IND.

How Many Brick Manufacturers Make the Following Complaint?

My machine clogs, don't grind fast enough or fine enough.

**The following letter discloses the experience
of its subscriber:**



Made in six sizes.

SIoux CITY, IA., Nov. 5th, 1910.
American Pulverizer Co.,
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Gentlemen—We have now got your No. 48 Pulverizer at work grinding our material, consisting of shale, blue and yellow plastic clay, carrying a good many hard stones. We aim to mix all these clays together, but at times we will get a batch of each by itself, and we will say that our yellow plastic clay is a pretty hard grinding proposition, as it is very sticky and always wet. We are using three $9/32$ " grate bars and two $1/2$ " bars, and are making brick $2\frac{1}{4}$ " x 4" x $8\frac{1}{8}$ " at the rate of 90,000 per day.

We think your Pulverizer a great machine, and know that it will grind the clay finer than any machine we have ever seen, and at the same time give the tonnage. Would say that 90 per cent. passes through a screen with wires 1-16 in. apart. We formerly used dry pans, but could not grind fine enough and get the tonnage. We also tried a steam-jacketed pulverizer, but this would not work, as it clogged up and gave us so much trouble that we discontinued its use, having satisfied ourselves that a hammer-mill cannot do our class of work.

We feel warranted in recommending your machine to shale brick manufacturers as being a superior Pulverizer.

Yours very truly,
(Signed) SIOUX PAVING BRICK CO.,
By G. N. Fairchild, Mgr.

**The quicker you investigate the quicker you will
find a way out of your trouble.**

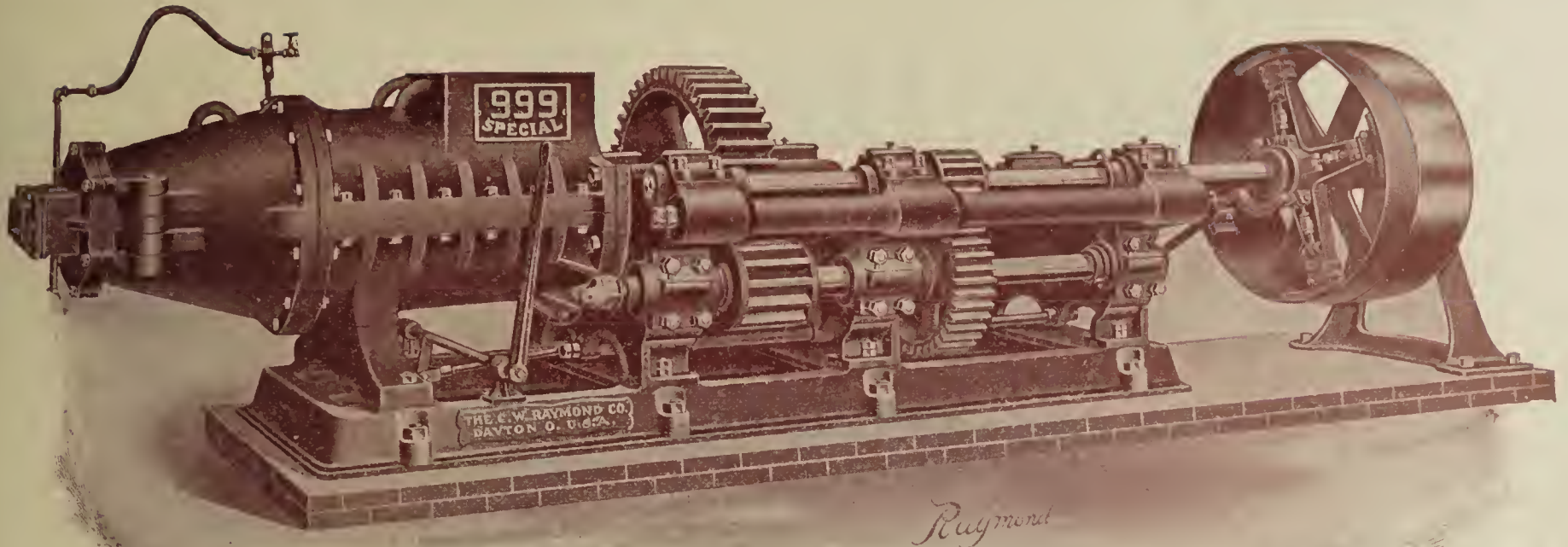
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Prices and circulars for the asking.

American Pulverizer Company

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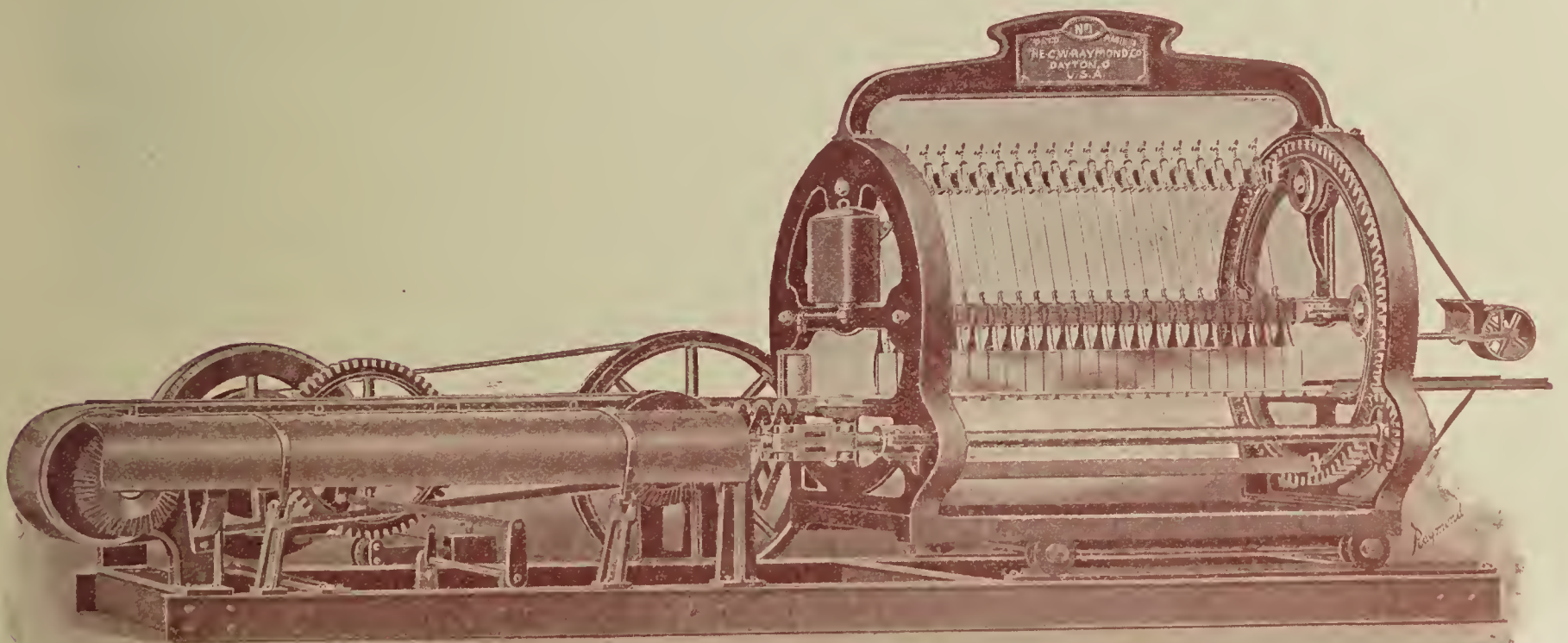


The magnificent results which are daily obtained on the vast majority of brick plants are caused by the constant use of Raymond Machinery. A great number of plants, having found their errors, are now looking to us for redemption from their troubles, and the "999" Special and the No. 1 Automatic Cutting Table are the prime favorites for larger capacities, while the "888," "777" and "555" are enjoying their full share of honors for the average plants. Installation after installation of these machines is being made. The most noteworthy and interesting brick works are contributing to their own success by the use of this machinery, in which careful attention to detail, generous proportion, properly distributed weight, and scientific design enter into its construction.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.



Mention THE CLAY-WORKER.

Berg Dry Press

Added to the magnificent line of Raymond machinery, is the well-tried Berg Dry Press, which for years has been recognized as the standard by which all dry press machinery has been built.

Its Salient Points Are

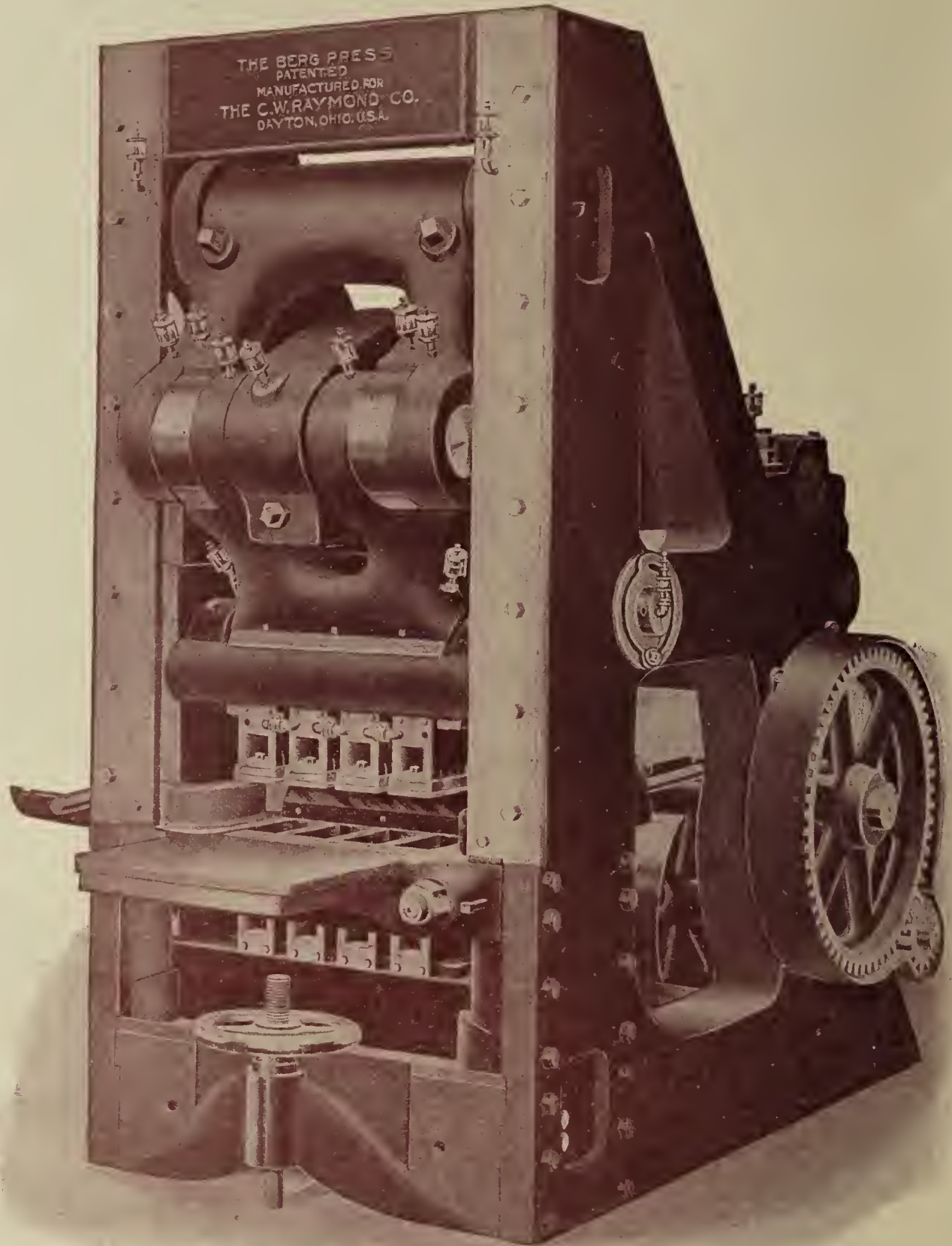
All presses equipped with cut gearing.

Each machine shipped in one piece.

It gives the brick three distinct pressures.

Its compactness insures strength.

All of the Berg working parts are above the clay line. Exhibit No. 2111 enters into detail of its construction.



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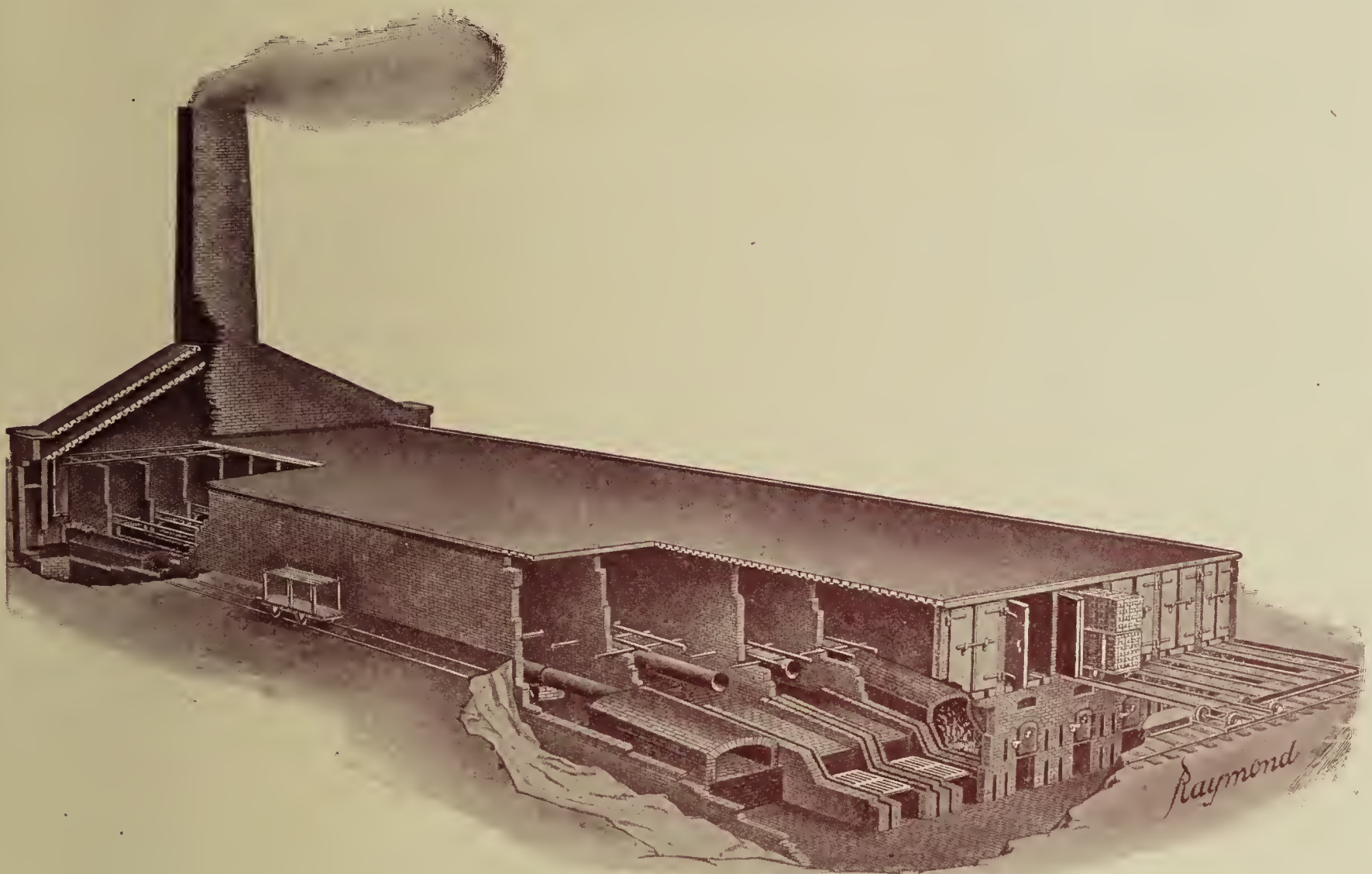
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The Raymond Systems of drying Clay Products represent the highest ideal and approach perfection as near as human effort can do.

Their practical use has thoroughly demonstrated that the careful handling of the tenderest materials is accomplished by the draft and furnace control, assisted by uniform radiation and evenly tempered air.

The results obtained are the same in the drying of roofing tile, hollow ware, face brick, paving brick, drainage tile or any other products of plastic clay.

Write for exhibit sheets covering our drying systems.



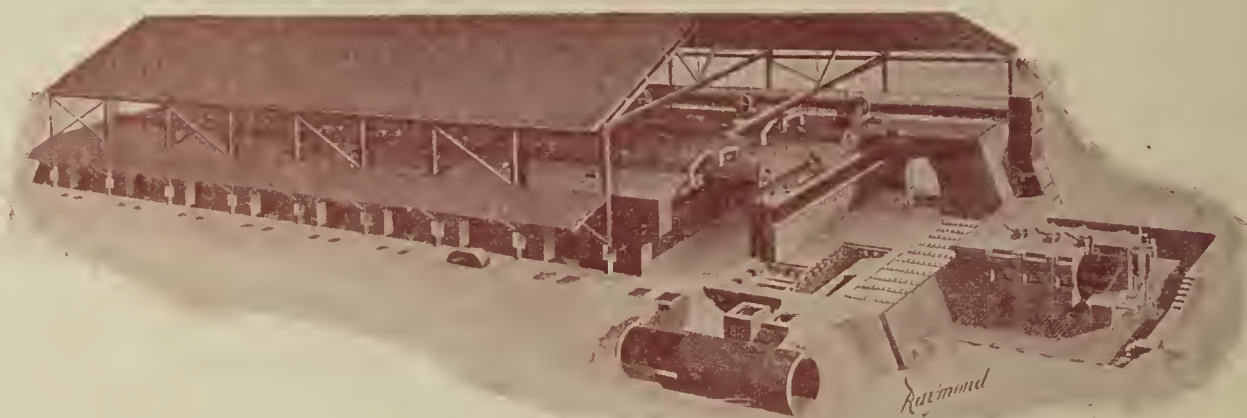
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The Youngren Continuous Kiln Producer Gas Fired



MAGNIFICENT results are being daily obtained from the many installations of the Youngren Kiln. Not only is its economy of fuel the paramount result, but the uniformity of the burn as well as minimum kiln losses tend to greatly increase its efficiency under all conditions.

It is not only burning all of the principal products made from plastic clays, but successfully handling materials heretofore thought unfit for clay products' use.

*Catalog covering the Youngren Kiln will be mailed
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THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

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Yard Superintendents,
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This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untieing knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

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HAIGH'S

Improved New System of Continuous Kiln

Arranged to Suit All Locations

These Kilns can be seen burning Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 Brick per day.

Points of Superiority:

Cheapness in construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and equality of product,
it has no equal.

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H. HAIGH
Brickworks Engineer, CATSKILL, N. Y.

The Richardson-Lovejoy Engineering Co.

Consulting Engineers

to

The Clay Industries.

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WE make geological surveys of properties and report on the clays, shales and other minerals.

WE make practical tests of the materials and determine their fitness for wares.

WE examine and report upon the commercial features of prospective clay enterprises; estimate cost of plant and cost of manufacture, and probabilities of the market; advise in regard to products; develop new lines to increase output.

WE design plants for economical operation—driers, kilns, furnaces, clay handling and preparing rigs—in fact, anything for clayworking except standard machinery equipment.

WE assist our clients in selecting the proper equipment.

WE remodel old plants, bring them up to economical operation, and correct the faults of manufacture.

**We Are Engineers, Not Manufacturers,
Nor Dealers, and Our Advice
is Not Ex Parte.**

TECHNICAL BUREAU FOR CLAYWORKERS.

May we talk to you through our pamphlet

CERAMIC ENGINEERING?

Schultz Building

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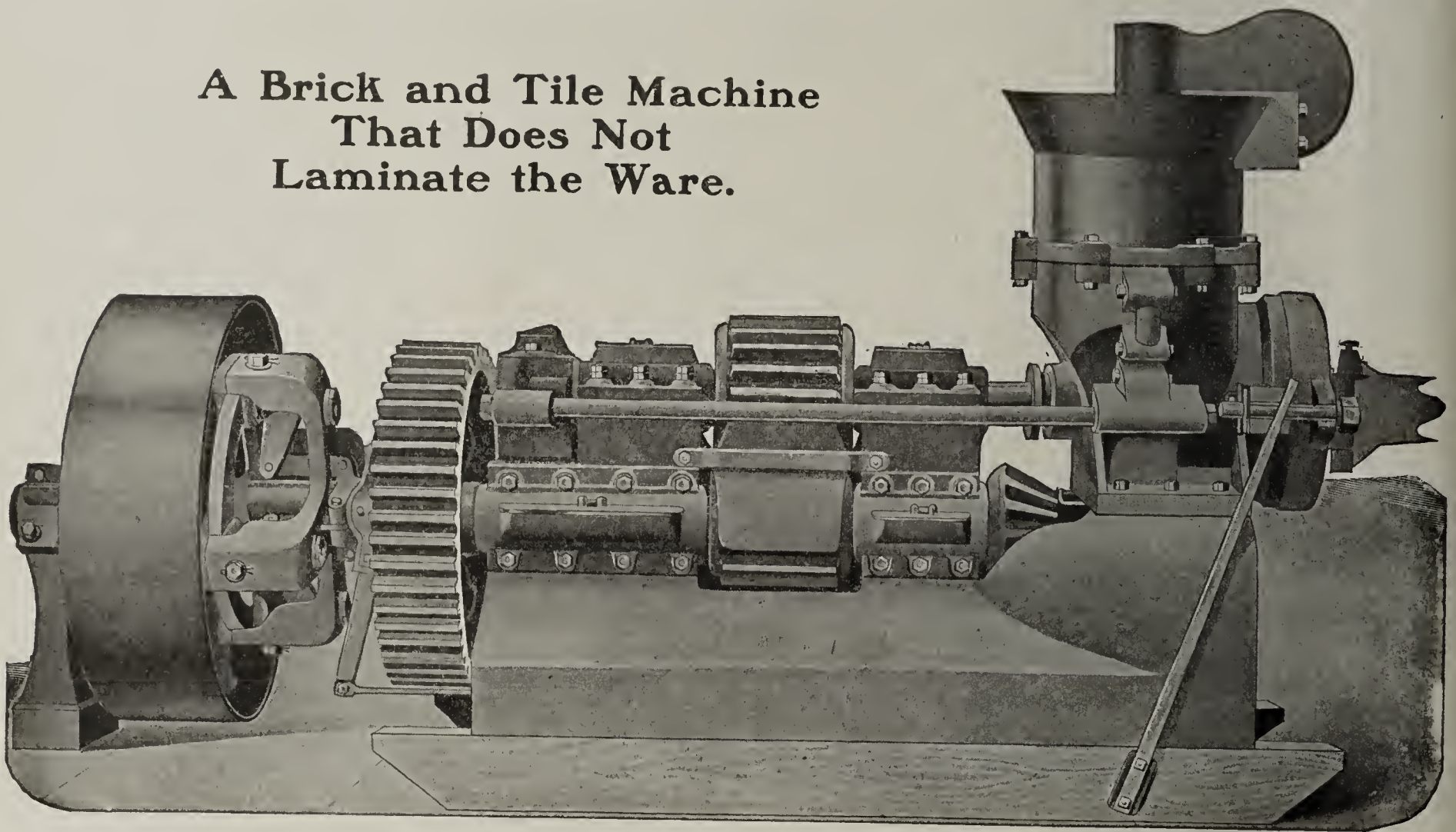
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That Does Not
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We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

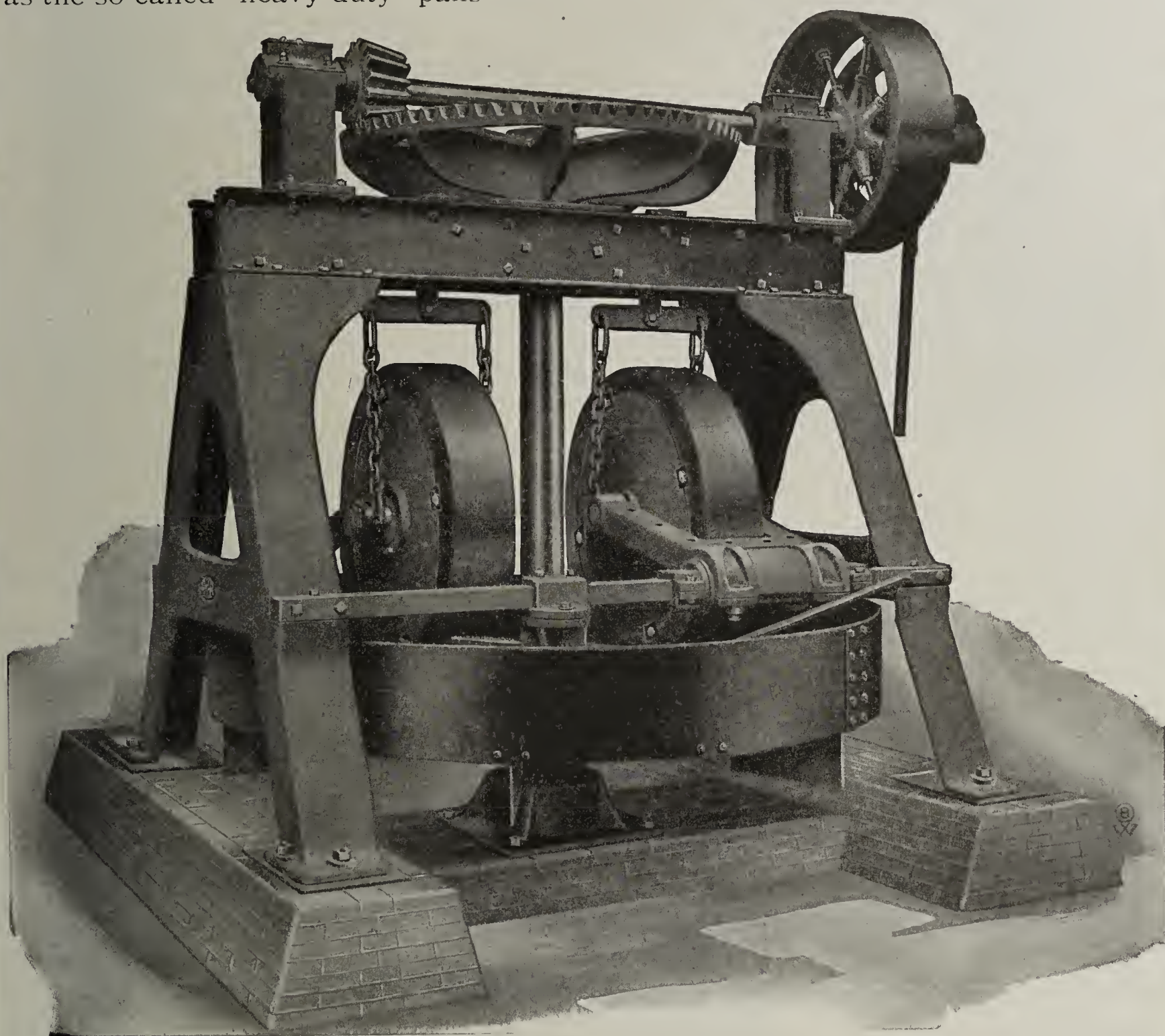
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The Brewer No. 67 (nine-foot) and the No. 66 (five-foot) are the same except size. They are rated and sold as standard machines, but are as heavy and capable as the so-called "heavy duty" pans

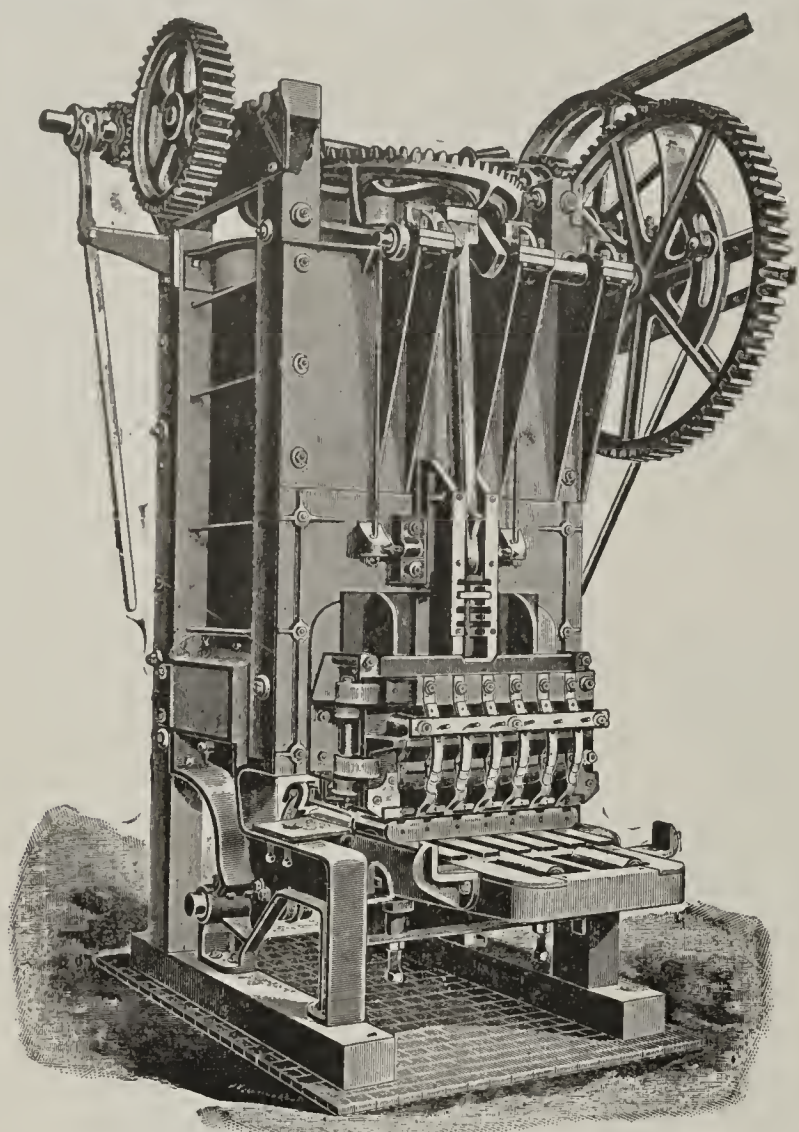


The Construction is Superior

Mullers, independent, with removable white-iron tires, removable bushings, and suspended on springs. Step bearing accessible, self-oiling and removable. Wearing plates, white-iron. Screen plates, malleable iron. Scraper blades, crucible steel.

Ask for detailed specifications.

H. BREWER & COMPANY, Tecumseh, Mich.



"New Haven" Vertical Machine.

"Endurance the Crowning Quality."

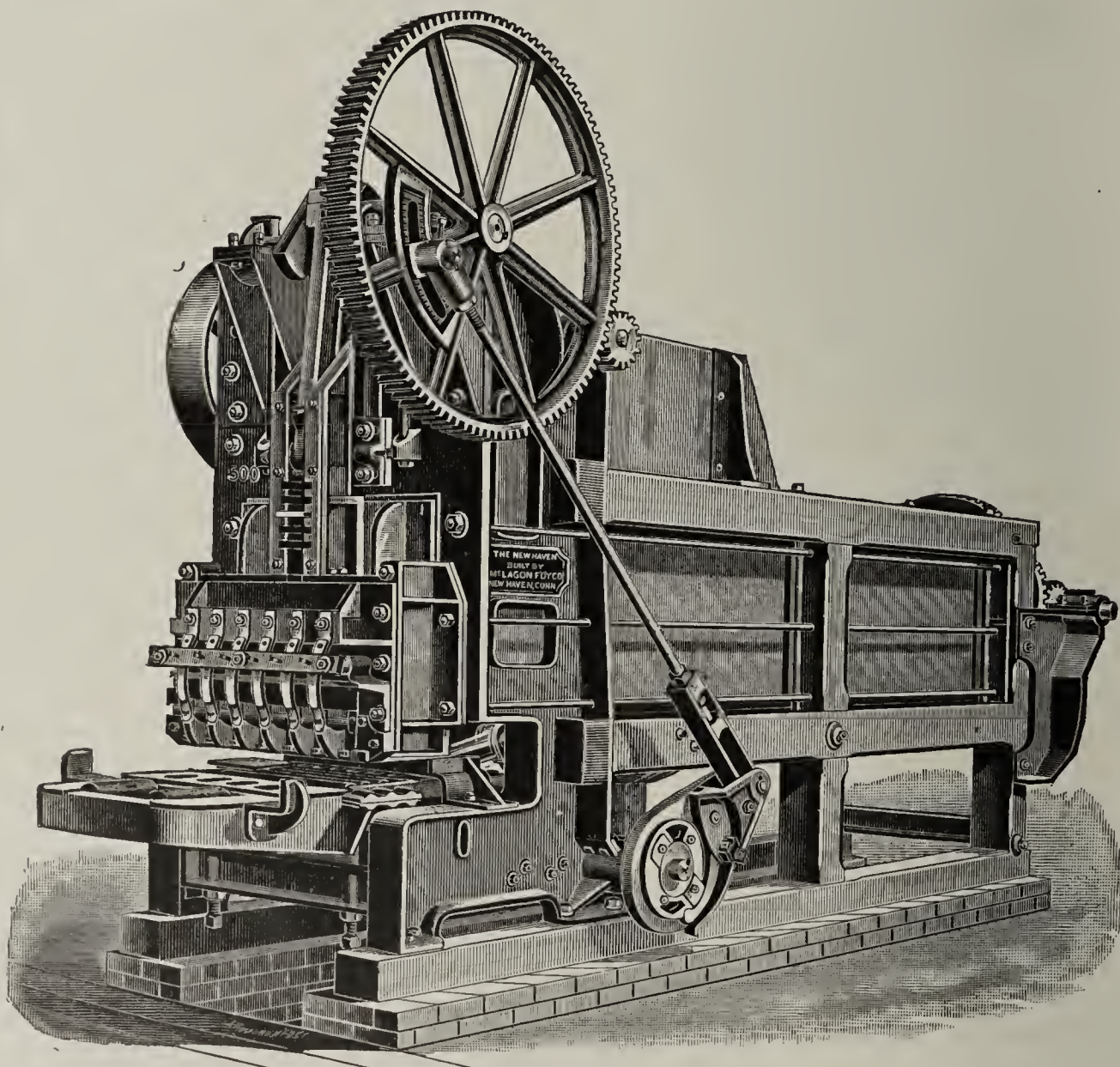
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Their history is a record of unusual success. Continued results determine the economic value of a machine rather than first cost, and on this basis NEW HAVEN Machines have been proved to be the least expensive as well as the greatest profit-winners.

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New
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An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

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With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

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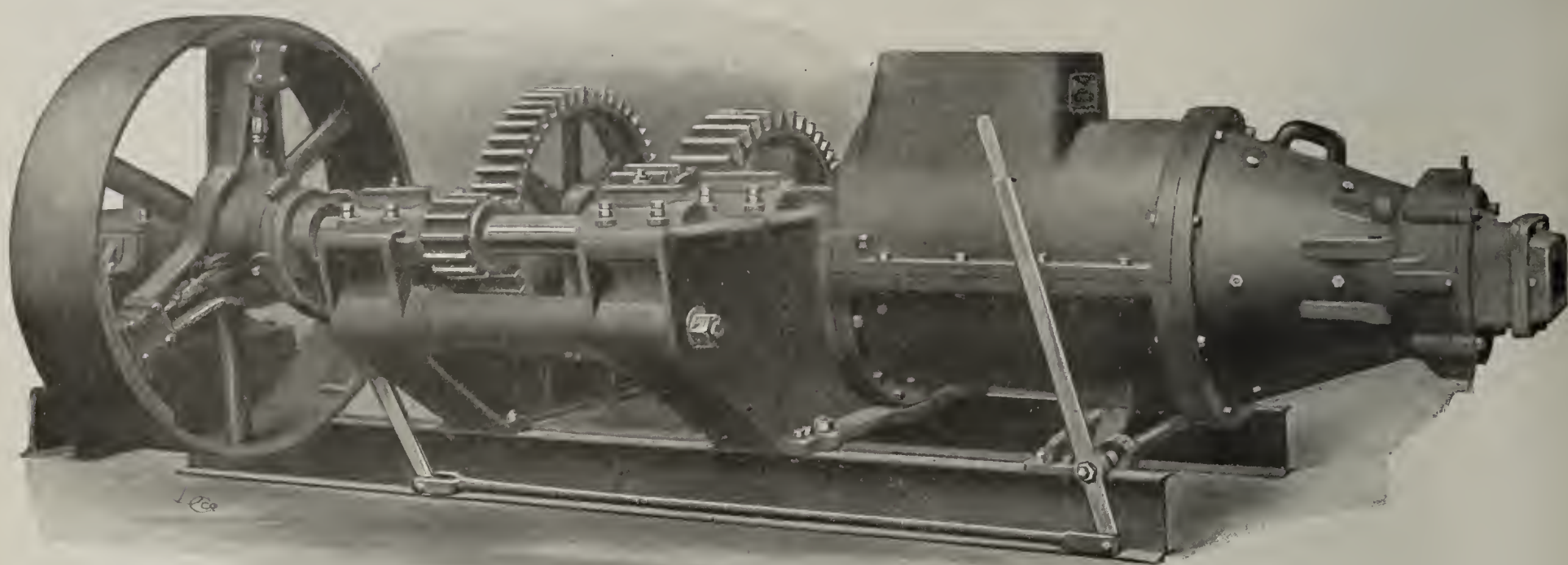
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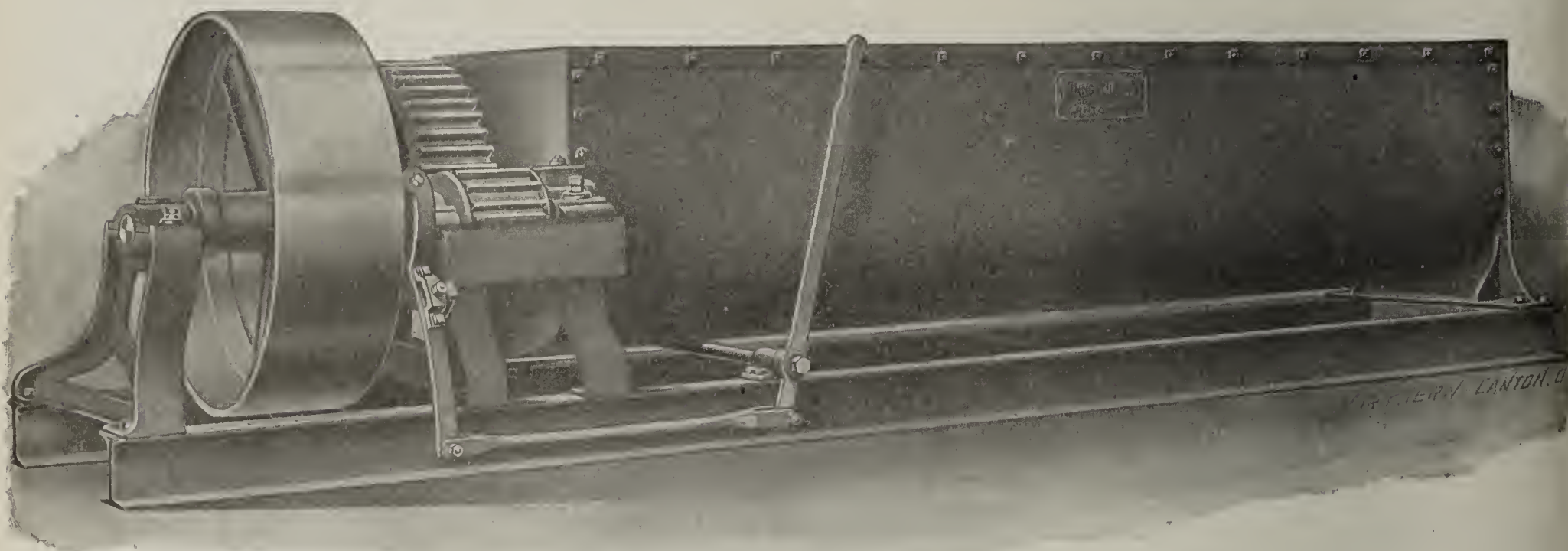
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Auger Brick Machines for 20,000 to 125,000 daily Capacity.



Pug Mills, all iron and steel, in various sizes and lengths. Constructed for heavy service.

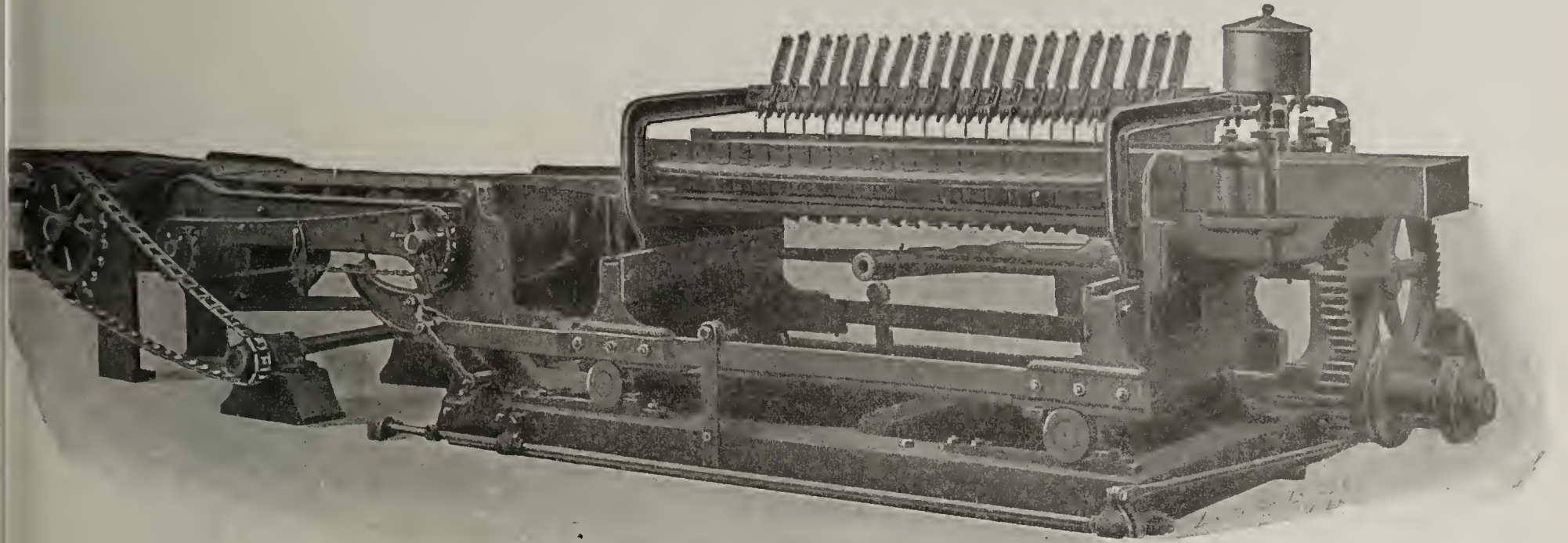
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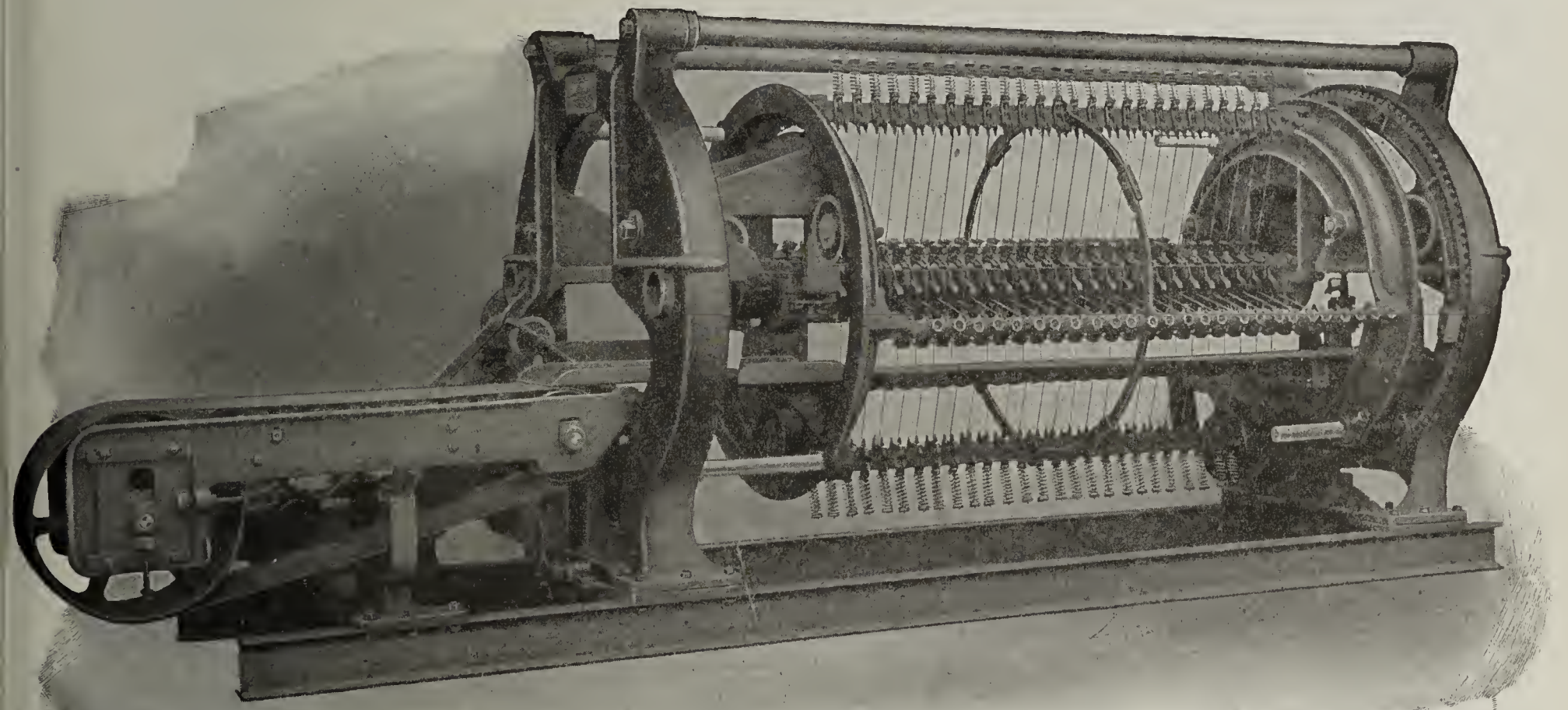
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Cutting Tables—A Variety of Styles and Sizes



The simplest in construction of side-cut automatic tables. Used by some of the largest brick manufacturers in this country.



A Rotary Automatic which cuts brick 30 inches from the die. No long column of clay to make trouble. No wearing parts underneath to clog with dirt. No friction or other troublesome devices.

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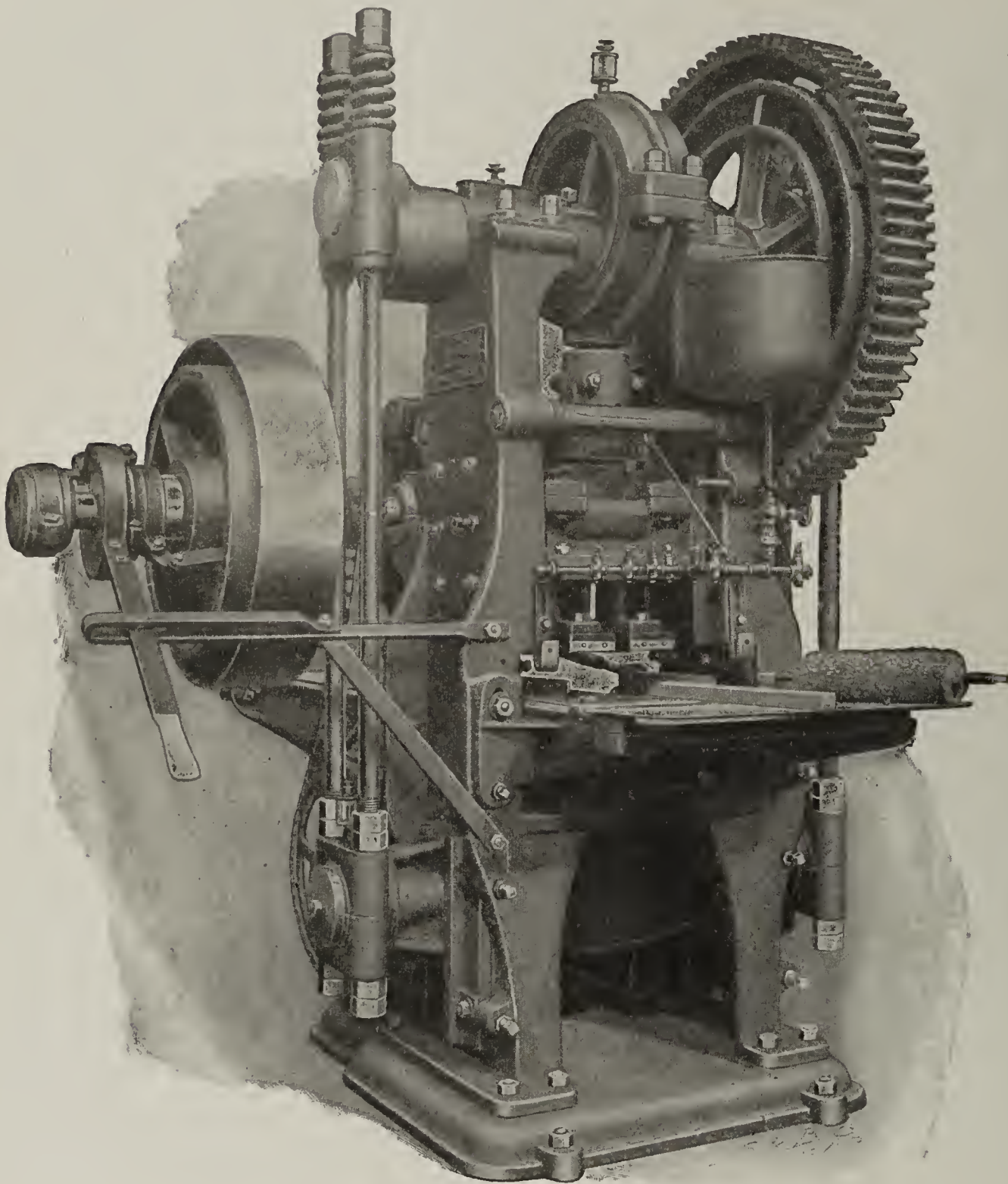
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Canton Repress=Ask Those Who Use It

Follow the experienced manufacturers of clay products,—
They use "Bonnot" Equipment.



Capacity 20,000
to 25,000 brick
in 10 hours.

Generally
conceded by
clayworkers
to be the best
repress built.

Continuous
motion.

No links
or toggles.

Wearing parts
out of the dirt.

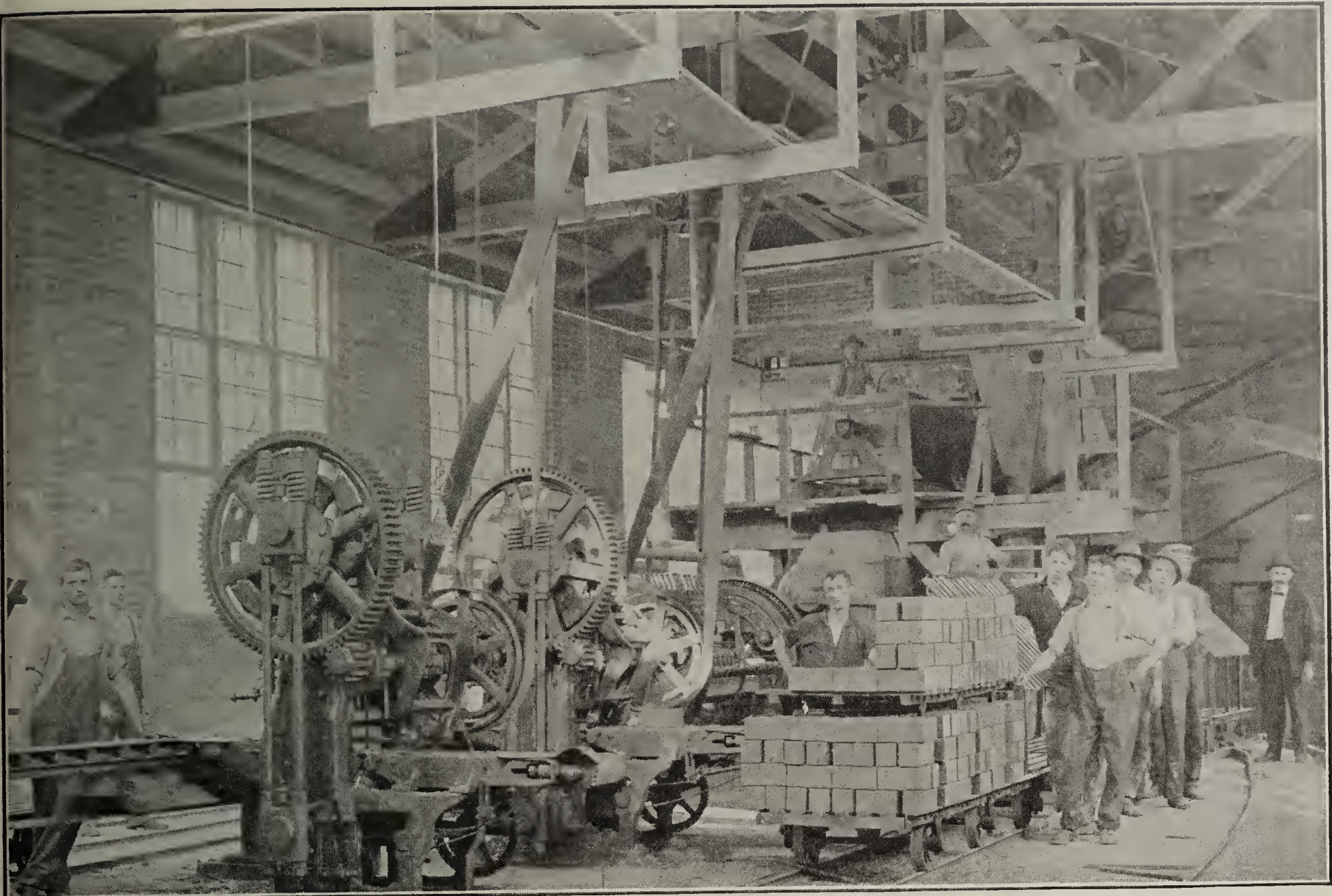
The "Canton" Repress.

THE BONNOT COMPANY

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CANTON, OHIO

Mention THE CLAY-WORKER.



View of Machine Room—The Harris Brick Company, Zanesville, Ohio, Containing No. 12 Machine with Cut Steel Gearing, Rotary Automatic Cutter, "C" Open Pug Mill and two Canton Represses.

HARRIS BRICK COMPANY

Manufacturers of

VITRIFIED SHALE BRICK

CINCINNATI, OHIO, Feb. 1, 1911.

The Bonnot Company, Canton, Ohio:

Gentlemen—About a year ago at the Convention at Pittsburg, after full investigation, we placed our order with you for machinery for our new plant at Zanesville, and after operating for the past season, we want to assure you that we are well pleased with our selection, and the treatment we have received from your Company has been absolutely satisfactory.

Yours very truly,

HARRIS BRICK COMPANY,

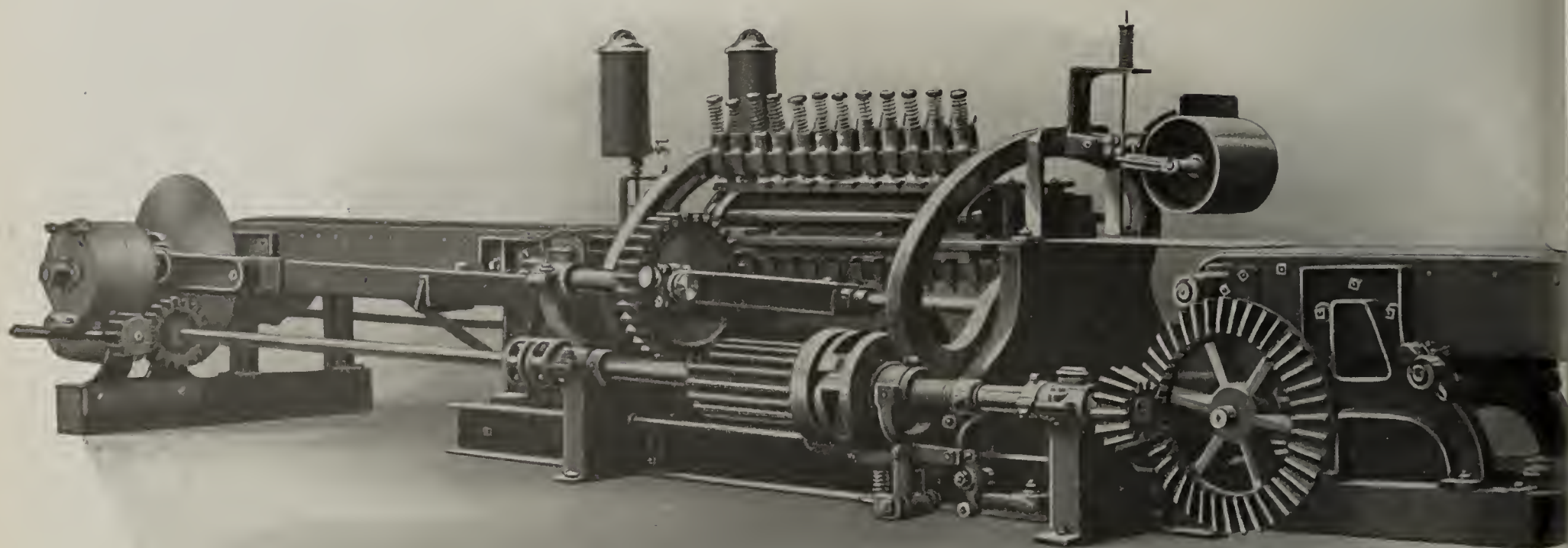
F. Lawson Moores (Signed),
President.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

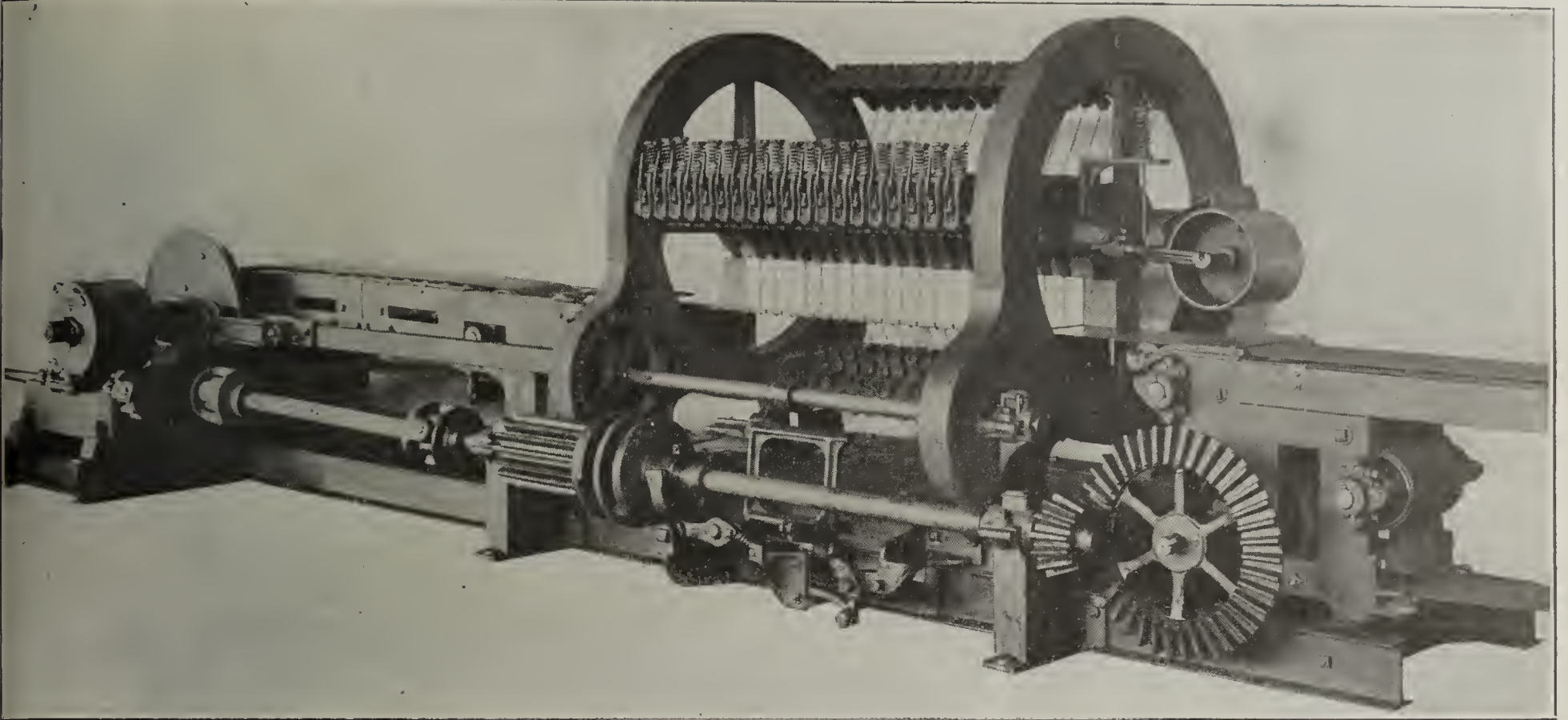
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

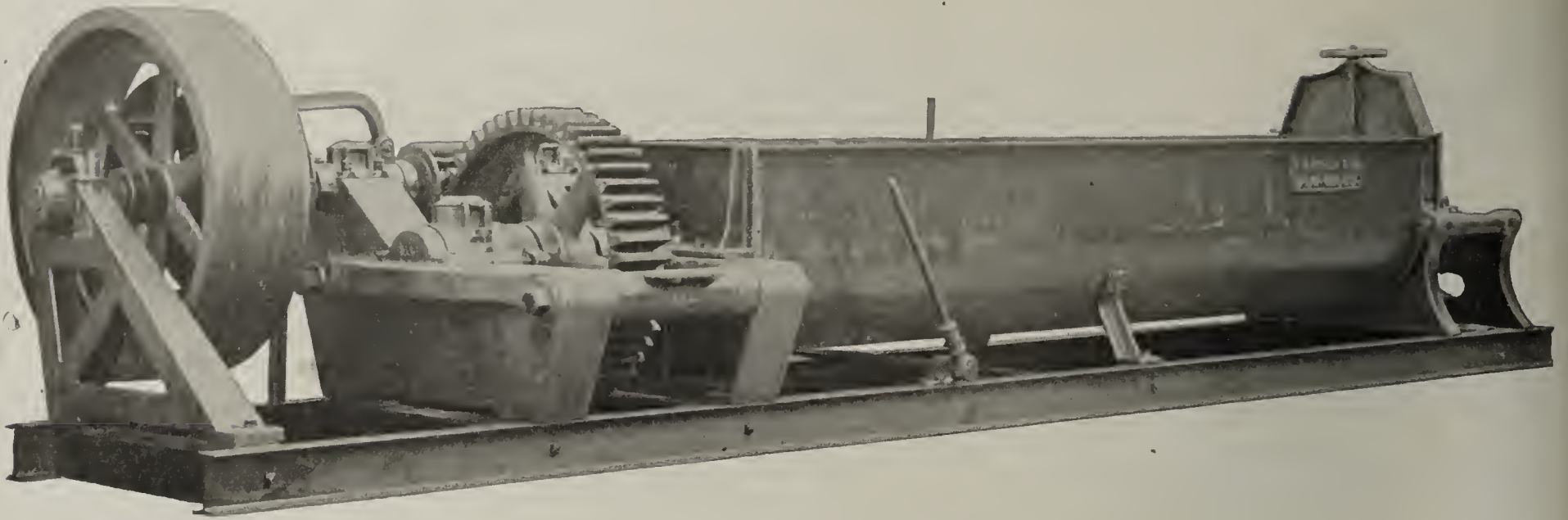
The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

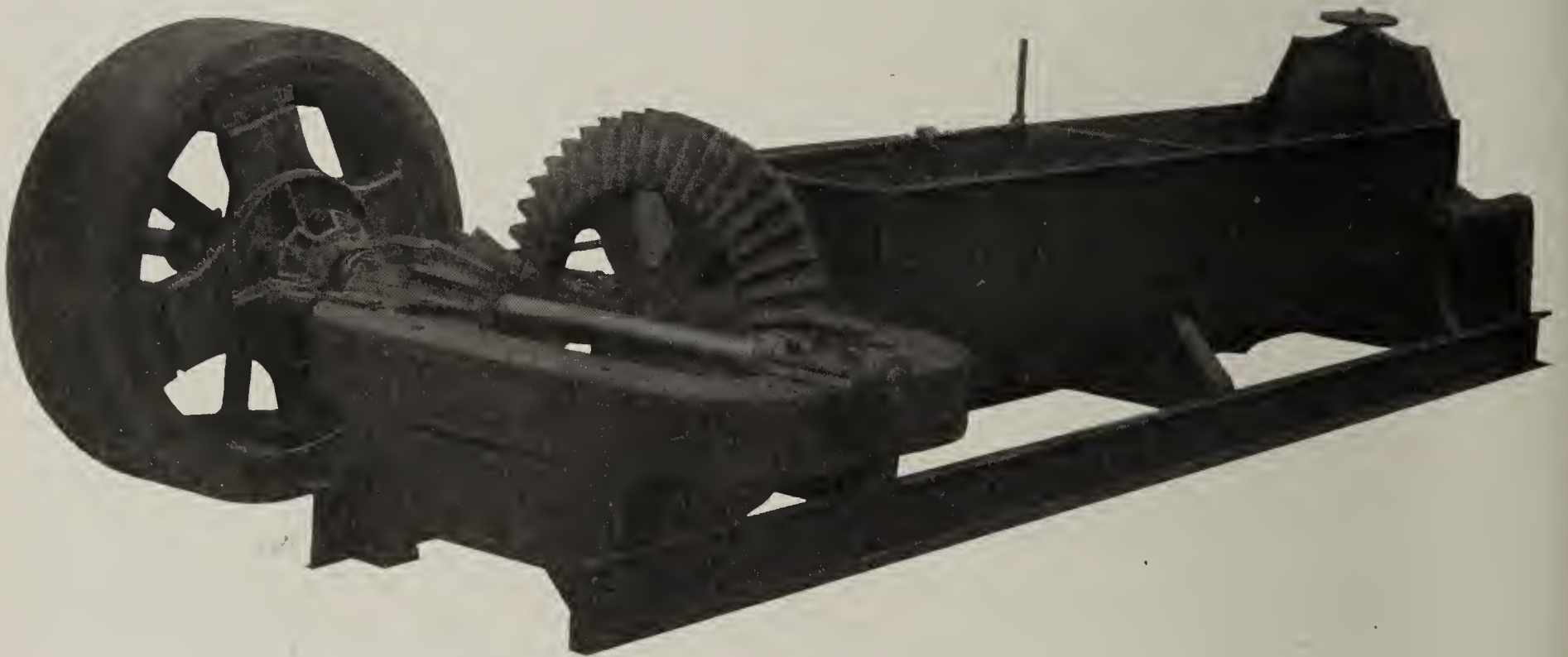
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

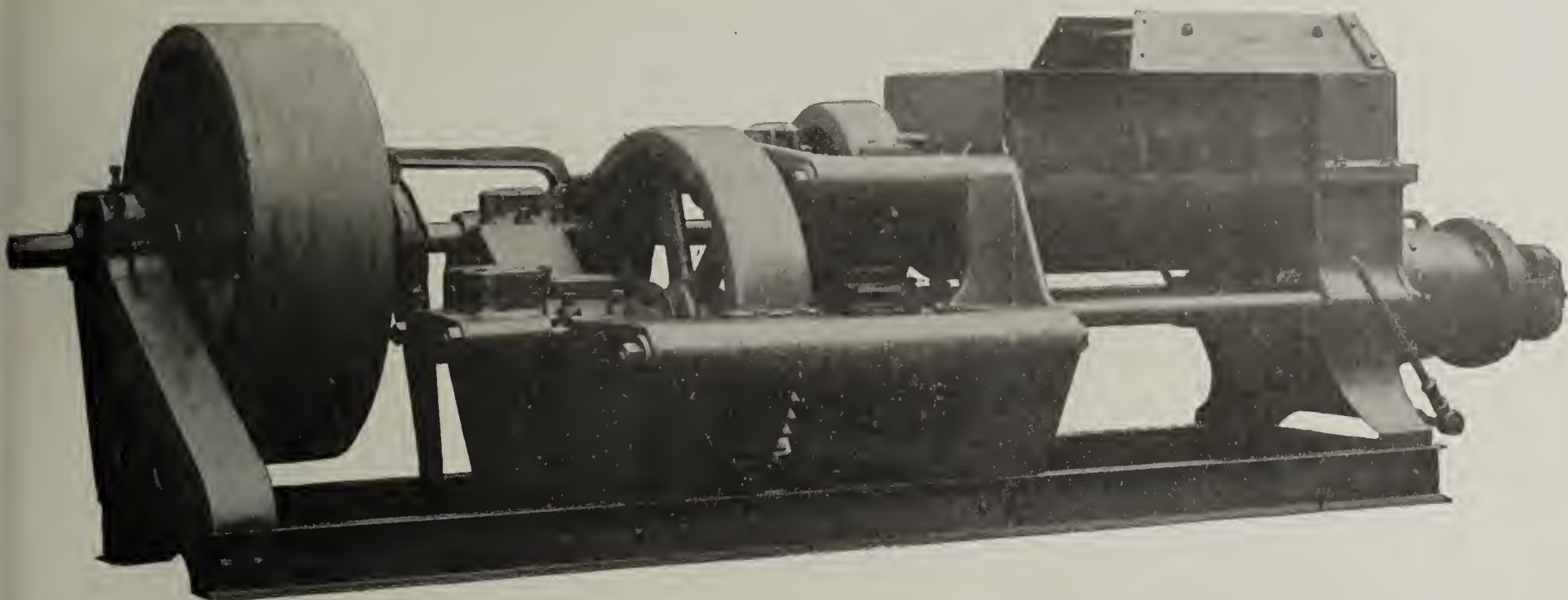


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

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PEACE AND PROSPERITY

Come to All Clayworkers
Who Use Machinery

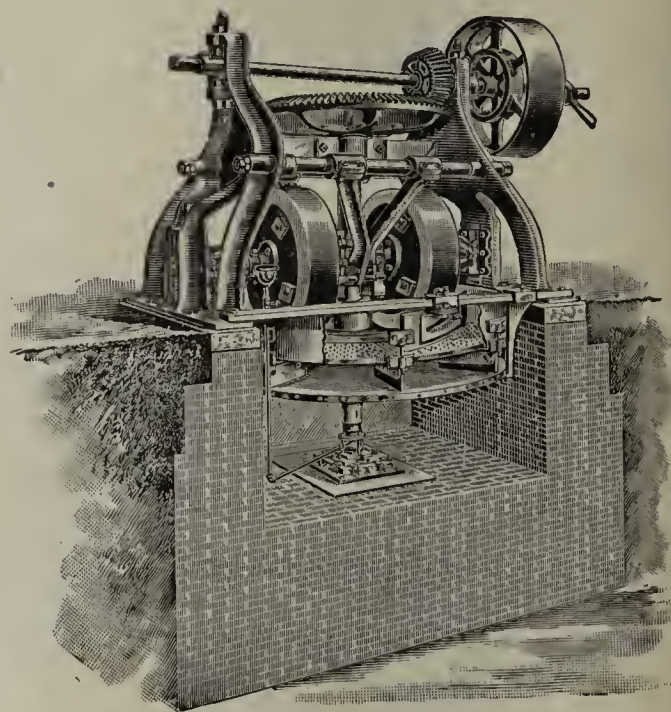
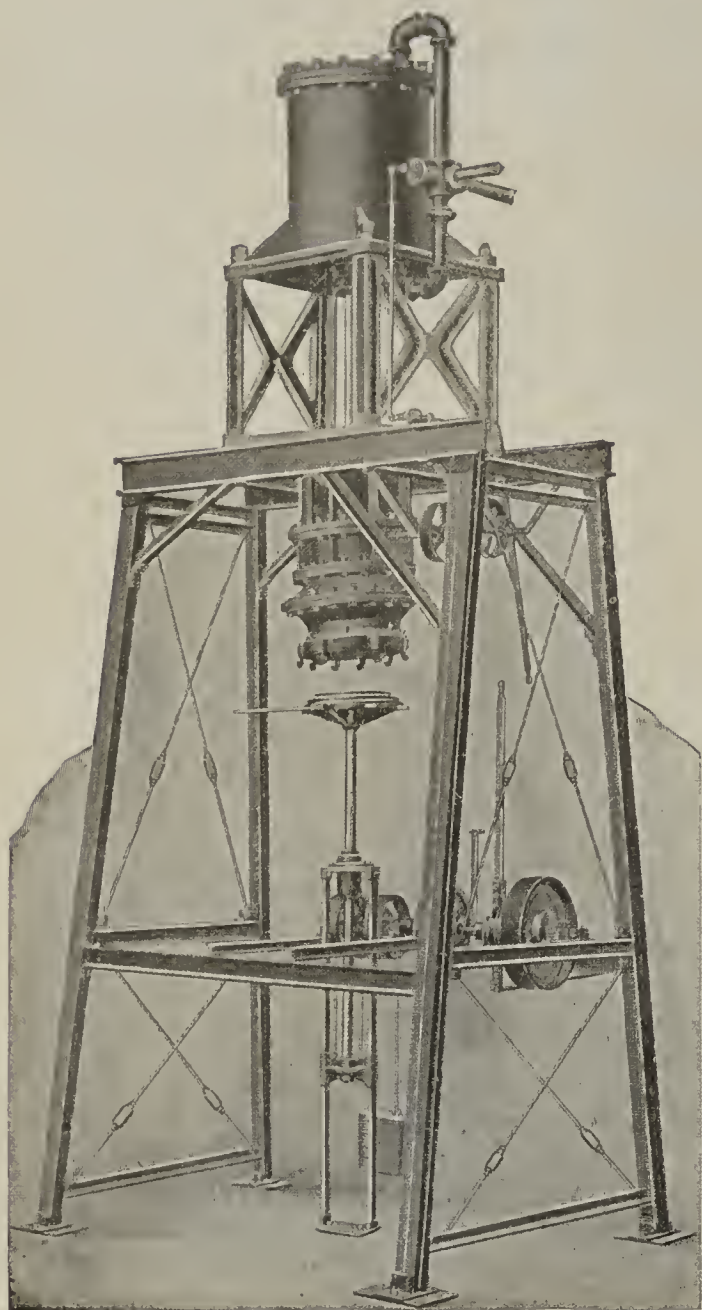
MADE BY

The Stevenson Company

of Wellsville, Ohio

And we cannot wish you any more bountiful returns
of the year than can be had through the use of

These Greedy Clay Eaters



A Few Foundation Stones on Which Above Assertion and the Reputation of
the Machines Rest—REPEAT ORDERS and MERIT.

Dominion Sewer Pipe Co. 1 Press } in 1904 3 Pans } 1 Press in 1907 1 Pan in 1908 2 Pans in 1910	McLain Fire Brick Co. Pans after Pans, and other ma- chinery galore for all their works	American Fire Brick Co. 1 Pan in 1903 1 Pan in 1905 1 Pan in 1909 1 Pan } in 1910 1 Press }	Kittanning Brick and Fire Clay Co. 1 Pan in 1894 2 Pans in 1906 2 Pans in 1910	Streator Fire Clay Co. 2 Pans } in 1908 1 Press } 6 Pans } in 1909 2 Presses } 6 Elevators, etc.	Washington Brick, Lime and Mfg. Co. Pan Elevator } 1905 Pan Flaking Rolls } 1908 3 Pans, 3 Elevators Press and Dies, 1910
East Ohio Sewer Pipe Co. 1 Press, etc. } in 1902 4 Pans, etc. } 2 Pans in 1904 1 Rock Breaker } in 1910 1 Pan, etc., etc. }	Stratton Fire Clay Co. 6 Pans, etc. } in 1903 2 Presses } 4 Pans } in 1905 2 Presses }	American Sewer Pipe Co. Pans and wholesale re- newals galore from organization to date	H. A. Robinson Co. 4 Rock Breakers 10 Dry Pans 10 Wet Pans 5 Presses, and greatest outfit in world in 1910	Robinson Clay Prod. Co. 4 Pans in 1903 14 Pans } 5 Presses } in 1906 2 Set Dies } 16 Pans } in 1910 1 Press } and train load beside	
UP-TO-DADE A dozen or more valuable improvements on Pan and Press—all money-saving and money- making—in the past year or two	ENDURING Pan Record:— 16 years on hard shale, and good for many years more. Press Record:— 30 years, and still running	SPEEDY Pan's Record:— 108,000 brick in a single day for one pan. Press Record:— 720 24-inch in 5 hours 9,400 inch in 10 hours	BEST EVER Users say: —"Best machinery on market." —"Give little or no trouble." —"Your Press is a dandy." —"Best Press in Canada." —"Your Pans are first-class."		

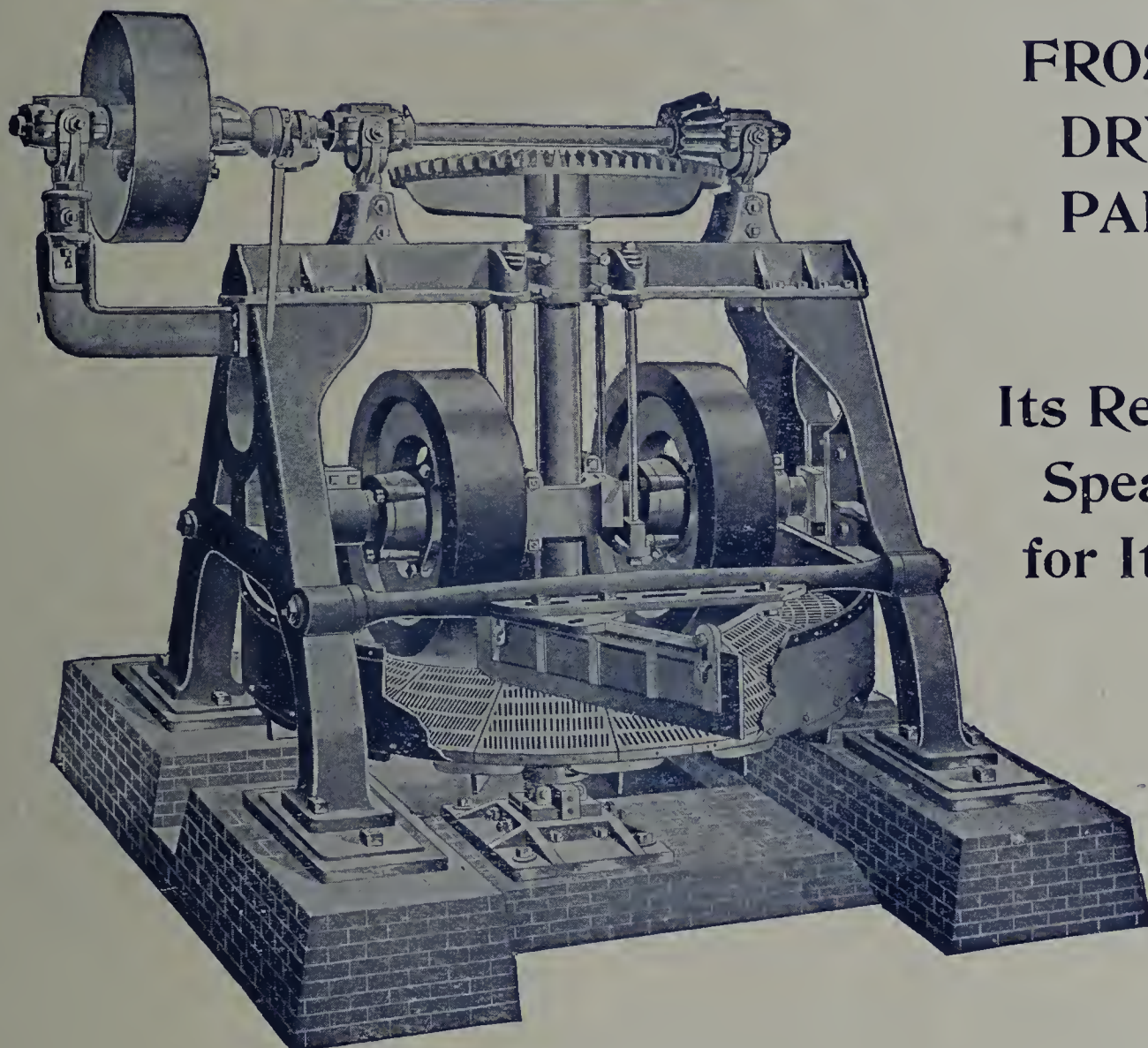
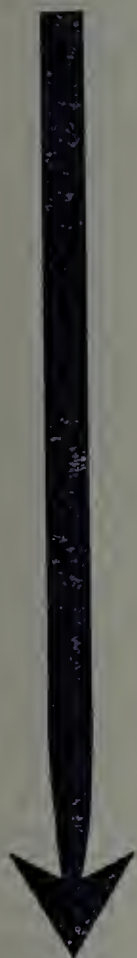
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For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

READ
THIS



FROST
DRY
PAN

Its Record
Speaks
for Itself

R. S. Root, President.

W. R. Bennett, Vice-President and Treasurer.
ACME PRESSED BRICK COMPANY,
Manufacturers of
Ornamental, Front and Common Brick,
Dry Press Process.

A. W. Hope, Secretary.

The Frost Manufacturing Company,
Galesburg, Ill.

Millsap, Texas, October 25, 1910.

Gentlemen—In reply to your favor of 15th inst, we take pleasure in stating to you that we operated two of your dry pans for twenty years, and not in a single instance did we have the least bit of trouble with them. On one of these pans we never changed the original master gear and yet gave this pan hard service, as our records show it ground out 85 millions of brick in the twenty years it ran.

Last year we had occasion to purchase two new pans and without the least hesitation we purchased the FROST. We are now running four of your pans every day, and they are doing the same good work that they have always done for us, except the two new ones are much stronger and able to crush more shale per day than the two old ones did that we discarded after we had operated them constantly for twenty years.

We trust that you will continue to make the same high-grade pan that you have shipped us, and if you do, cannot see why your dry pan business should not be a great success.

Yours truly,
ACME PRESSED BRICK COMPANY.
By W. R. Bennett, Vice-Pres.

Write for Special Bulletins and Specifications.

The Frost Manufacturing Co.

Works:
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CHICAGO OFFICE:
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Cable Address, "FROSTMANCO," Chicago.

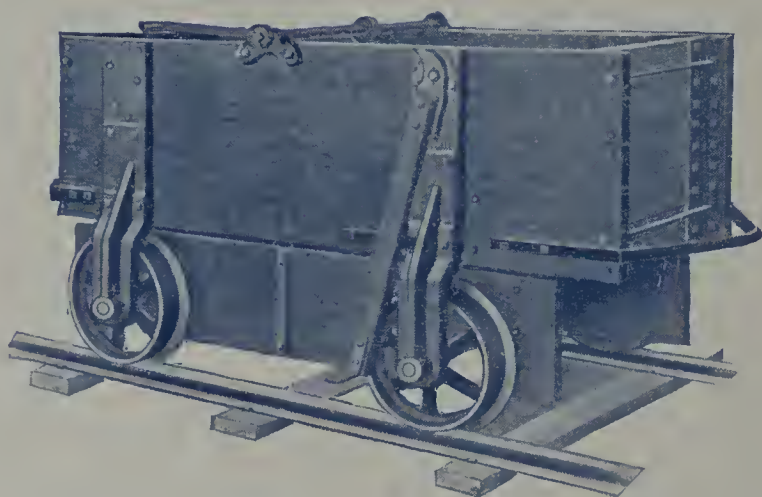
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Drag Belt Clay Conveyor.



Sprocket Chain Clay Conveyors.



Bottom Dump Clay Car.

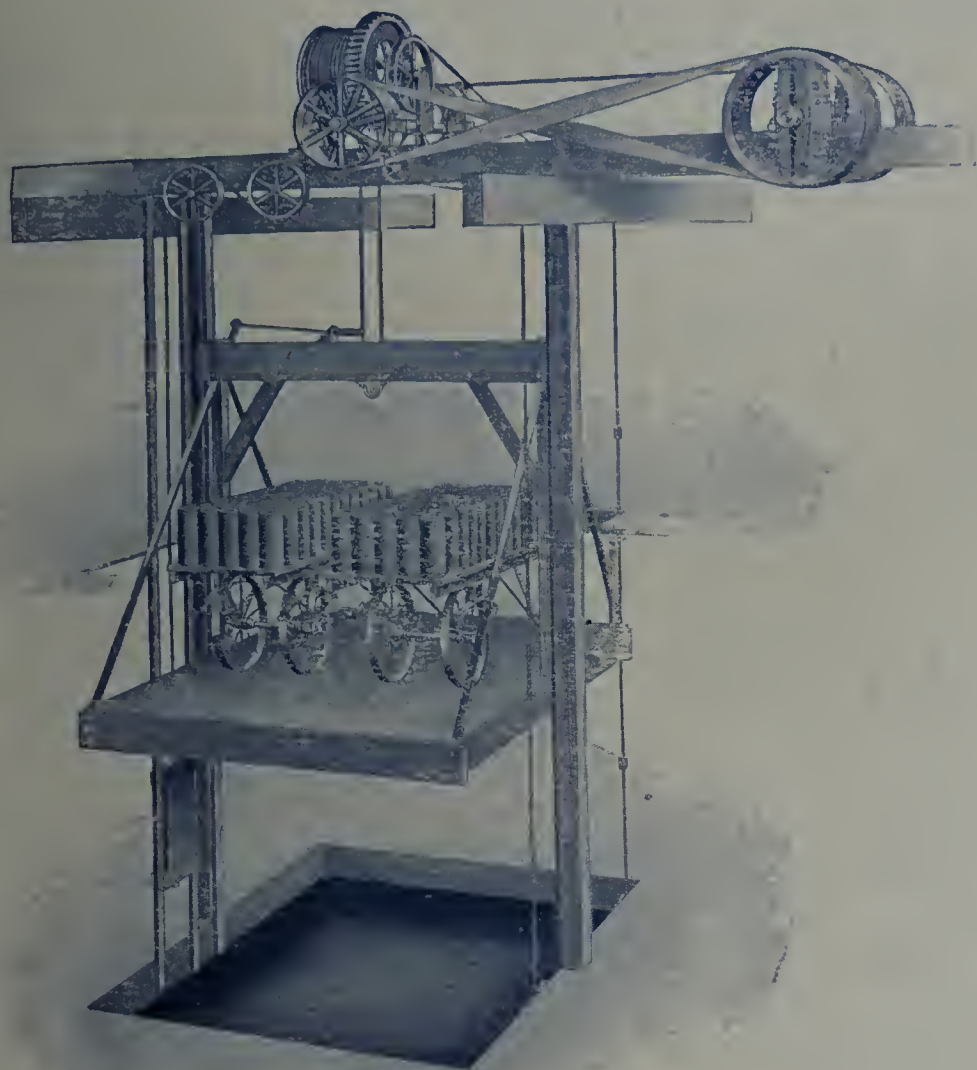


Side Dump Clay Car.

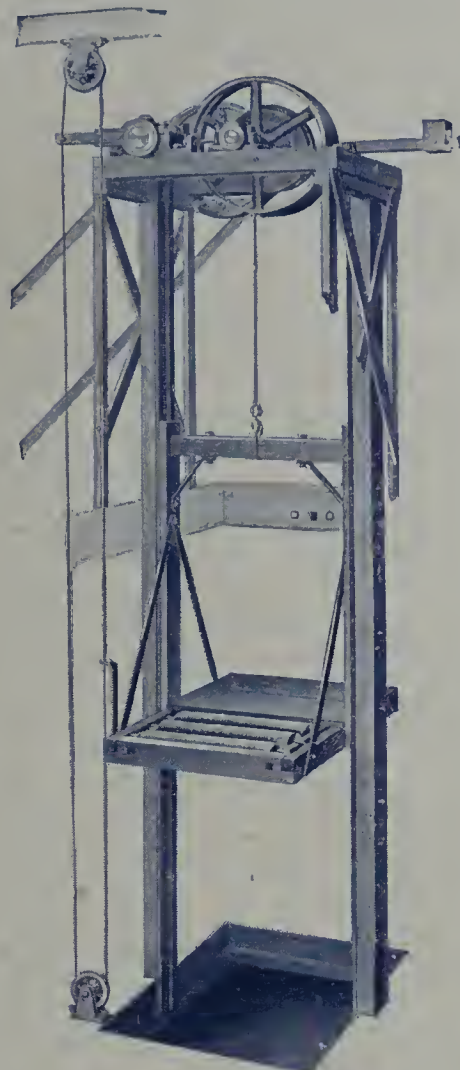
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.
THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

Mention THE CLAY-WORKER.



Platform Elevator.

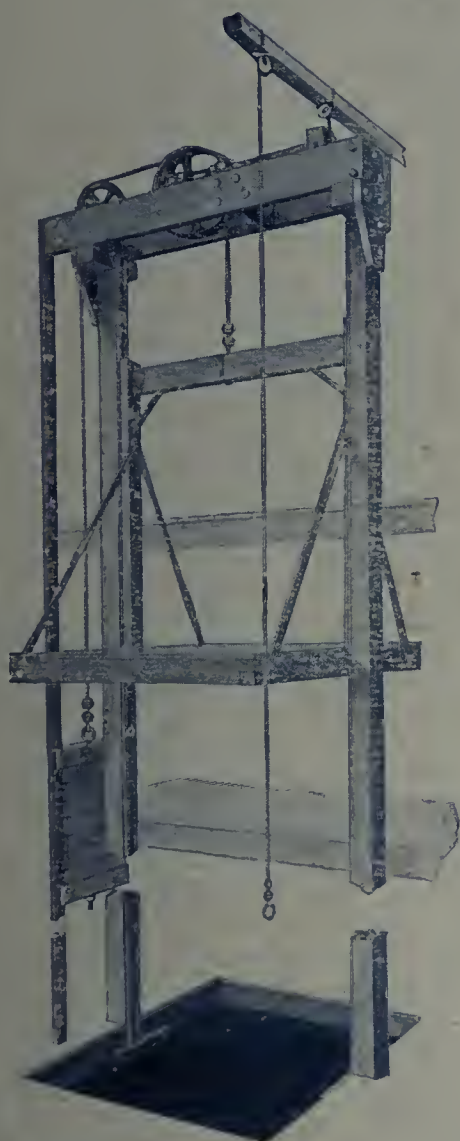


Friction Drive Elevator.

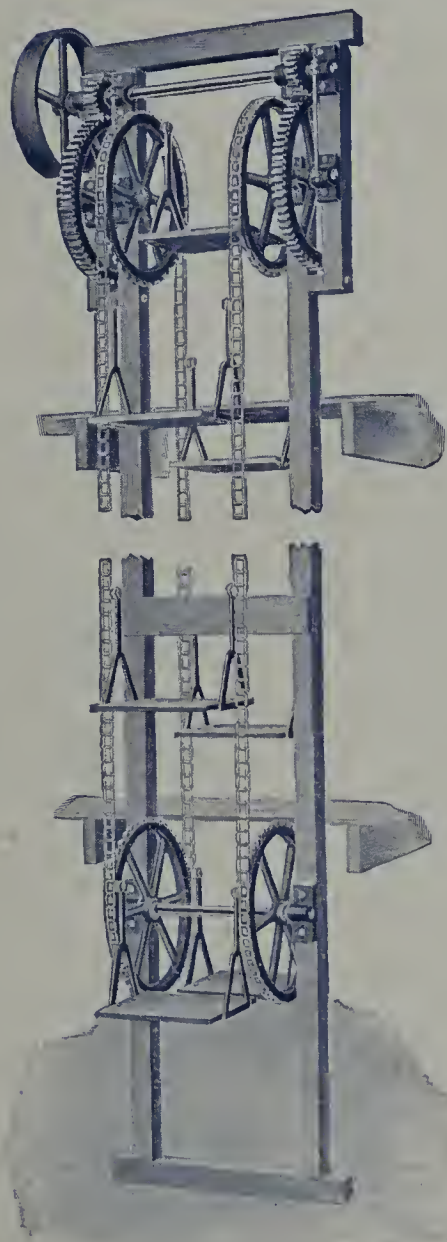
The J. D. Fate Co.

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Dayton, Ohio, Sales Agents.



Gravity Elevator.



Small Tile Elevator.

If there is an atom of doubt in your mind that the

PERFECT CLAY SCREEN

will fill all requirements, dispel it. we take the chances.
We are looking for what you may call trouble. That is properly
screening clay. It is not trouble for us, it is our business.

Do not be backward about asking us.

We will be Dee-Lighted to serve you.

DUNLAP MFG. CO.,
BLOOMINGTON, ILL.

MORE WORK from your men because of EASE in loading—by lowering one side of body of car—lugs at end of body hold the body of car rigid in position shown in cut. All sizes in stock.



LAKEWOOD LINE

The LAKEWOOD 2-WAY Dump Car is all steel; body of heavy sheet steel; corners reinforced and around top with angle; heavy, well-braced channel frame. Built for durability and efficiency.

Brick Cars, Turntables, Etc.

Ohio Ceramic Engineering Co.

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Branch Office: 1015 First National Bank Bldg., Chicago



2-WAY DUMP CAR No. 241.



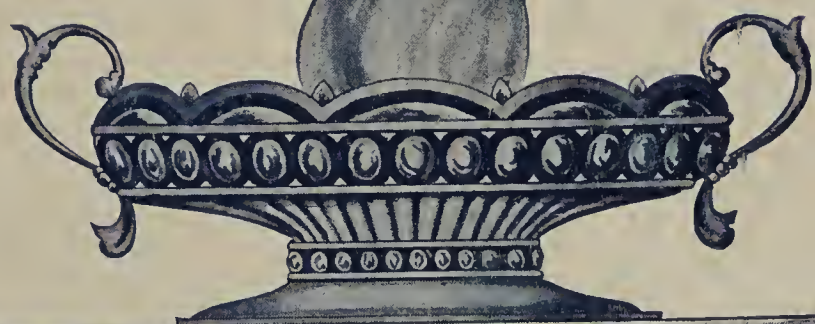
THE CLAY-WORKER

PUBLISHED
MONTHLY
BY

T. A. RANDALL & CO.

INDIANAPOLIS

MARCH, 1911



OFFICIAL
ORGAN
OF THE

NBMA



A Pronouncement to Brickmakers



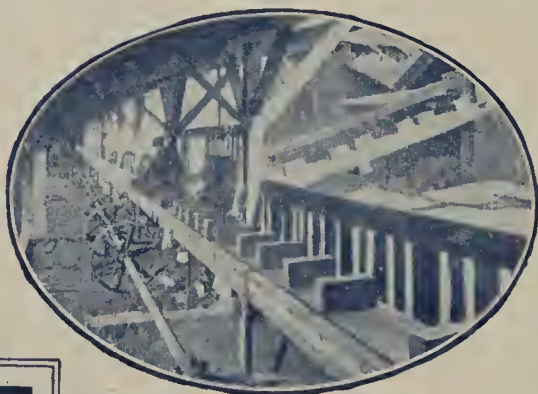
- \$ You are confronted with problems pertaining to **Handling, Drying and Burning**, in the solution of which we can be of material assistance, if but given the opportunity.
- \$ **You Want Results**—in other words, if a new plant, lowest possible cost; if an existing plant, reduced cost. Simply tell us which you have, and, after complete analysis, you will be advised frankly and exactly what can be accomplished.
- \$ Your proposition will be made on the basis of **Guaranteed Satisfaction**, and the terms made accordingly.
- \$ THE "SCOTT SYSTEM" is recommended for plants making wire-cut "Builders." **This eliminates the dryer entirely**, as the brick are dried in the kiln or kilns. A system of conveyors takes the brick **direct from the machine into the kilns**, cuts out dryer men, tossers and laborers required for hacking brick on dryer cars.
- \$ THE "SCOTT SYSTEM" is in constant and satisfactory use on over a dozen plants. A number of plants are producing 60,000 to 80,000 brick per day with but 20 to 24 men on the pay roll, including Superintendent and night men. Can you beat it?
- \$ **TWO HUNDRED THOUSAND BRICK IN EIGHT HOURS** are actually being handled from the machine, set and dried in kilns **with but 16 men** by the "SCOTT SYSTEM" on a Chicago plant. "THE SCOTT SYSTEM" is doing as well or better in proportion—for others.
- \$ **BURNING COST IS REDUCED 50 PER CENT**, and a materially increased percentage of hard burned brick produced by the **newly developed plan of burning on the continuous principle in ordinary up-draft kilns**. THIS SYSTEM IS INSTALLED AT OUR OWN EXPENSE and a royalty is charged for a limited number of years, equivalent to one-half the savings. Without obligating you in any way, let us tell you more about it.
- \$ Now, a word about **DRYING**. "A B C" Waste Heat and Steam Dryers are being sold every day, **on a guarantee**. Hundreds are in satisfactory operation. Our experience over a quarter century in drying is at your disposal. You need more than mere apparatus, so our proposition includes complete working drawings for the building and appurtenances. Ask any question about your drying problem, and thereby **make us prove our claims**.
- \$ Put the following manufactures in your mental index, and favor us with your inquiries: **BLOWERS, EXHAUST FANS, STEAM ENGINES, ACID RESISTING DRAFT FANS FOR CONTINUOUS KILNS, DIRECT CONNECTED ELECTRIC LIGHTING SETS, STEAM TRAPS FOR RETURN OF CONDENSATION TO BOILERS WITHOUT PUMPING, ETC.**
- \$ Dollars are not spared in getting before you, nor do a few dollars hinder us in **making good**. It costs but the **inclination to save dollars**, and a two cent stamp to bring your inquiry. May we have it?



AMERICAN BLOWER COMPANY
DETROIT, MICH.
U. S. A.

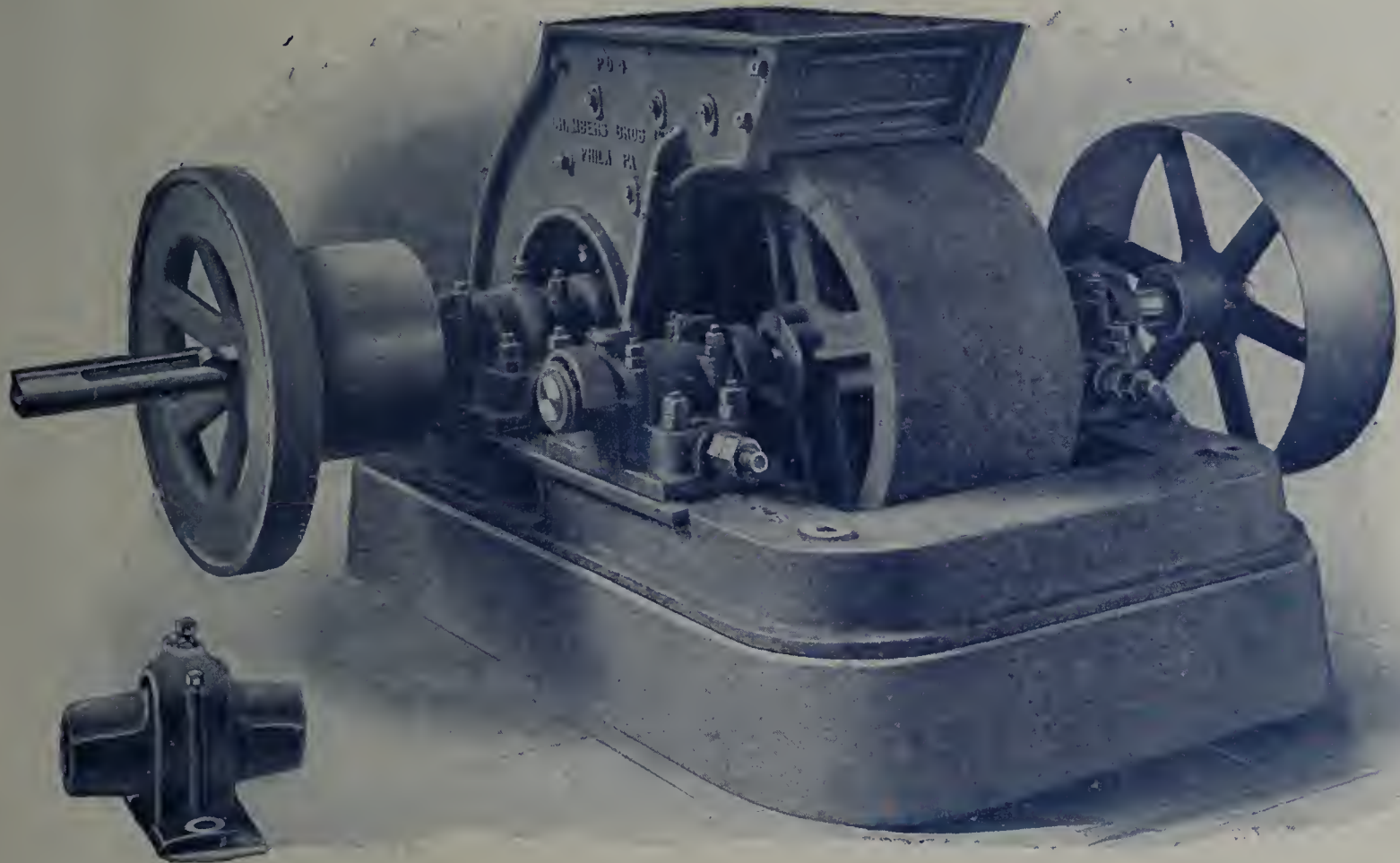
BRANCHES:

New York	Chicago
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Atlanta	Seattle
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ONE OF OUR SPECIALTIES

Clay Disintegrators or Grinders



The Chambers No. 2 Special Clay Disintegrator.

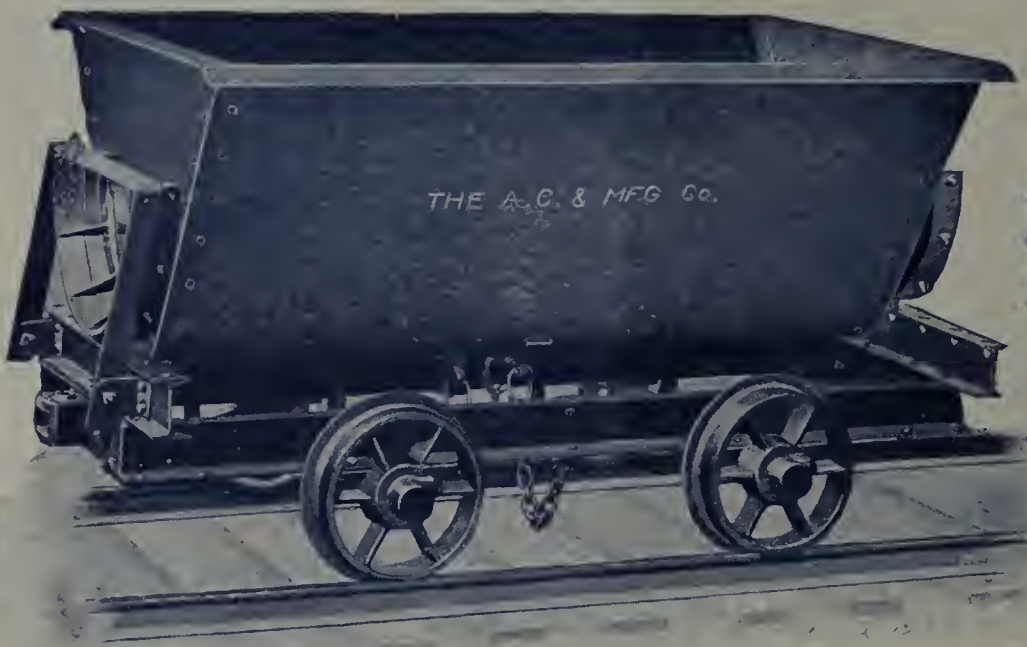
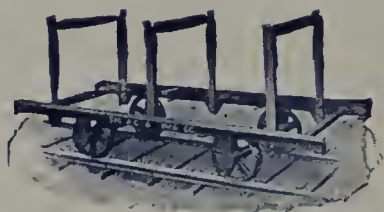
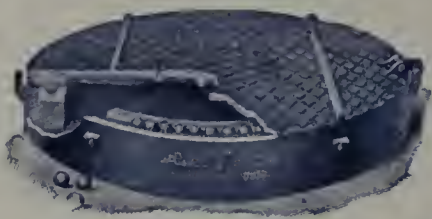
For all around work on surface dug plastic clays used either for stiff tempered or soft molded brick-making, this machine has an enviable record. Receives clay in either dry or moist condition, throws out the larger stones and crushes the smaller ones. A very reasonable attention to maintenance keeps our Disintegrators in condition for good work and insures continued satisfaction. One brickmaker claims to have put clay for 27 millions of brick through one of our No. 2 Special Disintegrators without any repairs! This is an unusual record. Conditions must have been exceptionally favorable. The next customer may have a mixture of flint rock and gummed sand that would cause him to divide that record by ten at least, but the No. 2 Special grunts a little and then goes on. We don't sell many stiff mud brick machines to the New England Brick Manufacturers but we sell them our Disintegrators.

We build several sizes and have one machine designed for the man who feeds horse shoes and steel wedges along with other things sent up by the steam shoveler.

Chambers Brothers Company

Brickmaking Machinery

Philadelphia, Pa., and Chicago, Ill.



RAIL,
SWITCHES,
FROGS.

TURNTABLES,
WHEELS,
AXLES.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Taplin-Rice-Clerkin-Co.

The Machinery Folks of Akron, Ohio, U. S. A.

STOP

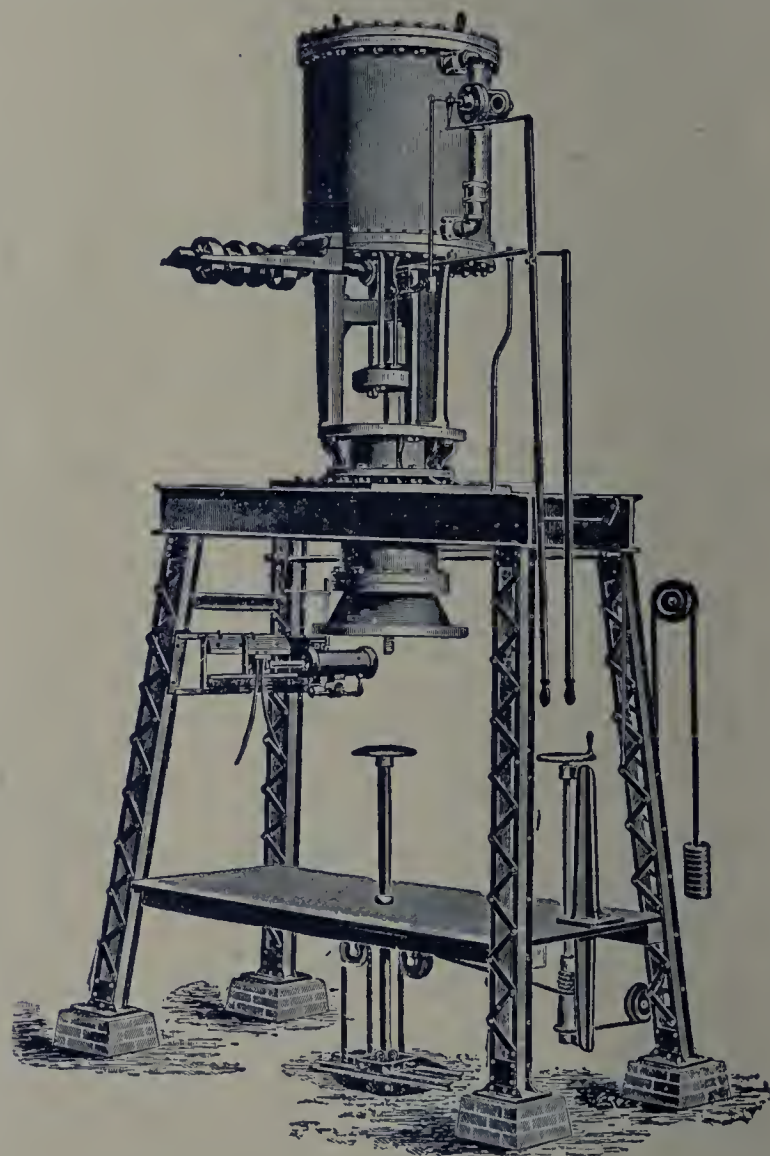
at Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny, Renton Co., Seattle, Wash.
The Gladding-McBean Co., San Francisco, Cal.
The Pacific Clay Products Co., Los Angeles, Cal.
W. S. Dickey Clay Mfg. Co., Kansas City, Mo.

LOOK

Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.
at San Antonio Sewer Pipe Co., San Antonio, Tex.

LISTEN

Henry Stevens Sons & Co., Macon, Ga.
Pomona Terra Cotta Co., Pomona, N. C.
Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.
to British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 27.

Mention THE CLAY-WORKER.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

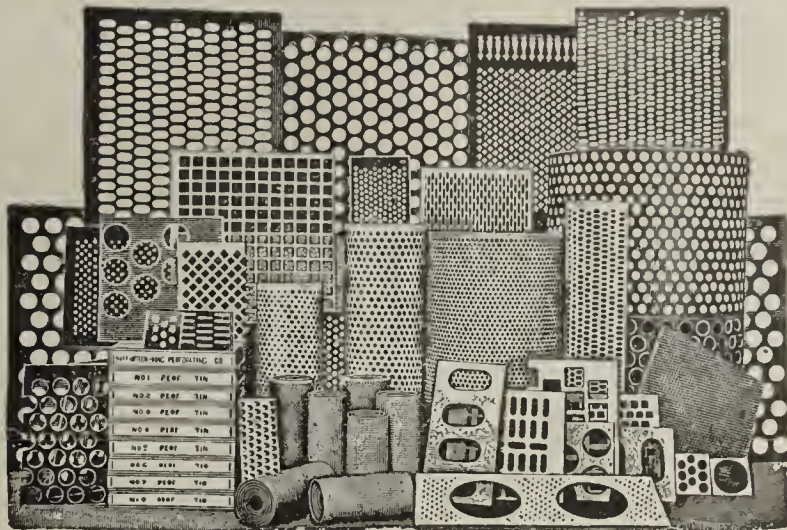
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the guage (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



OUR COMPANY IS THE ACKNOWLEDGED AUTHORITY TO- DAY ON WASTE HEAT DRYING

The RODGERS DRYER is the Dryer which has an unbroken record of success and is found in the leading brick plants in America.

We dry SATISFACTORILY most of the brick of Western manufacture.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

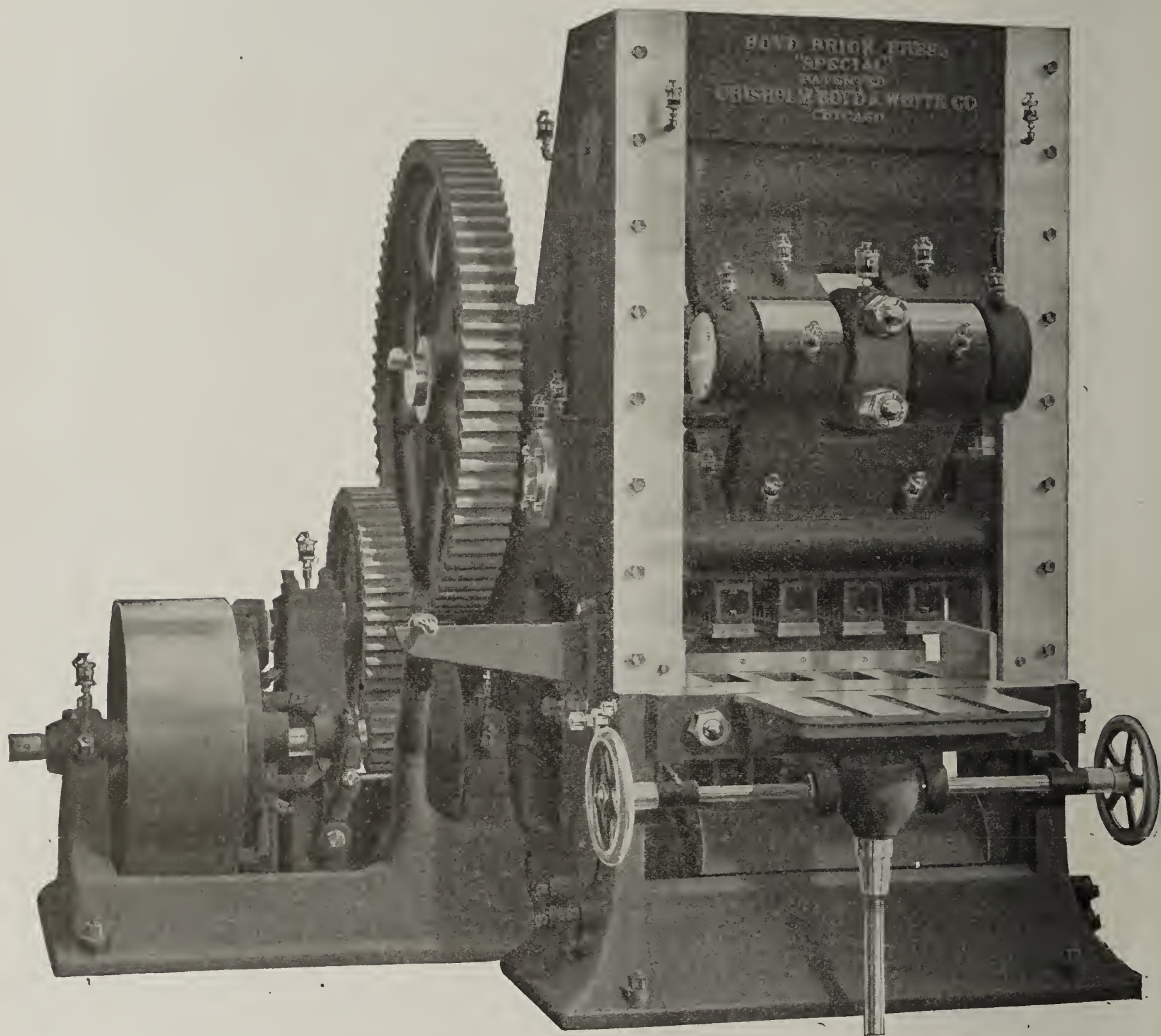
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.

BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

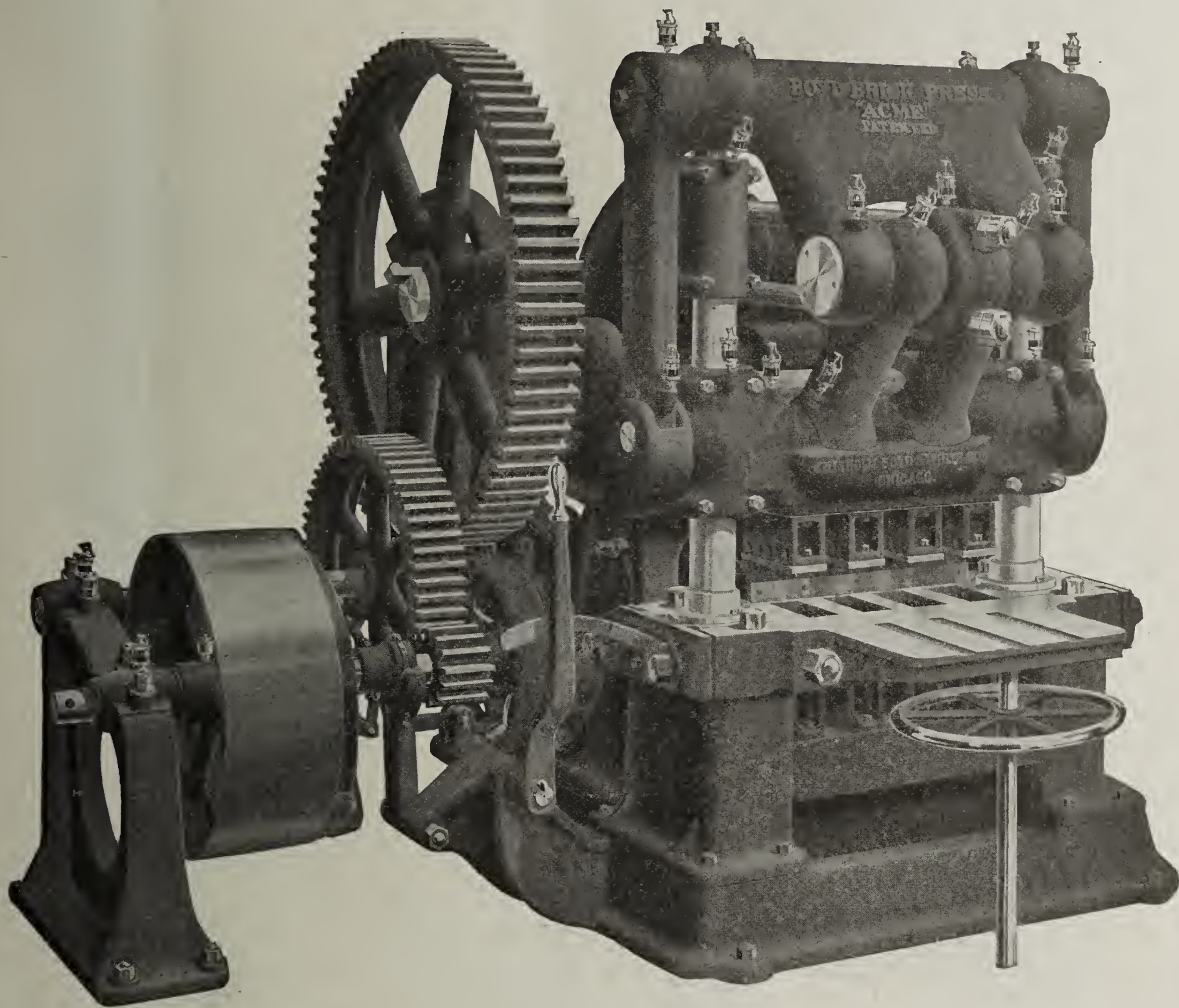
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.

The Boyd Brick Press

Four-Mold Acme.



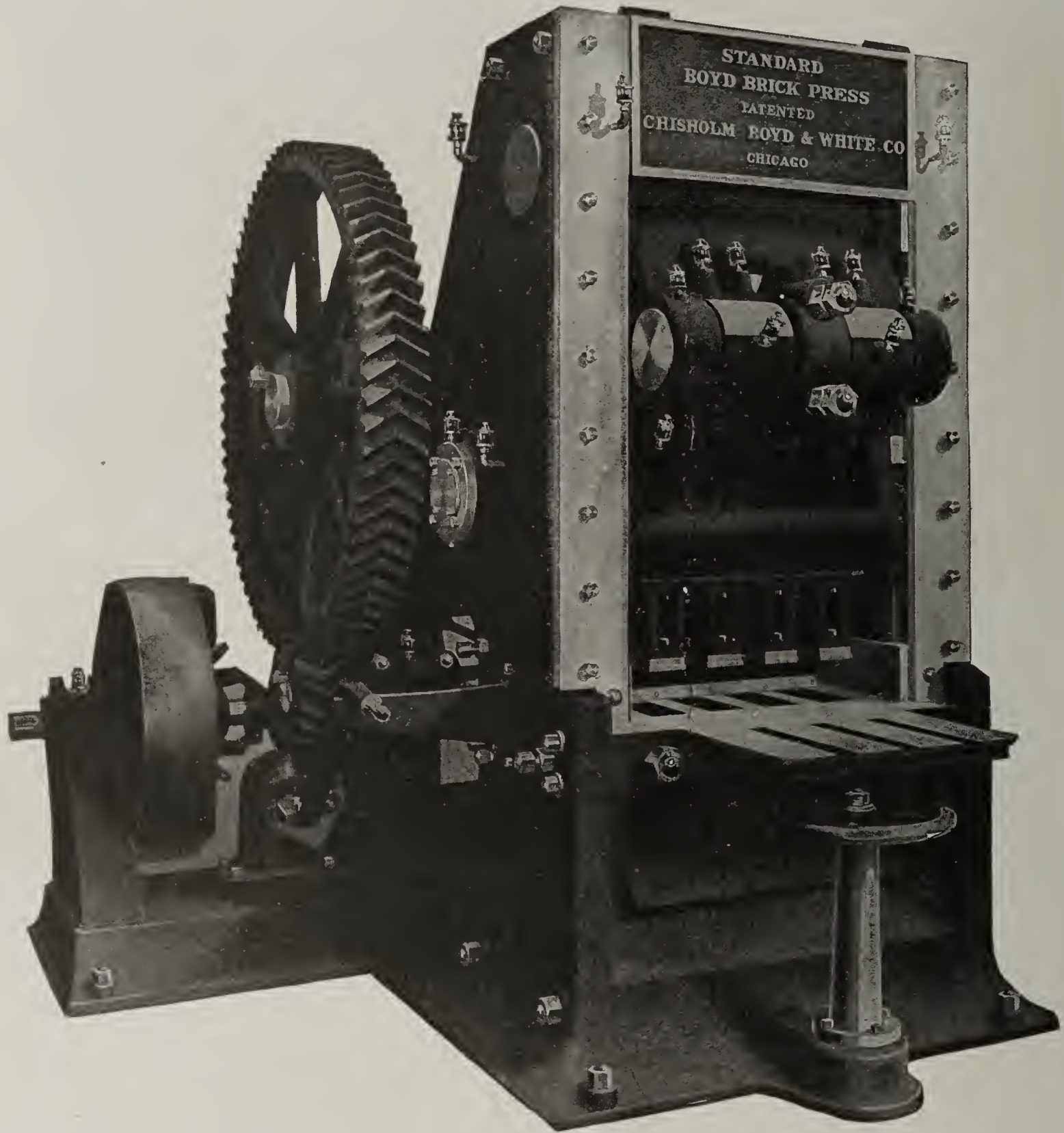
Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Mention THE CLAY-WORKER.

STANDARD BOYD BRICK PRESS.



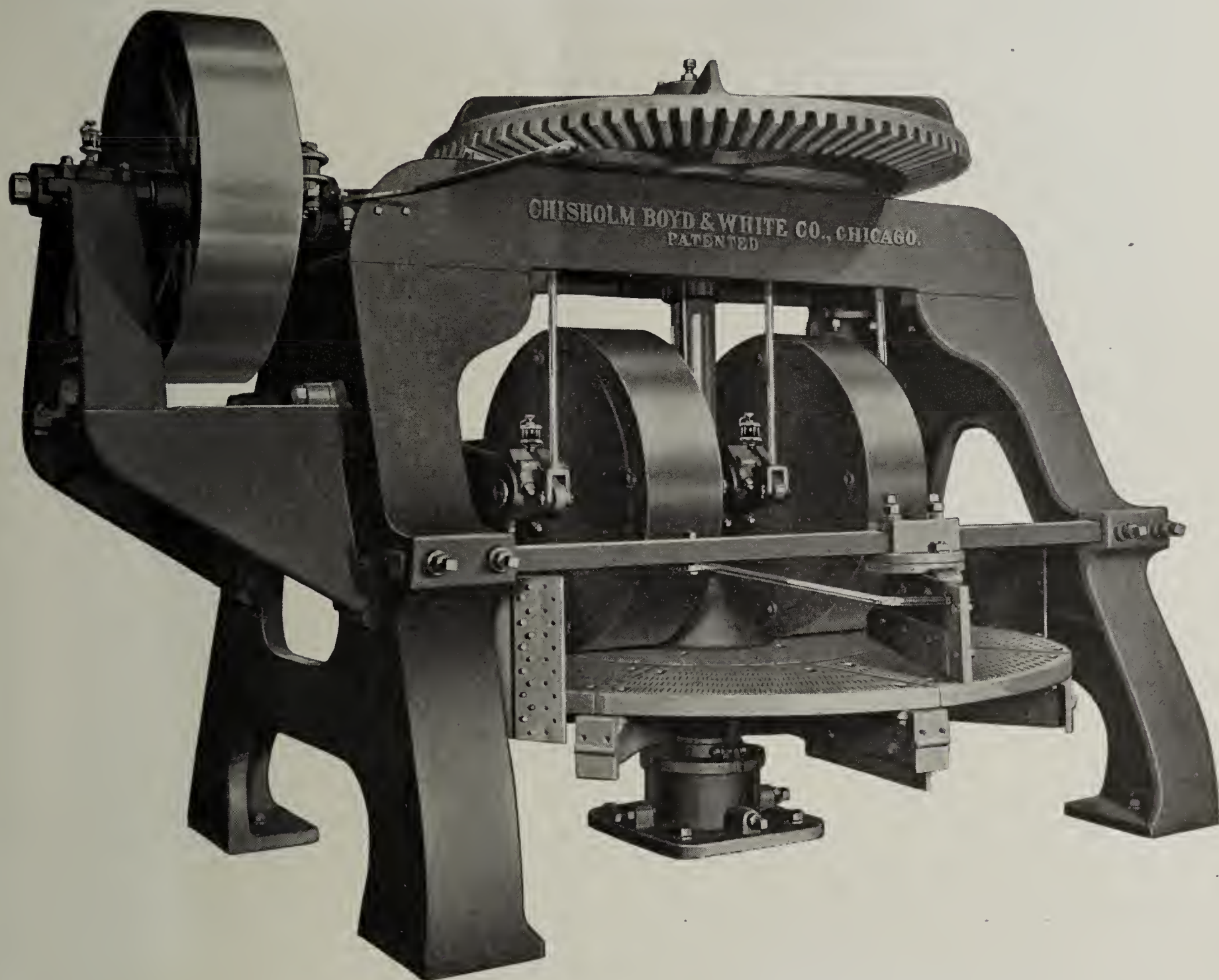
OUR NEW STANDARD BOYD BRICK PRESS
Is the Limit of Perfection in Brick Pressing Machines.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Mention THE CLAY-WORKER.

DRY PANS.

BOYD QUALITY.



OUR NEW NINE-FOOT HEAVY DUTY DRY PAN.

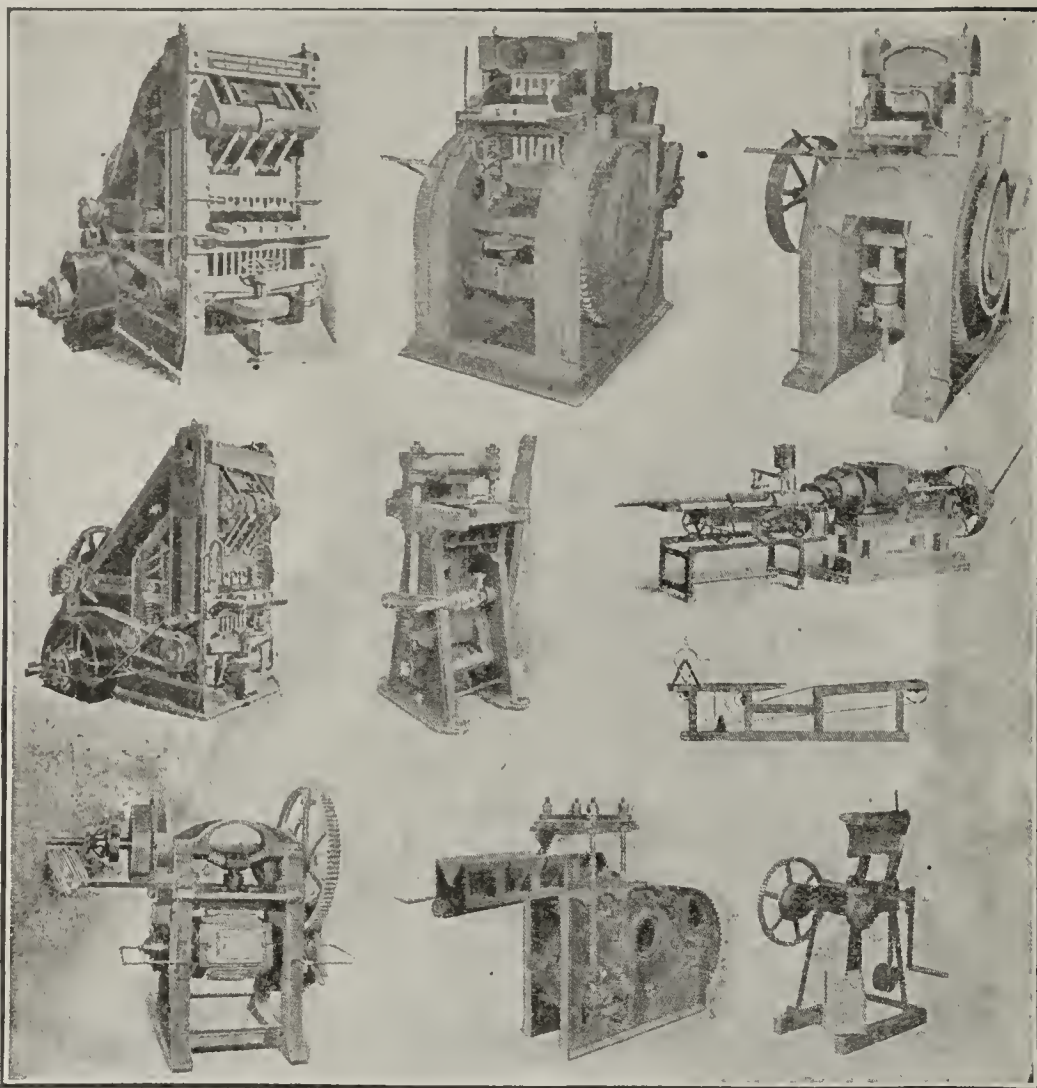
For design, strength, durability and efficiency
this Dry Pan has no equal.

Chisholm, Boyd & White Company,

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Mention THE CLAY-WORKER.



For Highest Grade Press Brick
and Roofing Tile you must have
The Best Machinery.

The Grath

**Brick Presses and
Roofing Tile
Machinery**

Are Best, Simplest and Strongest
and the Prices are Right.

We Sell the

Schurs Oil Burners

for kilns of all kinds, also boilers.

The Schurs Burners are the Simplest
in the market. Only three parts to
burner. Will give better results with
less oil than any burner made. **Price
right.** Over 6,000 in use.

We Lead All in Kilns and Furnaces Over 25 Years' Experience.

Our Single Down Draft Kilns burn ALL No. 1 Face—Paving or Fire Brick. NO over
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Our Style A. Continuous Down Draft Chamber Kiln. For use of oil or natural gas.

Our Style B. For use of producer gas.

Our Style C. For use of wood or coal direct. No smoke made. All the heat in the
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Our Continuous Kilns are fired from both sides, will stand wear and tear. The waste
heat is applied at sides, bottom and top, heating up uniformly, and insuring uniform
burns without losses.

Our Kiln Furnaces are simple, easy to handle, burn the smoke, prevent cracked ware
and slack or pea coal will give better results than lump coal in ordinary furnaces.

For further information write

Illinois Supply & Construction Co.

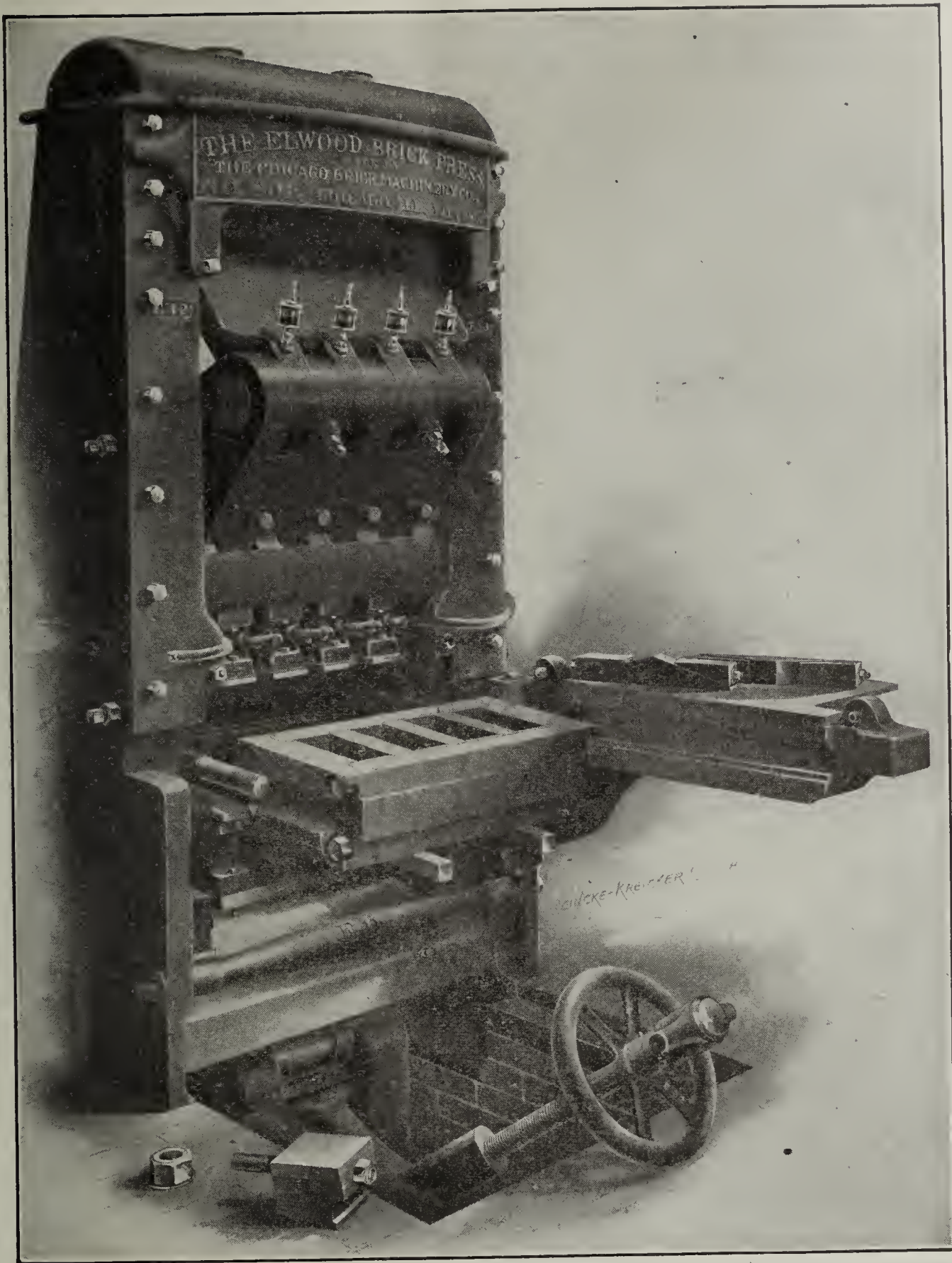
Liebers' Code.
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GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Long Distance
Telephone,
Bell Main 235

THE ELWOOD PRESS

"THE OPEN DOOR"



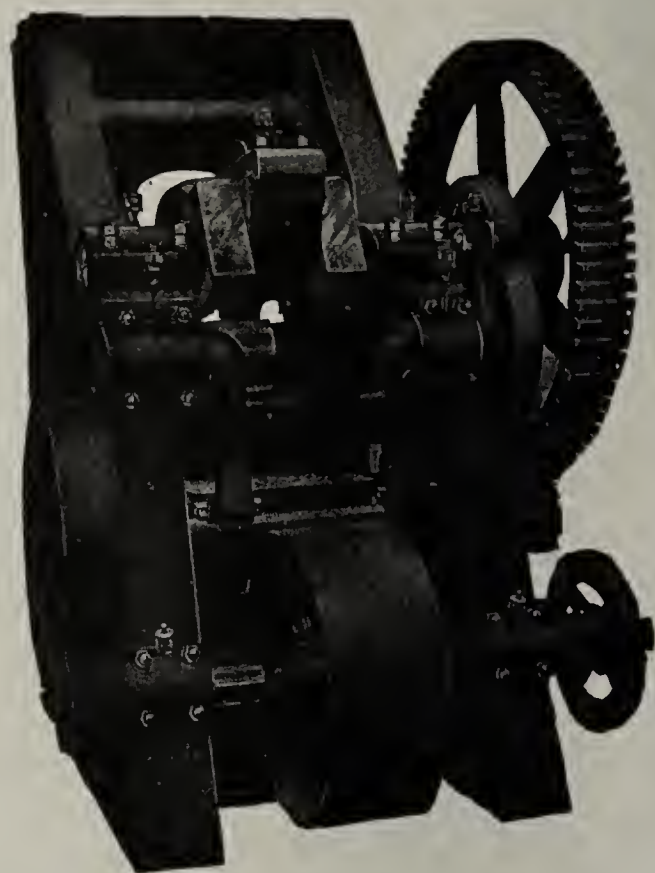
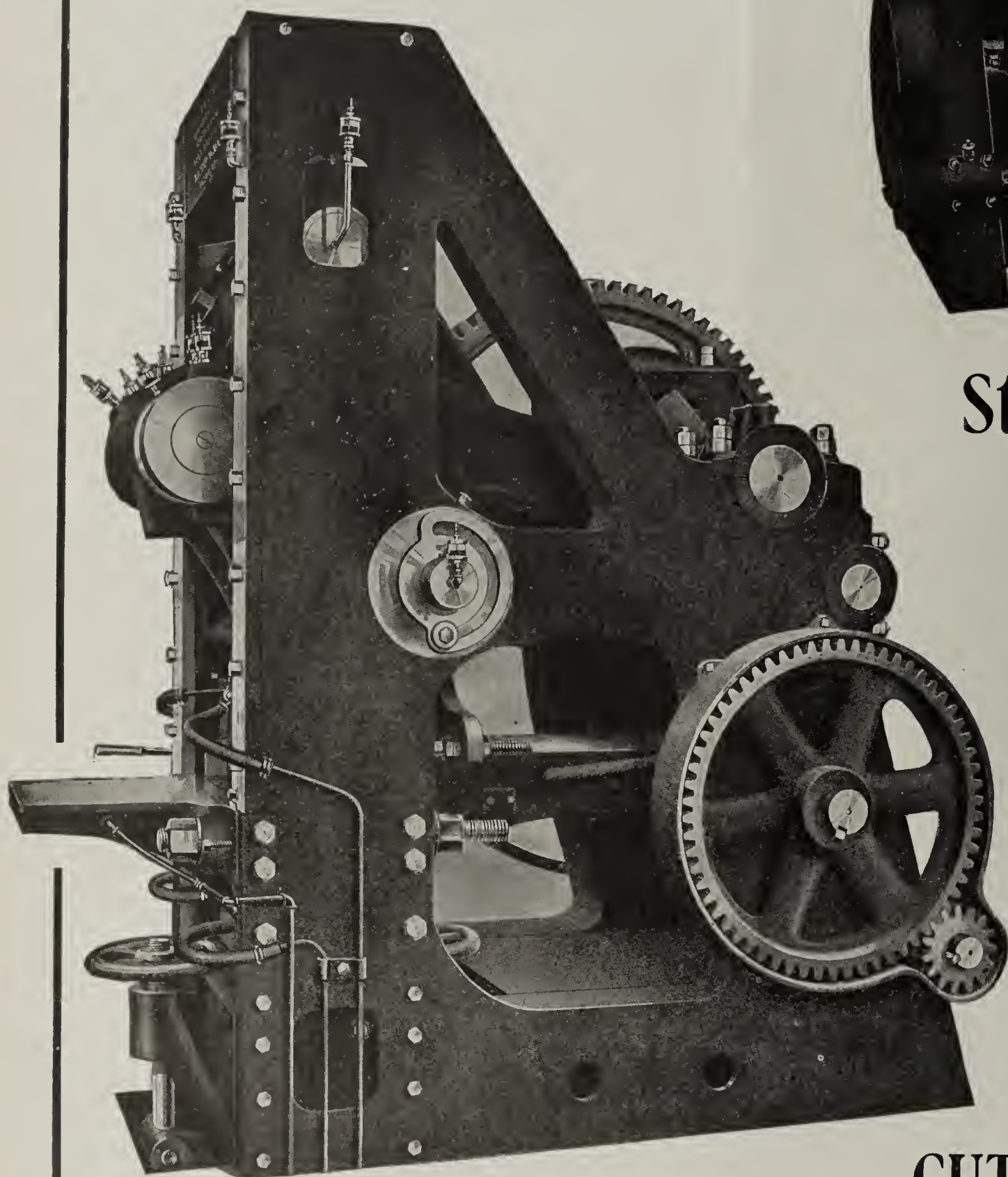
The easiest method of changing molds is by the use of our **OPEN DOOR MOLD TABLE**. Two interchangeable mold boxes furnished. Simplest of all Presses. Send for our **NEW BOOKLET** showing the 1911 improvements.

CHICAGO BRICK MACHINERY CO.

77 Jackson Blvd., Chicago.

Mention THE CLAY-WORKER.

New Model Berg Brick Press



Back View.

Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE PIECE.

All Machines Are
Equipped With

CUT GEARING

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS,

Manufacturers of Soft Mud Brick and Drain Tile Machinery,

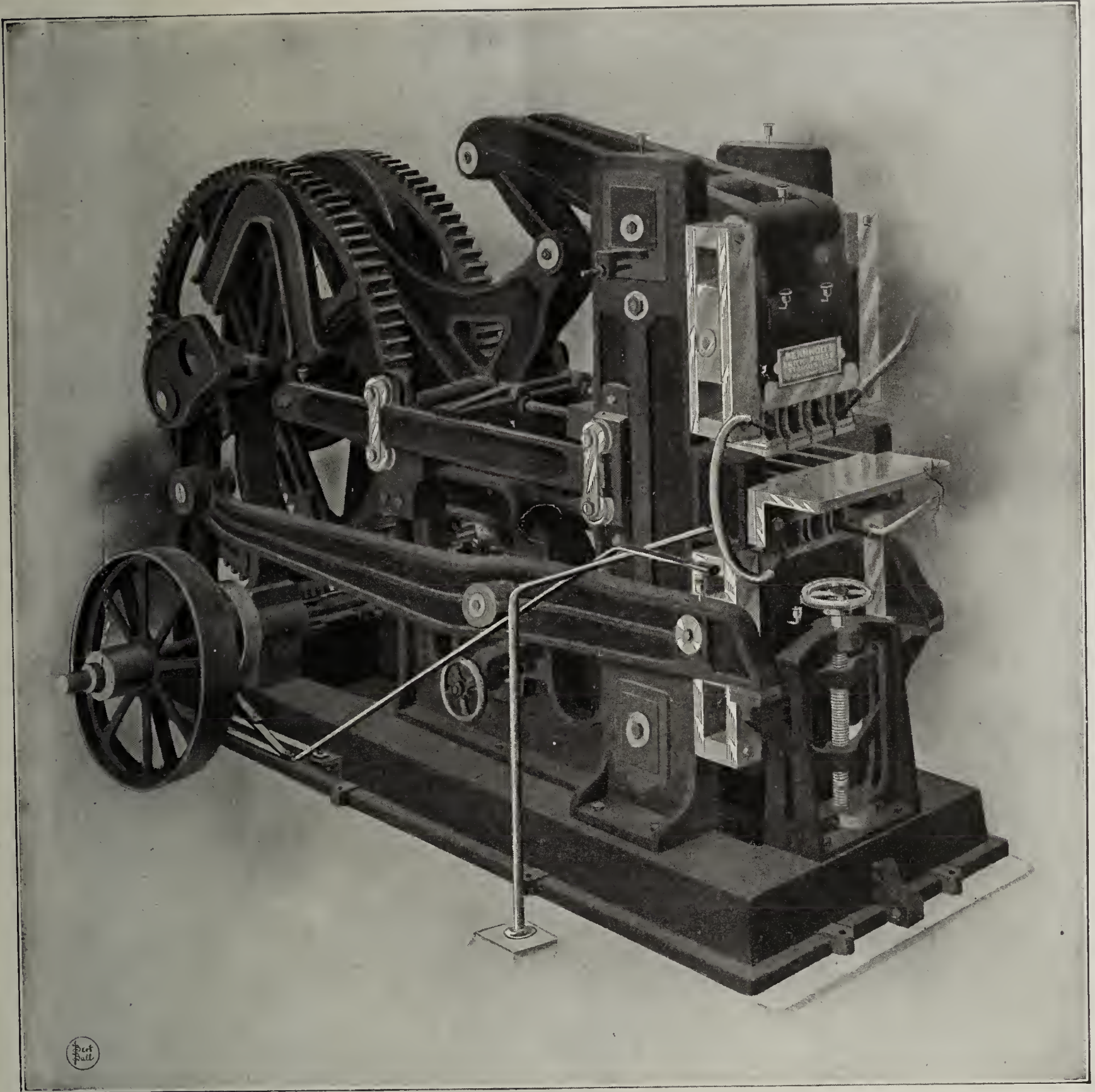
Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

Mention THE CLAY-WORKER.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.



If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

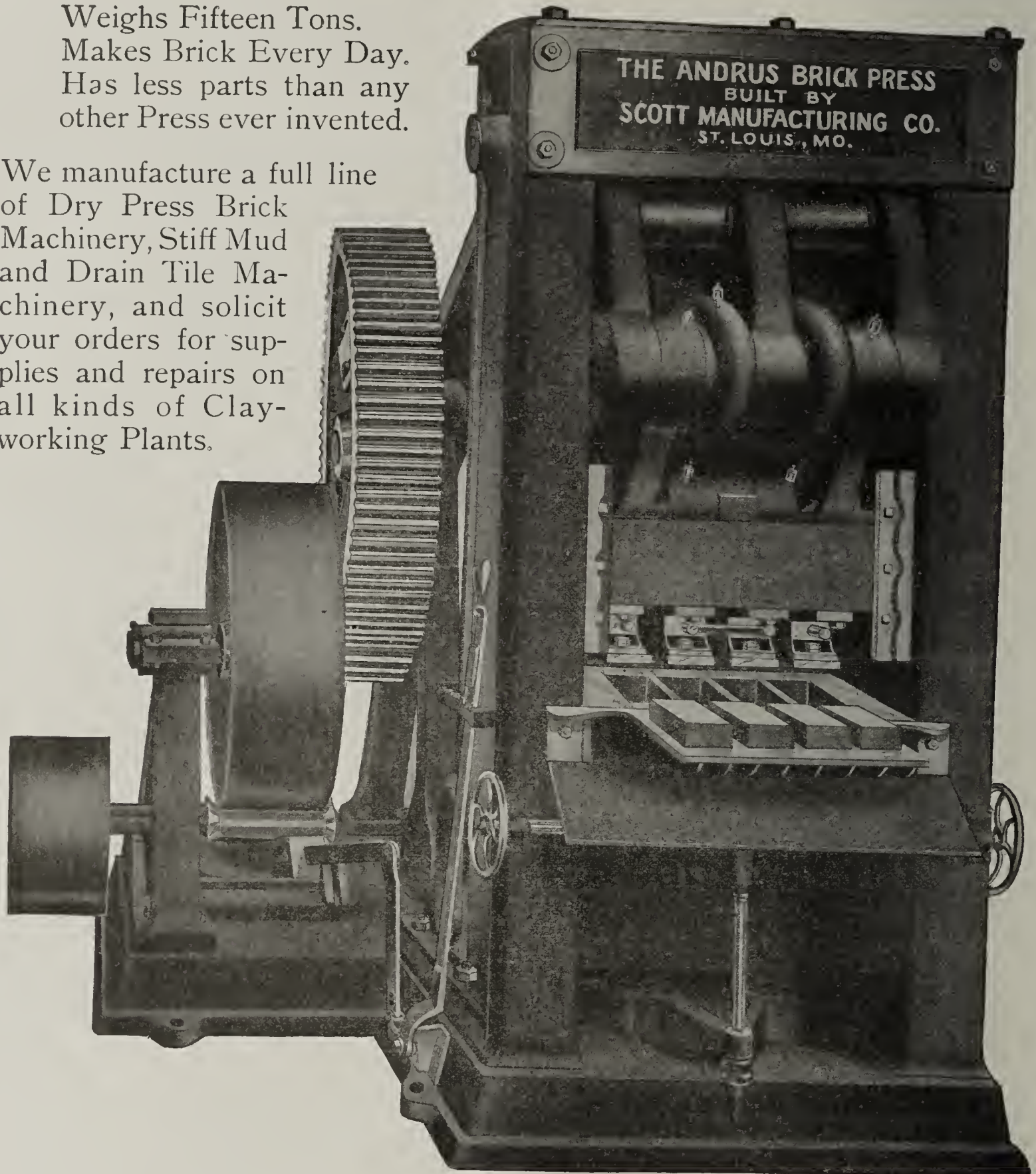
The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

The Andrus Brick Press

Weights Fifteen Tons.
Makes Brick Every Day.
Has less parts than any
other Press ever invented.

We manufacture a full line
of Dry Press Brick
Machinery, Stiff Mud
and Drain Tile Ma-
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your orders for sup-
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all kinds of Clay-
working Plants.



Scott-Madden Iron Works Co.

Works:
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Third National Bank Bldg.

ST. LOUIS, MO.

WHY?

WHY does the average business man equip his office with all the modern conveniences and facilities for quickly and easily handling the routine work of accounting, billing, recording and corresponding? Couldn't he use a dry goods box instead of a quartered-oak desk? Couldn't he use cheap, plain paper instead of elaborate lithographed letter heads? Couldn't he use a rubber stamp on his envelopes? Couldn't he write his letters instead of investing \$100 in a typewriter? Couldn't he get the sum of a column of figures without putting in 200 plunks for an adding machine? Couldn't he do without many more of those conveniences and labor-savers, found in the modern business office? Many of these things are not producers in the accepted sense—and many of them are merely luxuries.

Why does he have them?

BECAUSE they lend a certain and desirable dignity to the business.

BECAUSE they save time and labor.

BECAUSE they promote harmony and accuracy.

BECAUSE they simplify, beautify and systemize the work.

BECAUSE they enable the boss to spend more time in his motor car.

Assuming that these reasons are correct and that it is ESSENTIAL and PROFITABLE to provide every facility for work in the business office, WHICH DOES NOT PRODUCE, why then isn't it vastly more essential to provide every possible convenience and labor-saving device which will facilitate, harmonize and economize the operation in the factory end of the business—THE END THAT PRODUCES?

Yet many managers will spend money freely for office jim-cracks, but when his superintendent points out a way to cheaper production by providing some comparatively inexpensive machine or device, he hems and haws, scowls, procrastinates, puts him off or turns him down.

And some Brick Manufacturers are just like that.

We have a valuable message for every man who operates a brick plant.

We don't care how many flub-dubs you have in your office, but we do want to help your superintendent increase the profits.

For that very purpose we are manufacturing a device for handling brick in a manner entirely new and surprisingly simple—inexpensive to install, inexpensive to operate and inexpensive to maintain.

We say new—but not so new that it has not been sufficiently tested. We have been installing them in plants all over this country for the past ten years—long enough to discover every imperfection and apply the proper remedy.

This message is for the manager who hasn't heard or read about the MATHEWS GRAVITY BRICK CARRIER—also for the manager who has heard or read but remains indifferent.

Our Gravity Brick Carrier displaces the "Wheelers"—day laborers who get tired, shirk, lay off or go on a strike; who destroy the brick by breaking or damage by chipping. The Carrier does the work much better, quicker and cheaper, increases the output and sets the pace for increased activity throughout the plant. Operates by natural gravity, conveys brick between any two points in the plants or yards, loads or unloads cars rapidly without loss or damage. Made of steel, scientifically constructed, perfectly adjusted. We also make Automatic Inclined Elevators to use in conjunction with carrier lines where required.

It won't put you to much trouble to ask us about this proposition—just a line to say you are interested, that's all. Put the trouble up to us. Our engineering department will study your particular case—tell you what you need, name the price and install the necessary equipment to put you in position to compete with greater profit.

Place your order NOW for delivery any time in the future.

MATHEWS GRAVITY CARRIER CO.

Main Office and Factory:
ST. PAUL, MINN., U. S. A.

Represented by BRITISH MATHEWS, Ltd., London, England.
Manufacturing and Selling Under Mathews Gravity Carrier Co. Patents.

FUEL OIL BURNING EQUIPMENT FOR THE CERAMIC INDUSTRIES

With proper burners and equipment, Oil is an ideal fuel for any or all the Ceramic Industries. It is the cheapest fuel, except in the immediate neighborhood of the coal and natural gas fields.

It gives a very uniform heat.

The evaporative efficiency of nearly every kind of oil, per pound of combustible, is probably the same. Either crude or fuel oil may be used.

The firemen are disposed to favor oil, and therefore no objection from labor will be met.

The oil should be heated to be more readily atomized.

The efficiency of fuel oil plants will be greatly dependent upon the general character of the installation of auxiliaries and fittings, and therefore the work should only be given to those who have given careful study to the matter, and who have had extended experience in burning oil fuel. The form of the burner will play a very prominent part in the use of crude petroleum. The method and character of the installation will count for much. Consumers should principally look out that they do not purchase appliances that have been untried and have been designed by persons that have had but a limited experience in operating oil devices.

The necessary apparatus consists briefly of one burner for each fire box, a pumping, heating and regulating system for drawing the oil from the oil storage tanks and feeding it to the burners under constant and uniform pressure, a reducing valve for reducing the compressor or boiler pressure, the necessary pipes, valves and fittings, together with oil storage tanks.

The Relative Values of Oil and Coal.

No. 1 Oil at per bbl.	No. 2 Equals, all saving considered, coal at per ton	No. 3 Equals, in small Ceramic plants, coal at per ton	No. 4 Equals, in boiler practice, coal at per ton	No. 5 Equals, losses in ship- ment considered, coal at per ton
.60	1.59	1.67	1.96	2.24
.70	1.84	1.94	2.28	2.61
.80	2.11	2.22	2.61	2.98
.90	2.37	2.49	2.93	3.35
1.00	2.63	2.77	3.26	3.73
1.10	2.91	3.06	3.59	4.10
1.20	3.16	3.33	3.91	4.47
1.30	3.43	3.61	4.24	4.85
1.40	3.70	3.90	4.59	5.22
1.50	3.87	4.07	4.89	5.59

Calculations based on oil weighing 7.6 pounds per gallon, with 42 gallons per barrel, having a heat value of 19100 B. T. U. per pound, and on coal per ton of 2000 pounds, having a heat value of 13,500 B. T. U. per pound.

Column No. 1 above represents the cost of oil at various prices from 20c to \$2.00 per barrel.

In column No. 2 above, the price of coal is figured against the known economies of oil in burning clay wares in larger plants with the most efficient equipment adapted to kilns or furnaces, taking into account labor, etc.

Column No. 3 above represents the maximum price that can be paid for coal to equal oil, in the smaller size plants. In these plants, the efficiency of the fuel is the same as in No. 2, but there is not the corresponding saving in labor, nor has any consideration been made of other economies.

Column No. 4 represents the price that can be paid for coal to equal oil in boiler practice. With the moderate size power plants such as used by the clayworkers any saving of labor has not been considered.

Column No. 5 above represents the price of coal equal to oil, taking account of the loss in shipment of the different fuels which is borne by the purchaser, even on a delivered price.

TATE, JONES & CO., Inc.

Chicago Representative,
GEO. E. LUCE,
No. 181 Van Buren St.
CHICAGO.

Manufacturers Oil Burning Equipment,

Pittsburg, Pa.

THE MANUFACTURERS EQUIPMENT COMPANY

Dayton, Ohio, U. S. A.

A Combination You Can't Beat.

The J. D. Fate Co.'s Line of Clayworking Equipment

The Elwood Dry Press

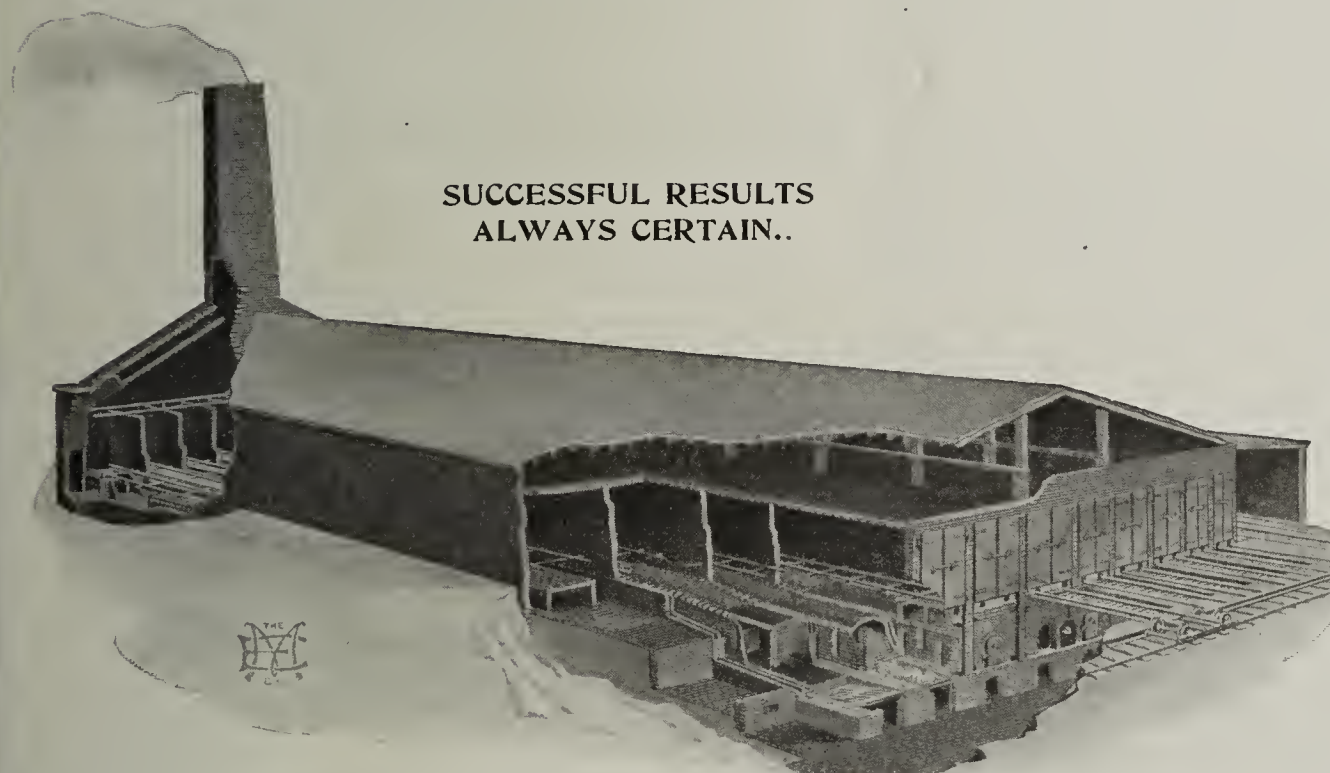
(The Press with the "Open Door.")

The Justice Patented Radiated Heat Dryer

(That in which "Successful Results are Always Certain.")

The "Meco" Line of Piano Wire Screens, Supplies, Etc.

The above represents a line that is without a peer for the manufacture of clay products by any process, and back of it all is our many years of experience, the result of active identification with the trade and its requirements. Therefore, we say it is a combination you can't beat.



We are *sales agents* for the first and second lines mentioned above, and producers of the third and fourth. Inquiries are solicited and will receive prompt and careful attention. We are prepared to equip plants complete from the power to the kilns for any one or combined lines of manufacture of clay products, and will be more than pleased to send catalogues or other descriptive literature of anything needed.

THE MANUFACTURERS EQUIPMENT COMPANY
Dayton, Ohio, U. S. A.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
 "Directions for Laying Brick Street Pavements."
 "Proper Construction of Brick Street Pavements."
 "An Object Lesson in Brick Pavements."
 "The Permanent Roadway."

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Shawmut, Pa.

Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

OXBLOOD RED FRONT BRICKS
 DEVONSHIRES and REPRESSED

KUSHEQUA

Highly Vitrified by Natural Gas.

Tough Paving Blocks, Beautiful in Color and Finish.

KUSHEQUA BRICK CO., Kushequa, Pa.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. • Streator, Ill.

Thurber Vitrified Paving Brick
 and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.

Arthur S. Goetz, Agent,

Factory at Thurber, Texas.

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THE DECKMAN-DUTY BRICK CO. Paving Brick and Block.

Annual Capacity 30,000,000.

Plants, Collinwood, Ohio, Carrollton, Ohio, Malvern, Ohio.

Offices, Electric Bldg., Cleveland, Ohio.

The Danville Brick Company,
 Manufacturers of the Unsurpassed

Danville Paving Block.

Danville, Ill.

LET US QUOTE YOU PRICES.

PROMENADE TILE

Chocolate Red

Highest Vitrification—Lowest Absorption.

BEST BY TEST.

KUSHEQUA KERAMIC COMPANY,

Kushequa, Pa.



All persons are warned against INFRINGEMENT.

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NEW YORK.

VITRIFIED PAVING BRICK.

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of \$2.00.

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500,000

The Metropolitan Paving
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 CANTON, = OHIO

Terre Haute Vitrified Brick Co.,

Manufacturers of

High Grade Vitrified

PAVERS.

Samples Free.

Address

Terre Haute Vitrified Brick Co.,

Arcade Building, Terre Haute, Ind.

Marion Brick Works

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MARION PAVERS

A Strictly High Class Paving Block.

Also

FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.

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Pres. and Gen'l Manager.

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The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

Office and Works: Clinton, Ind.

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

(C. A. Bloomfield, Treas. and Manager)

P O. Box 413.

METUCHEN, N. J.

J. G. BUTLER, JR.,
President.

CHAS. M. CROOK,
Gen'l Manager.

Bessemer Limestone Co.

Youngstown, Ohio,

Manufacturers of

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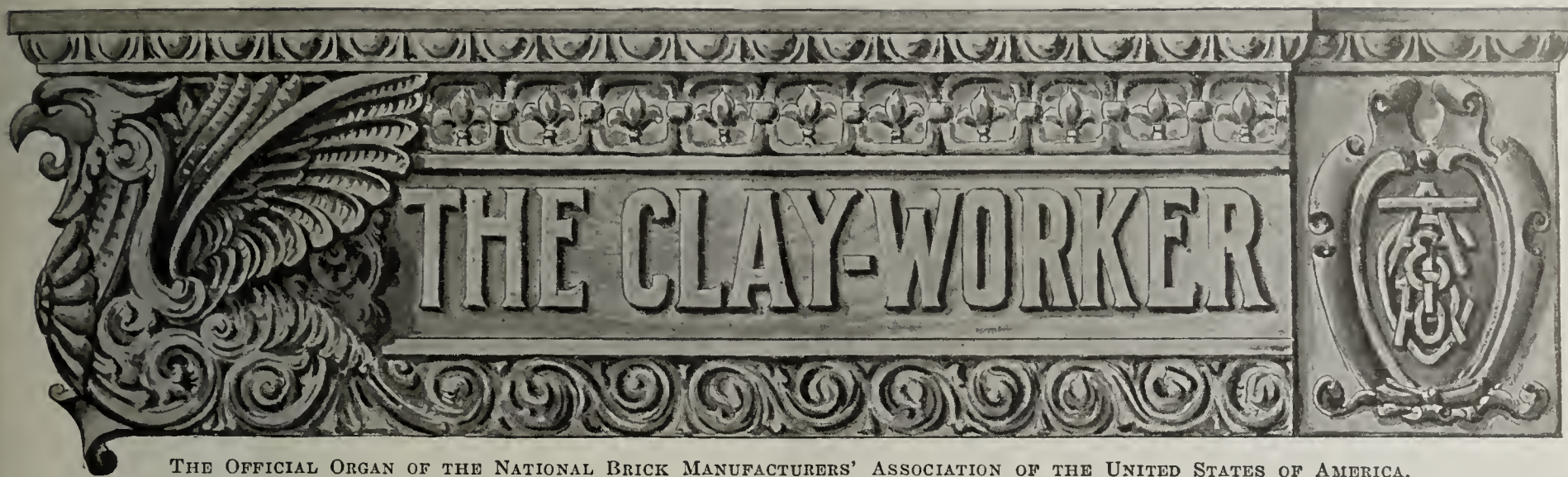
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No. 3.

Written for THE CLAY-WORKER.

BRICK GATEWAYS AND GARDEN WALLS.

Specimens of Beautiful Gateways That Emphasize the Decorative Qualities of Brick.

IMPRESSIONS of a home, whether it be a great estate elaborately landscaped or a humble cottage with a small rose garden about it, are often influenced very greatly by the effect that its entrance or gateway has upon the mind of the casual visitor. The means of getting into one's place should consequently be carefully studied, not only from the eyes of the friendly visitor but also from that of a critical

owner, who may wish to create a picture which will appear equally as well from within as without.

Garden walls and gateways, for some reason or other, have never reached the state of perfection in this country that they have in Europe, where very modest homes boast of their walls and gateways. For hundreds of years, of course, the people of Europe have been building these walls and entrances and perhaps they have acquired a more or less professional skill in this direction which has not yet come to us here in America. The brick gates and walls of old England seem to have become as much a part of its permanent scenery as its hills and dales and as dearly loved as these.

A number of elements enter into the problem of construct-



Entrance to Public Play Ground, Cleveland, Ohio.

ing a brick wall about one's place. It must be picturesque, artistic and effective all at the same time. Fences are naturally built to keep something out or in. If they are to be permanent they must of necessity be of some substantial material. Here is where brick shines every time.

Brick, among all the materials used for garden walls and gateways, seems to remain the most popular. This is probably because of its very reasonable cost and the great variety of effects which can be obtained by its use. Whether it be face, shale or paving brick, the material lends itself readily to attractive designs and may be used particularly where formal and stately effects are sought. Fieldstone is a rough, rugged material and is very useful, but it is hard to obtain and in addition very often fails to match up with a house. A brick fence or gateway, however, fits in with almost any type of a house, whether it be of that material or not. It can be laid up by labor obtainable in almost every section of the country at a moderate cost.

A fine brick gateway and fence about a formal brick house usually gives the same effect that an attractive frame does to a painting. It sets it off to advantage and gives a finished effect that cannot be obtained otherwise.

There are a number of bonds which may be used when the brick is laid up. Very often it is necessary to have an archi-

from pillar to pillar and held in place when the driveway is not open by large hooks in each pillar.

In one of the gateways pictured herewith a pretty effect has been obtained by setting the gateposts in a semi-circular brick fence. This adds an impressive aspect to the gateway and seems to make it imposing. The gateways themselves are of iron. This should always be painted a dead black, it being in extremely poor taste to use other colors. Gateways of this character must be made to order to suit individual tastes and pocketbooks. It is usually wise to have these things planned by an architect, with detailed drawings and specifications.

Institutional gateways and walls are needed in many parts of the country. Erected of brick from properly designed plans, they add beauty and impressiveness to any institution, no matter what its character or size.

THE CLAY PRODUCTS OF CANADA.

The official reports of the Canadian production of structural material and clay products in 1909 as furnished by our consular service, show a total value of \$16,533,349, which was quite a healthy growth over the previous year. In these figures seem to be included clay products, cement and stone.



Entrance to a Fine Country Estate Near Cleveland, Ohio.

tect prepare plans when a gateway is to be a formal and imposing affair, but in a great many instances a few rough sketches submitted to an intelligent mason will bring about the desired effect.

The problem of relieving the sameness in color is often solved in exactly the same way as in building a house—by the use of stone trimmings. This, however, is not always necessary. Individual taste will always be exhibited in the ultimate plan adopted.

If it is determined to build a fence in connection with a house it is usually the wisest plan to purchase the brick at the same time as the order is given for the house. Off color bricks can then be relegated to the fence, as they can be placed in inconspicuous places, where their color will not clash as they would do on an open wall of a house.

Do not economize in buying a cheap, poorly wrought gateway for a splendid estate. Iron gates costing as small an amount as \$250 can be purchased, but in impressing a visitor with the magnificence of a fine home it is better to get something the workmanship of which will prove its worth at a single glance. If the expense is too much to carry in connection with building operations it is wiser to build the piers and then simply hang a heavy wrought-iron chain, hand-forged,

Back ten years ago 64 per cent. of the cement consumed in Canada was imported, whereas in 1909 only 3 per cent. of the total was imported, the balance having been made from industries developed in Canada. With clay products conditions are somewhat different. The value of production during ten years has increased 102 per cent., but during the same period the value of imports in clay products has increased 152 per cent. So our export trade to Canada has held its own in clay products much better than in cement.

The clay products made in Canada comprise brick of various kind; fire brick, porous fire-proofing, brick and blocks, sewer pipe, drain tile and sanitary ware. Of the production about 76 per cent. is building and paving brick, about 16 per cent. sewer pipe and tile.

Building operations have been very active in Canada the past few years and as a consequence, notwithstanding a fair amount of raw material and extensive developments in brick-making in Canada itself, they have been buying quite extensively from the United States, and the indications are that they will keep at it for some time, because the population and building are growing there at a rate in excess of the development of the clayworking industry.

Written for THE CLAY-WORKER.

GETTING IN CLAY.



IS YOUR METHOD of getting in clay the best? Haven't you often thought and felt that it costs an awful lot to get the clay from the bank to the machine? Doubtless you have often wished, in a vague, indefinite sort of a way, that you had a better method. Maybe there is a better way, but you don't know. You have never given the subject very much hard study nor tried very hard to find or devise a better way, have you? You have wished that it didn't cost so much, wished you could get the clay in without taking so much time, but—but you have never tackled the matter with very much energy and determination.

You have seen advertisements of handy dump carts that, when drawn by an old plug of a horse, will bring in piles of clay in a day.

You know the advertisers want to sell you nice, strong clay cars that work well for other people and that others are

methods used by others was just the one that you needed and that would suit your case exactly and would supply your own long-felt want.

You were one of those "way back" fellows. You were from Missouri and nobody had ever insisted upon showing you. You needed some twentieth century fellow to come along in an auto and bump up against you and wake you up and then take you around to see how the other clayworkers were getting in their clay.

If you had only gone around and seen the real thing working for your competitor you might have had one for yourself long ago. You thought you did not have time to leave your work and that it would not pay to spend a few good dollars going to see the other fellows who had hurt your feelings by selling tile in your territory and taking away a part of your trade.

So you went on with your unsatisfactory old way that has lost you more money than it would have cost to visit the other factories and then buy a new outfit like the best one you could find. If you had only done this years ago you would have saved more money several times over than the new outfit cost, besides you would have enjoyed your work much more and been much happier in the satisfaction of



An Unpretentious but Impressive Brick Gateway.

using, and winding drums that will work fast or slow, that will pull when you want them to and will stand and wait until you are ready for them to pull again, and wire cables that wind nicely and pull hard and are strong and will not rot nor break for a long time, but you have felt somehow that those things may be all right for some places, but you did not think they would fit your place.

You know about that tilemaker over yonder, somewhere, who loosened his clay with a common plow and a team of old skates and then scraped it up with a slip scraper and dumped it through a trap into a clay car below, and then drew it up to the machine with a cable and winding drum, and you knew it only took one man to run that outfit, and they did keep the machine running, too.

You had heard that some of the big fellows were digging their clay with steam power diggers of various kinds. You may have seen pictures of them together with a small train of clay cars drawn by a small steam or gasoline locomotive, and you have thought those were nice and handy for the other fellows.

You have known about all of these for a long time, but you were a standpatter. You did not realize that some one of the

knowing that you had the best there was and that you were doing the best you could.

NEW JERSEY ARCHITECTS.

A prosperous and active year is reported by the New Jersey Chapter, American Institute of Architects. The membership increased handsomely during the year and the chapter is now in excellent financial standing. The officers are:

President, Charles P. Baldwin; vice-president, Frederick W. Wentworth, Paterson; second vice-president, Henry Baechlin, Newark; secretary, Hugh Roberts, Jersey City; treasurer, John F. Capen, Newark.

The atelier started by the institute about a year ago for furthering the study of advanced design is meeting with favor from those who are able to take up the work. The aim is to make it an atelier which will be a recommendation to any young man who studied in it. Two classes are maintained, and both have a considerable membership.

The draftsmen's registration bureau is doing good work in finding places for draftsmen and also in supplying architects with help. The chapter is preparing for an architectural exhibit at the Public Library in Newark early in March. Two or three lectures on architectural subjects are planned for this season.

TILES OF ALL KINDS FOR ALL PLACES.

BY CHARLES F. BINNS.

(Reprint from Suburban Life.)



THE TILE AS AN interior finish and decoration originated in the Orient, probably in the apartments of the women. The small and closely latticed windows made the interior dark, and the enameled tile became necessary as a reflector of light. For centuries the western world neglected the use of tile, but in course of time they came into employment in Germany for the covering of stoves, and in Holland for the framing of fireplaces.

Floor tile owes its origin to the Roman tessellated pavements, which, however, were made of colored stones. The English introduced encaustic tile in the middle ages, when they were used for the pavement of churches, being made for this purpose by the monks. The true encaustic tile is of two or more colors, the design being cut out of the body clay and inlaid with clay of a different hue. Later on the potters of Staffordshire, led by Maw and Minton, modified this method and made each tile of a separate color, laying them in the floor in geometric patterns, and thus returning in part to the Roman plan.

More recently there are indications that the tile is coming into its own. It is being recognized, upon several grounds, as the most satisfactory medium of structural decoration. It is at once fireproof, permanent, expressive and sanitary—a combination of qualities which can be claimed by no other material.

The use of tile in the modern house began in two ways: In the fireplace as a fireproof decoration, and in the bathroom as a sanitary and easily cleaned wall covering. From these two points of departure the possibilities of the use of tile are spreading fast and far. The early fireplace was a large structure of brick or stone, arranged for the burning of wood. With the increasing use of coal and gas the primitive wood fire was abandoned, and with it the open fire disappeared. This was a household loss, for there is nothing which speaks for home so powerfully as the hearthstone. It is coming back to us, thanks to the tile, no longer now a mere frame set in an iron casting, but a real structure of burned clay. Harmonious in coloring, massive or simple, as the architecture of the home may demand, the inglenook of our forefathers is revived in many a household, which erstwhile struggled along in the endeavor to make a home center of a mica-windowed stove or a steam radiator. The tile hearth is safe in the midst of falling sparks or cinders, and yet it is as beautiful and as individual as the most costly rug.

But this use of the tile is only a beginning. The fireplace represents but one-half of the home life, the other half is the open porch or broad terrace. Out of doors or only partially under cover, a wooden floor has many objectionable features. For adequate protection it must be painted; and painted wood does not accord with the best ideas of sincerity in structure. Cement is possible, but devoid of all character and individuality. The floor of vitreous tile is unexceptionable. Tile for such purposes are now made so as to be perfectly non-absorbent. They may be small in size and laid in a decorative design, or they may be large and square, laid with straight joints after the manner of a checkerboard. This is more satisfactory than the old plan of broken joints, where the tile were laid alternately. In this case there are straight lines in one direction and broken lines in the other. In the straight joint laying the straight lines run both ways. There is also the possibility of having broken lines in both directions, but this involves the use of tile of two sizes.

Vitreous tile are made in many colors, but there is nothing

better than the natural warm red of the burned clay. In some situations a light-covered floor tile is admissible, but the porch is scarcely the place for it. It rather suggests the hotel corridor or the lavatory. These tile are proof against moisture and frost, and the warm coloring harmonizes with every scheme of decoration. Tiling may also be carried into the vestibule. Here, as in other protected places, the floor may be laid with glazed tile. A brilliant glaze is not suitable for floors, not only on account of the liability to scratch, but also because of a possible danger of slipping. Matt or dull glazes can now be procured, however, in a wide variety of color, and it thus becomes possible to carry out the color idea on both floor and walls. The vestibule is apt to be soiled in wet weather by rubbers, dripping umbrellas and raincoats, but the tile is easily cleaned and does not suffer in the process.

One of the advantages possessed by the modern tile is that it does not necessarily look cold. The white glazed tile has its uses, but even in bathroom and lavatory it is possible to introduce harmonious colorings. The glaze should be bright of surface, but it need not be white. In fact, where the porcelain bath and basin are white it is not only a relief to have walls and floor of light, pleasing colors, but the white of the fittings gains in purity by the contrast. A wall surface without embossment is best, as it is more easily kept clean, and at the angle between floor and wall a curved base tile prevents a possible accumulation of dirt. The same principle obtains in the kitchen and pantry. The desire for sanitary surroundings in the preparation of food gave rise to the glass pastry table and the porcelain refrigerator, and it is but another step to line the whole of the domestic work rooms with glazed pottery. Even the ceiling may easily be tiled, while the floor, laid in vitreous or matt-glazed tile and the walls covered with white or light-colored tiles of brilliant surface, bid defiance to microbes.

The variety of tiles manufactured, the extensive palette of colors, both in unglazed, matt-glazed and bright-glazed surfaces, makes possible the indulgence of individual taste to an unlimited extent. In fact, in no other material can diversity of choice be found combined with permanence, utility and health.

Naturally the choice of the individual finds its fullest expression in the chamber. The living room is for all—it is the family center and speaks of the home life. The chamber is one's own, and here a large part of the personal life is spent. Tile may be used in the fireplace. Painted in blue, Dutch fashion, a delightful homey effect is produced. Here, lounging in negligé before retiring, one may invite one's soul without loneliness, for the humanity of clay wares is always satisfying. The firelight winks confidentially from the tiled hearth and the face of the bureau shines in sympathy. The washstand is, of course, tiled on top and back, in accordance with the scheme of the room, and whether the occupant be man, matron or maid, the tile is not found wanting; for it will be virile, or domestic, or dainty, as desired, so that the room will speak the life of its owner.

Those who believe in the doctrines of "The Colonel" will set apart a room as the nursery. The wall, to a height of four feet or more, will be covered with a bright glazed tile of light, warm color, the base tile being curved to meet the floor. At a height to meet a child's eye there will be a frieze of the characters dear to childish hearts. The story of Cock Robin or the tales of Mother Goose will be told in simple colors. The walls defy scratches, and the marks of sticky fingers are easily erased.

There is one room in the house around which there hovers an air of mystery, and within which congenial souls alone may gather. It is known as the "den." Designed at first for the exclusive use of the sterner sex, it is found that others have a longing for entrance which will not be denied. Not that there is a strong opposition, for men have an instinctive pleasure in receiving their fair friends amid guns and fishing tackle. There is comradeship here as nowhere else. But what of the

tile? A rich red unglazed floor, which mud and cigar ashes cannot spoil; a wide fireplace for blazing apple logs; walls tiled four feet high in a warm green matt-glaze; perhaps a table with tiled top, for creature comforts are sometimes spilled. Let us away with the musty "cozy corner." With tile and leather and fumed oak, comfort and beauty can be secured without the sacrifice of health.

One of the advantages of tile in a scheme of decoration is the fact that it consists of small units. A colored plaster wall is one large surface. The tone is dull and unbroken, as it were a single note of music in the air. A wall of glazed tile is as a full chord, or as the overtones of a perfect bell; for tile cannot be made of exactly the same shade of color. In this variation there is an unparalleled artistic advantage. It does not force itself upon the attention, but is sufficient to create a vibration of color which is of unfailing interest. This refers, of course, to self-colored tiles. More detailed decoration can be secured at will, either by inlaying a design with tiles of different colors or by decorating the tiles themselves. A combination of both may be used to advantage, but for dig-

tion, as in wood and burned clay. It has also advocated the recognition of construction lines as essential to good design.

The brick wall is no longer laid with hair joints, the mortar being colored to match the brick, but the inevitable joints are frankly recognized as a necessary part of the structure, and therefore an essential in the scheme of color. The same is true of the tile. As it is not pretended that the whole wall is one piece of clay, no attempt is or ought to be made to conceal the joints between the pieces. The idea is that of construction, and the work should honestly show how it is put together.

A dark-colored cement is better than white, for more reasons than one. Some would say that a dark joint will not show the dirt, but this is not true reasoning. On this ground one might advocate black table linen. The fact is that a white or light-colored cement is made so by the introduction of ingredients which are more or less porous in their nature. The best cement is rather dark in color and, upon setting, it becomes impervious. By the use of such a material for the setting of tile the joints may be laid as wide as taste de-



In this Ingle-Nook Tiles Have Been Used with Great Freedom.

nity and simplicity there is nothing better than the self-colored tile, whether in floor or wall.

It is said that imitation is the sincerest flattery, and, if this be so, tile as a material has been most enthusiastically complimented. Burned clay is the most enduring substance known. The excavations of ancient cities prove this. The only genuine tile is that made of clay and burned to a proper density.

Sometimes the plaster of the wall is worked off in rectangular spaces to suggest the laying of tile. Those who advocate the beauty of uniformity should consider this method of securing what they desire. Here is the possibility of mathematical accuracy in line, combined with the perfection of a smooth coat of paint. It is absurd, however, if one really wants the true tiling effect, and is a mistake as adopted for economy in decoration.

In this connection a word should be said in regard to the laying of tile. The modern school of decoration has discarded the idea of dead uniformity of color in favor of natural varia-

mands, without fear of introducing an element of danger in a resting place for dirt.

When all is said and done, the value of tile depends upon the way in which it is used. It may be employed to good advantage in any home, large or small, costly or inexpensive, and in ways which too often are overlooked; for, when properly chosen, tiles add much to the appearance and comfort of the house.

When the historians of the future come to write of the political parties and of the doings of this country they will find some strange names that may be difficult to understand in future generations. In the older days we had some pretty strong names, like copperheads and mugwumps, and then came the populists and socialists, and now it is insurgents and a few other mixed titles, and it has already reached the point where the average voter wonders just what he really is. So, how will the historians of the future be able to figure out what these different terms mean?



Finland Brickmakers.—The hatred existing between Finland and Russia was very pronounced when the brickmakers of Finland refused to deliver brick for the armories which Russia is contemplating erecting in Finland. The orders for the brick were therefore placed by the Russian government with the brickmakers in Sweden.—Tonind. Z. No. 141, 1910.

The Use of Carbonate of Barytes in Clays.—As many brick-yards and other clay plants use carbonate of barytes in their clays to prevent scumming, the question has arisen as to whether its use would be dangerous for the health of the employes. According to many statements and reports made, it has been found that its use has shown no actions which would be injurious to the health of the employes, and that therefore the manufacturers need not to be afraid to use carbonate of barytes in their clays.—Deut. Topf & Z. Z. No. 88, 1911.

Stratified Burned Clayware.—In the Dorset and Deacon district, near Ranston, has been found a clay which is very plastic and stratified in different colors. In working this clay into a body the different colors are intermixed, but not to such an extent as to give the body an uniform color. The principle has been used in the making of different clay products which have the appearance after being burnt of being marble, and are put on the market as "Dorset marble." The products are exported to northern Italy to a great extent.—Moniteur de la Ceramique No. 24, 1910.

Foreign Workman in Germany.—In a paper read by Prof. Dr. Stieda before the association of German employers it was brought out that the influx of foreign labor into Germany is greatly alarming the general public. Seven hundred and eighty thousand foreigners, which are employed in the different industries and in agricultural work were registered in the year 1909. Of this amount 43.8 per cent. were Austrians, 23.5 per cent. Russians, 13.5 per cent. were Italians, 13.3 per cent. Hollanders, 1 per cent. Belgians and 4.9 per cent. were from other countries.—Tonind. Z. No. 132, 1910.

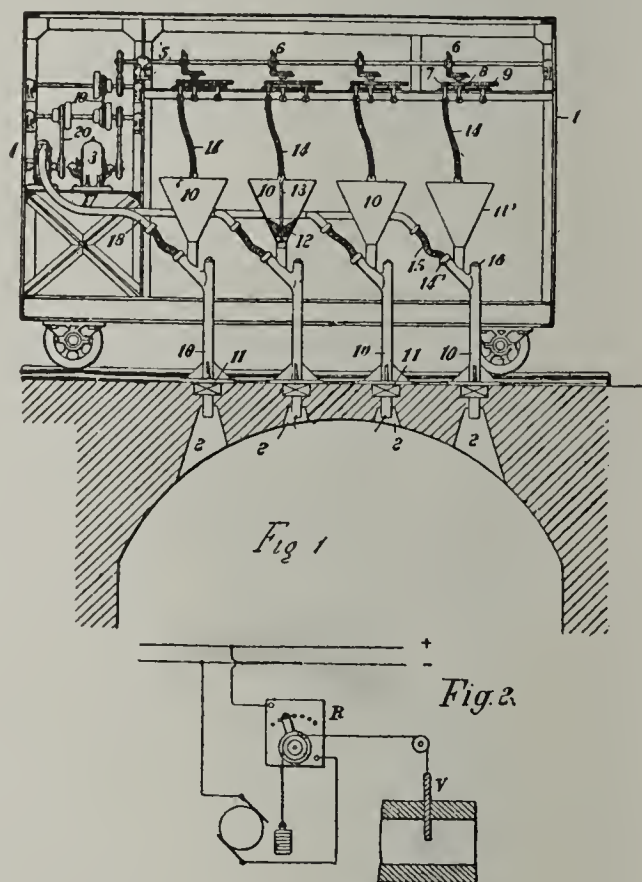
Clayworking Industry of Switzerland.—The clayworking industry of this small country has not been very promising this year. Building operations have been very poor, and the demand for brick has been very light. Much clay was imported from Germany. The pottery industry was very poor, and except in building bricks the importations were far greater than the export. No building brick were imported, but 7,619 tons of brick were exported to the southern German states and France. The connections between Germany and Switzerland are very good, and Germany counts that country as one of her best customers.—Tonwaarenfabrikant No. 22, 1910.

Clayware as Building Ornamentation.—At the exposition which was held last summer in Brussels several well-known firms had good exhibits of ornamental building terra cotta. The tendency among the manufacturers seems to be to produce a more vitrified body for exterior terra cotta than has been the custom so far. The soft burnt bodies are now only used for interior work, such as tile stoves, fountains and interior decorations in the faience line. The difficulty to produce glazed building terra cotta which would resist the weather all right has been a drawback among architects and build-

ers for the use of terra cotta, even in the unglazed state. However, with the better methods of producing vitrified bodies for ornamental glazed terra cotta for exterior decorations the demand has been steadily increased, and the exhibited pieces showed very distinctly what could be done in this line.—Keramische Rundschau No. 51, 1911.

Straw as a Kiln Fuel.—In reply to an inquiry if straw could be used as a fuel, we find that it is quite feasible to use it as such. The straw should, however, be pressed in small bundles, and the arrangements of the furnace should be in such a way as to give plenty of pre-heated air in order to have a good oxidizing atmosphere in the kiln.—Tonind. Z. No. 134, 1910.

Mechanical Firing Apparatus.—Mr. F. Wattebled, of Her-sin, France, has been granted a German patent for an apparatus which can be used for the firing of continuous kilns, and which is operated by motor. The machine works automatically and will blow into the kiln the fuel which is stored in the funnels marked 10. Fine coal dust or oil can be used with the machine. The description of the machine is as follows: 1 is the car proper, which can be moved on rail over the firing holes (2) of the kiln; 3 is the electric motor, which



runs by belt a blower (4) and the line shaft (5). This line shaft runs by gear transmission the agitators (12); 6, 7, 8, 9, 13 and 14 are driving mechanism. The fuel holders are 10 and are divided into the funnel-shaped part (11), in which the agitators move. These fuel holders should be constructed according to the amount of fuel necessary to burn in a certain length of time. The pressure produced by the blower will move the fuel from the holders into the firing holes. In Fig. 2 is shown the rheostat, which will regulate the whole machine according to the height of the damper in the stack. If the damper is low the movement of the machine is slow, while when the damper is high the machine will feed fast.—Deut. Topf & Z. Z. No. 92, 1910.

Dutch Roofing Tiles.—When Dutch roofing tiles are made on an auger machine three parties are necessary to run the machine with a daily production of 5,000 roofing tiles. The pugger gets 60 pfenning (14½ cents), the girl who cuts the tiles and the girl who takes them away each 40 pfenning (9½ cents) per 1,000, so that total cost per thousand is 1.40 mark (33½ cents). For a rotary press it takes five parties to operate the same, with a daily capacity of 5,000 pieces. The feeder

and the offbearer get each 70 pfenning (15 cents), and it takes three girls for finishing, who get each 40 pfenning. The total cost per thousand with this machine is 2.60 marks (66½ cents). In both methods the preparing of the clay and the drying cost the same, so that the quality of the material is the point on which the matter turns.—Tonind. Z. No. 79, 1910.

A Monument Built of Clay Products.—A monument was recently unveiled at Frauenberg in honor of the mathematician and astronomer, Nicolaus Kopernikus. The plan for the monument was made by Architect Meckel. The total height



Brick Monument to Kopernikus.

is 90 feet. The lower part is unpolished granite and the remainder of the monument is made of clay products, mostly brick. In order to bring out the effect dark green glazed brick are used at regular intervals and the roofs of the different towers are covered with green glazed roofing tiles. The niches in the under part are made of different shapes of face brick in red and green colors. The sun dials, the name plates and the finials on the tower are the only copper pieces in the whole monument. All the clay products were furnished and made in the Royal brickyard at Cadinen. It is the first time that the clayworking industry has been called upon to erect

a monumental art piece, and the idea will no doubt be used many times in the future.—Tonind. Z. No. 94, 1910.

Feldspar and Quartz Production in Sweden.—The production in Sweden was 15,772 tons, with a value of 166,323 kronen (\$45,900), which was nearly 10 per cent. less than the previous year. Quartz was produced to the extent of 10,267 tons, with a value of 54,038 kronen (\$12,160). The production of quartz was also some 9.5 per cent. less than the year before. This reduction in production can be traced to the falling off of the pottery production, especially in Germany.—Sprechsaal No. 50, 1910.

Aventurin Glaze.—To obtain an aventurin glaze which will mature at cone 010 or 09, the following mixture will give good results: Borax, 382.3 parts; red iron oxide, 135.8 parts; kaolin, 38.8 parts; flint, 253.7 parts, and boracic acid, 310.1 parts. This mixture should first be fritted and afterwards ground fine, and the ground glaze mixture is then applied to the ware. A quick fire will give good results, especially when the firing has been entirely oxidizing. The thickness of the glaze should be tried out in order to find the required glaze thickness for producing good results.—Keramische Rundschau No. 47, 1910.

Pugging Table for Fire Clay Bodies.—The regular auger machine which is used for making brick is not adapted to the pugging of fire clay bodies. It does not give the thorough mixing which is necessary for such bodies, and it, therefore, does not answer for that purpose. The best machine for mixing fire clay bodies is the mixing and kneading machine, such as is used in potteries. This machine has a table which revolves, and on top of this table are placed several sets of rollers, through which the clay passes. One set of rollers will push the clay in a flat layer, while another set of rollers will make the clay a narrow, small strip. In this manner the clay is very thoroughly mixed and pugged, and will give excellent clay for fire clay products. It will take about 20 h.p. to drive this machine, which has a capacity of forty tons every ten hours.—Tonind. Z. No. 118, 1910.

Roofing Tiles in Holland.—The roofing tile industry in Holland is very closely allied with the brickmaking. All the tile is made of alluvial clays, and preference is given to those clays which are burning red. The S tile is mostly used. The trade demands not only red roofing tiles, but also blue and glazed ones. Several localities are making special tiles, and the tile is known by the name of the locality in which they are made. Holland produces more roofing tiles than is necessary for home consumption, and exported in 1908 25,456 tons of roofing tiles; 17,763 tons were exported to Belgium, and 500 tons to Germany. The number of plants engaged in this class of manufacturing was 90, with about 1,600 employes, and 50 of them were located in the province of Limburg. Besides there were 20 factories which were making floor tiles in addition to their roofing tile manufacturing.—Tonind. Z. No. 136, 1910.

Electric Power for Brickyards.—In a very instructive article about the comparative cost of steam and electricity in operating brickyards Mr. Bruno Loewenberg shows that the electric power is the cheapest for operating brickyards. He has data from 17 yards which were changed from steam to electric power, and only in one instance was there any saving in the change of power. The greatest change was on a yard where a 30 h.p. motor was installed to run the brick machine, and the saving was nearly 2,000 marks. At this yard the cost of producing 1,000 brick was 5.62 marks (\$1.34) by steam power, and the cost of making 1,000 brick by electric power was 1.81 marks (43c), a saving of 3.81 marks (91c), or nearly 70 per cent. On a yard using a 75 h.p. motor the saving amounted to nearly 1,700 marks per year, and the cost was reduced from 2.46 marks to 1.66 marks per 1,000 brick.—Deut. Topf Z. Z. No. 89, 1911.

REMOVAL OF OVERBURDEN BY HYDRAULIC SLUICING.

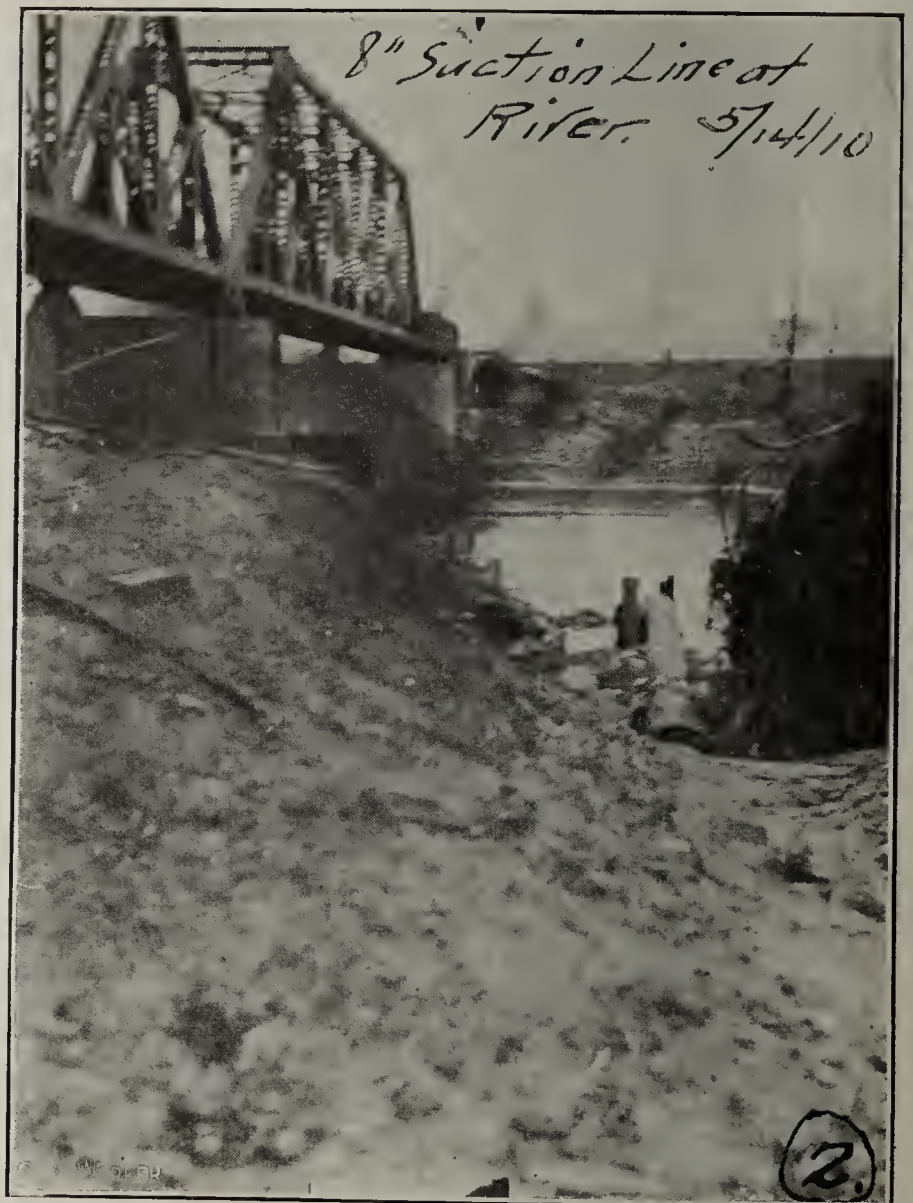
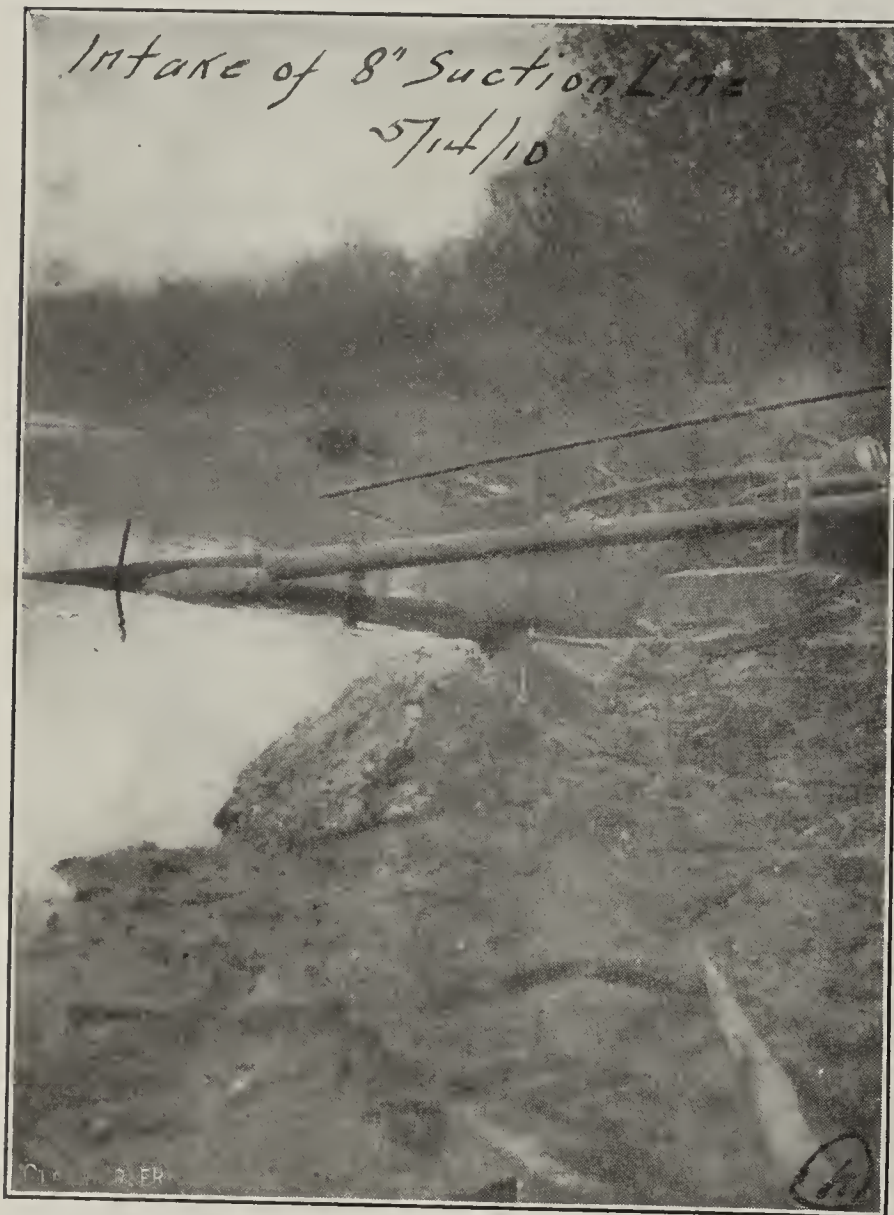
By PAUL BEER, DES MOINES, IOWA.

Reprint by permission from the copyrighted proceedings of the Twenty-fifth Annual Convention of the National Brick Manufacturers' Association, Louisville, Ky., Feb. 6-11, 1911.

HYDRAULIC SLUICING is by no means a new method of attacking earth, clay, gravel or other material for the purpose of breaking down its formative occurrence by either dissolving it or carrying it away by the force of the water which attacks it. Its application to placer mining, and its adaptability to making land along the shores of large bodies of water, are familiar to most of the assemblage. It

the overburden might be moved, and it became necessary to devise a scheme for carrying the effluent some 1,100 feet or 1,200 feet to a tract of low ground owned by the company just north of the Chicago Great Western main line and east of the Cainsville branch of the Chicago, Burlington & Quincy. After working out differences in elevation between the river at low water and the proposed pump house site—between the pump house site and the top of the shale—and the intake and outlet of the sluiceway—a plan was evolved by which it was believed a hydraulic plant could be successfully operated.

The pump house was located about 655 feet from the river bank, and so planned that the lift from the river would amount to less than 18 feet at extreme low water. It was decided to install a pump sufficiently large to handle the requisite amount of water without injury to the pump, at the same time insuring fuel economy. The difficult problem, of course, was the determination of the character of sluiceway



has been used extensively in Seattle for tearing down and carrying away great quantities of earthy material in the process of grading and beautifying the city.

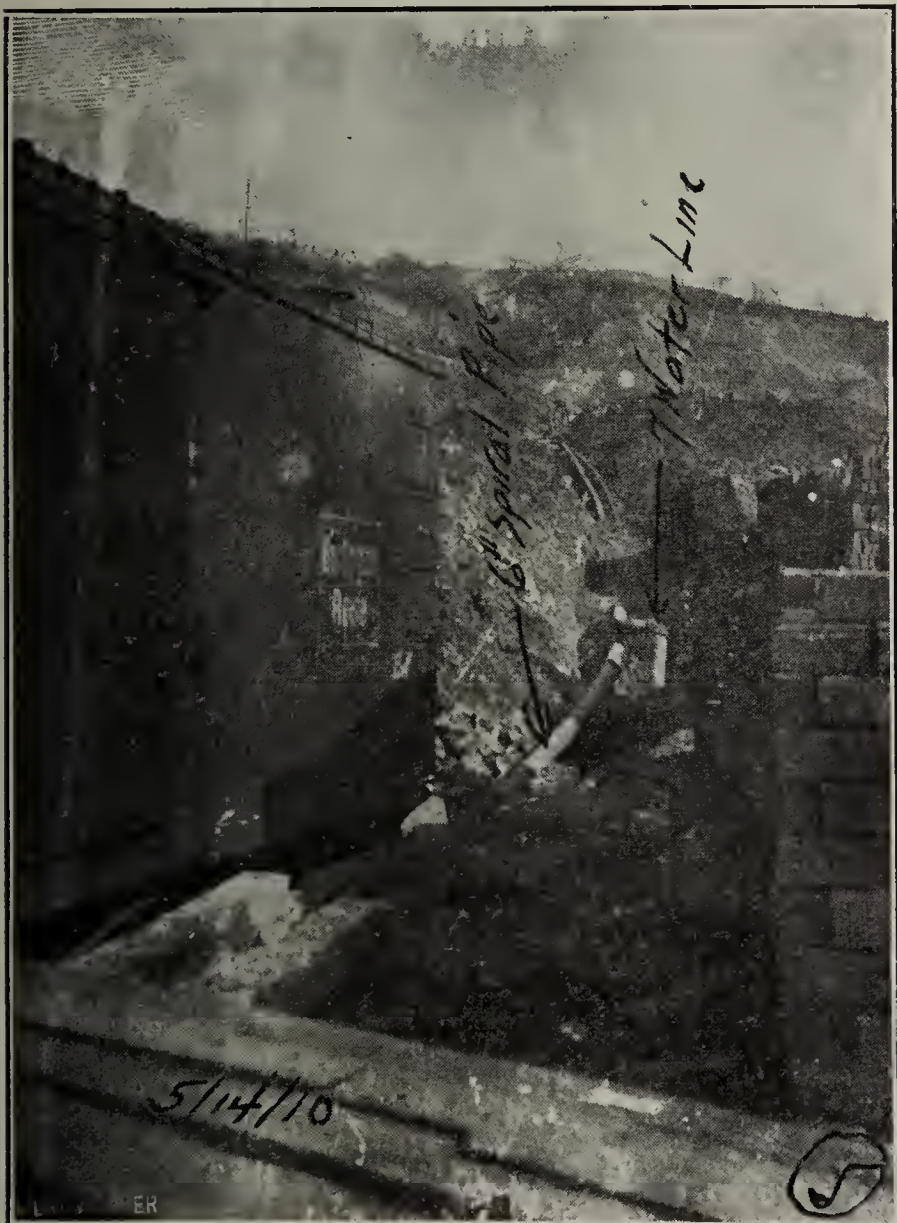
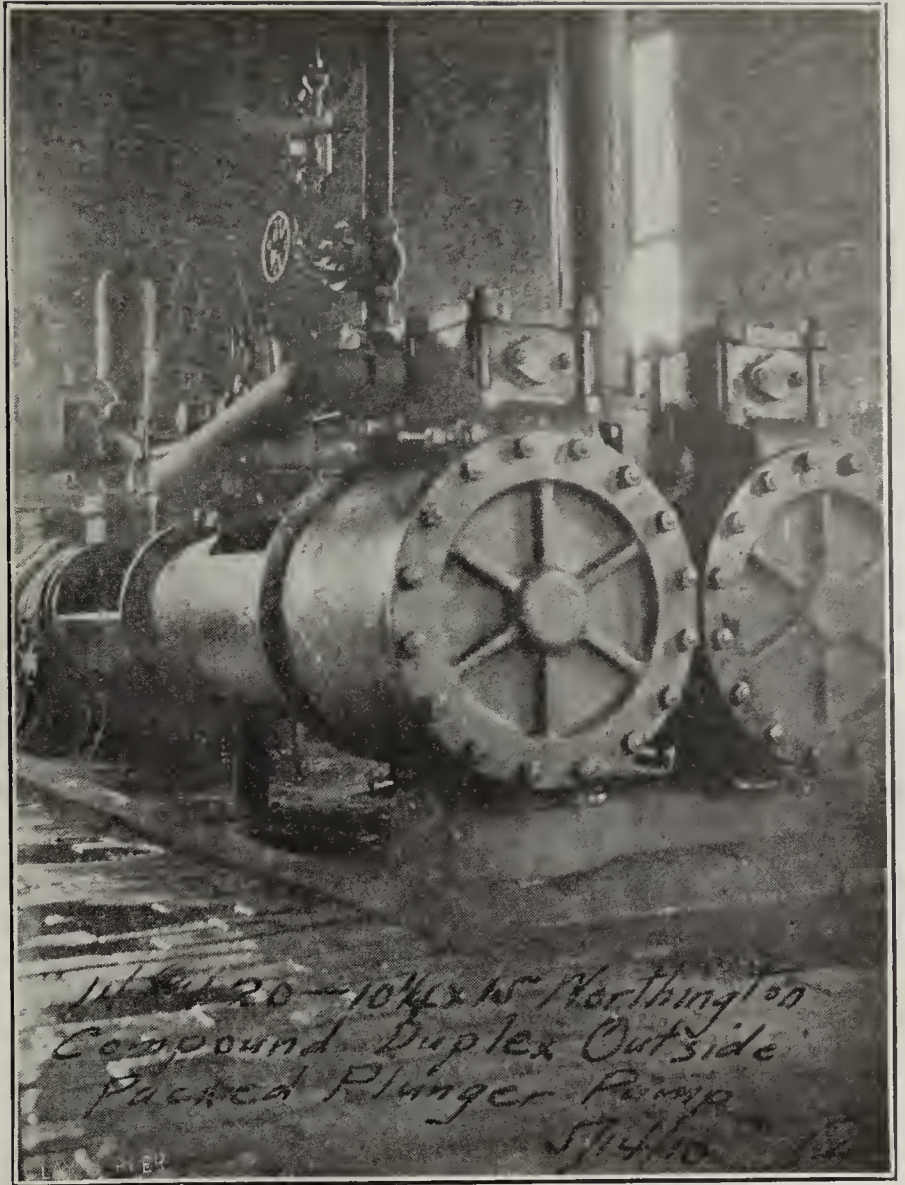
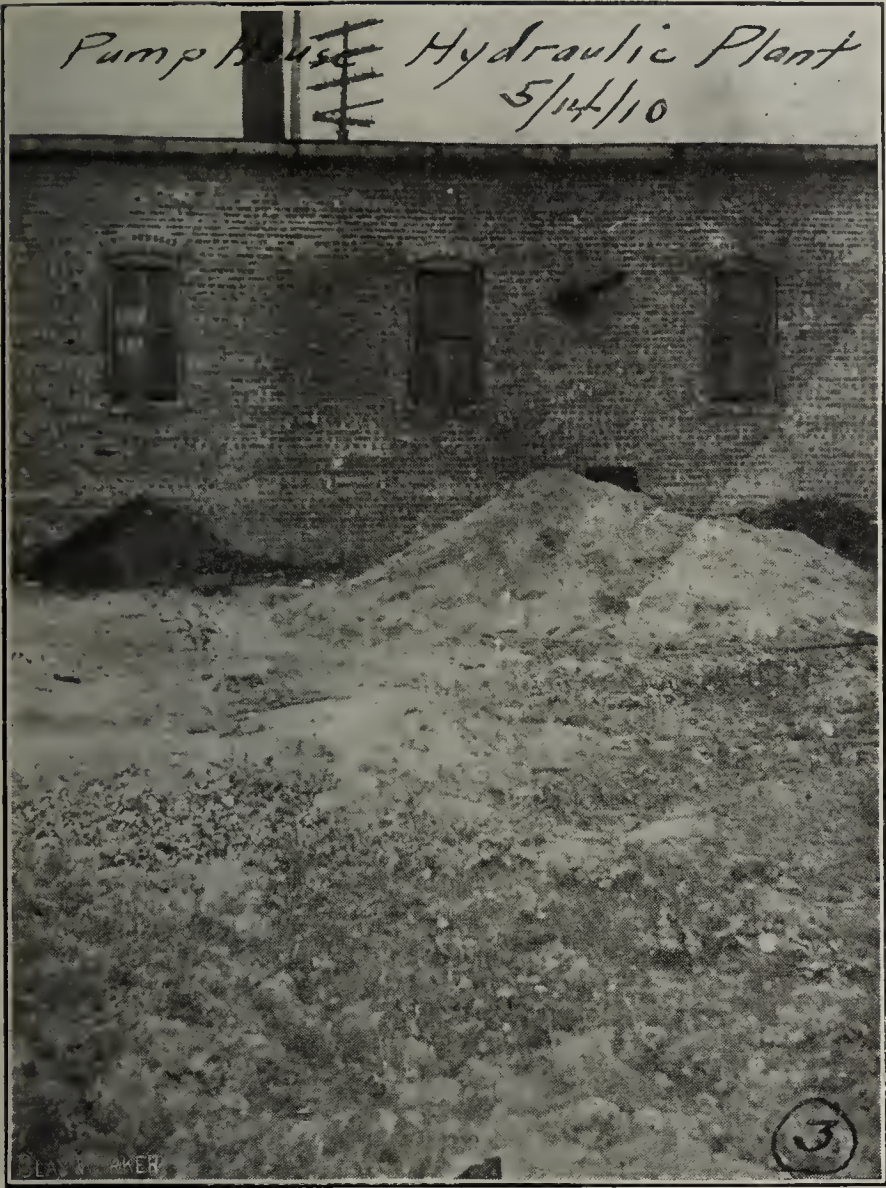
The application of hydraulic power for sluicing away large bodies of material is a comparatively simple matter when conditions are ideal for the prosecution of such work. It is a problem which requires some consideration when conditions are not apparently favorable. This paper is submitted as a brief description of an hydraulic plant which has been installed at the brick plant of the Barber Asphalt Paving Company, Des Moines, Iowa, for the removal of overburden from a shale body.

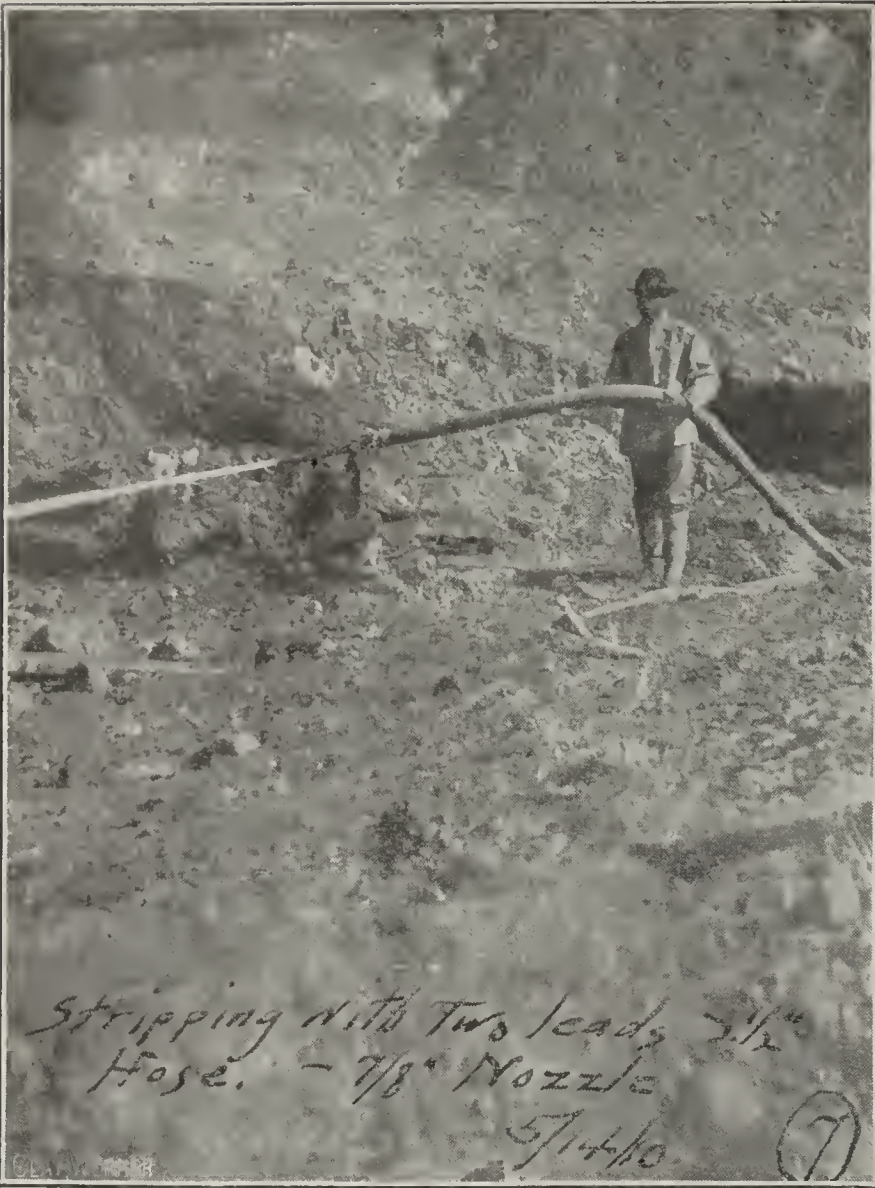
The shale pit is approximately 1,800 feet from the Raccoon river. The nearest building of the plant itself to the shale pit is the pan-room, which is, perhaps, 150 feet away from the present workings. The pan-room floor is about 9 feet above the floor of the pit. There is no place near the pit to which

which would carry away the effluent from the pit and place it. For only a short distance could the sluiceway be carried above ground, it being necessary for the major portion of the distance to carry it underground.

An experimental line of 12-inch sewer pipe was tried with much misgiving on the part of the writer. True to prophecy, it was impracticable, requiring long periods of flushing, and thus reducing the efficiency of the plant in that only a small amount of stripping could be done in a day. This line was one already in place, it being used as a drainage sewer to carry off storm water, drips, etc., from the pit and from the plant. The sewer line could dispose of clay or earth in solution or gravel, but it was absolutely impracticable in the disposition of sand. The sand would settle to the bottom of the pipe, requiring hours to remove it.

Because of the large proportion of sand in the overburden, much more than is apparent from a casual observation, it be-





came necessary to devise a sluiceway which would insure greater velocity to the effluent and at the same time agitate the sand during its flow. A 6-inch spiral pipe line was decided upon and installed. It works splendidly. This line has become clogged only twice. First, the original screen at the intake was of light material and the openings were extended by a laborer, thus admitting stones too large for the pipe; second, a flat stone $5\frac{3}{4}$ inches long, 2 inches wide, $\frac{1}{2}$ inch thick, passed through the present screen, ran along for a distance of 600 feet, then in some manner tipped up; a quantity of roots gathered behind this stone and clogged the pipe. It required about a half day to find this obstruction and clean the pipe. The plant has been in operation since May 1, this year, and since that time to November 1, there has been moved about 50,000 yards of overburden.

The photographs shown herewith are self-explanatory. In No. 5 is shown the 6-inch spiral line at its intersection with the ground after leaving the clay pit. This intersection is approximately 340 feet from the intake. The 7-inch water line is shown with two 90-degree ells, where it leaves the ground. These ells were necessary to give the line proper direction toward the clay pit. Photograph No. 6 shows a very poor constructive feature; it was only temporary. You will note that the reduction of the 7-inch water line to a 5-inch line was accomplished by means of a reducing tee. At the



Paul Beer, Des Moines, Iowa.

time the line was connected we were not able to get a 7 or 5-inch bushing and we used the tee temporarily. This tee, of course, enormously increased the friction in the line, and has since been replaced by a bushing.

The hydraulic plant consists of a 14 and 20, $10\frac{1}{4} \times 15$, Worthington compound duplex outside-packed plunger pump, steam for which is furnished by a 75 h.p. horizontal fire tubular boiler. The pump has 8-inch suction, 7-inch discharge, $2\frac{1}{2}$ -inch exhaust steam and 5-inch exhaust. At the entrance to the pump the suction line carries a vacuum chamber 12 feet high, 8 inches in diameter, with vacuum gauge. The pump is operated at 40 revolutions per minute (80 pounds steam). That portion of the 8-inch line which runs between the river and river bank is carried on two floats and is connected to the line at the river bank by a rubber sleeve securely clamped. The suction line, near the river, is shown in photographs Nos. 1 and 2. The pump is shown in photograph No. 4. (The vacuum chamber was not attached when this photograph was taken.) The 7-inch discharge line carries a gate valve at the pump and a pressure gauge.

Two leads of hose are carried from 5-inch line by a siamese connection. Each lead is operated by one man. This is possible by reason of a standard to which the play pipe is rigidly attached, and which is susceptible of both a vertical and horizontal motion. Each lead of hose terminates in a

$\frac{7}{8}$ -inch nozzle. The method of cutting into the overburden is shown in photographs Nos. 7 and 8.

The 6-inch spiral pipe is connected to a 6 to 12-inch spiral increaser, flat on the bottom. Above this increaser are three 10-foot lengths of 12-inch spiral pipe, which afford a reservoir to the 6-inch spiral pipe (photograph No. 6). The spiral pipe is susceptible of easy bends, as shown in photograph No. 5. There are two 45-degree ells in the spiral pipe line, one at station 375 and one at station 025. The spiral pipe is carried through a 12-inch cast iron pipe under the C. G. W. tracks. The cast iron pipe terminates in three lengths of 12-inch sewer pipe, the outlet being shown in photographs Nos. 9 and 10. Note the size of the balls of clay and gravel which are carried by the 6-inch pipe.

Since these photographs (taken 14 days after the hydraulic plant was put in operation) the effluent intake has been moved to a position south of an open cut. The spiral line, suspended across this open cut by a $\frac{3}{4}$ -inch cable, is shown in the photographs which follow:

DATA.

8-INCH SUCTION LINE.

Elevation extreme low water.....	80.0
Elevation bottom 8-inch pipe at intersection with pump house	93.66
Elevation top of pump foundation.....	97.1
Elevation entrance to pump.....	97.6
Extreme total lift of suction.....	17.6
Length of suction line from pump to river bank (feet)	655
Total length of line (feet).....	690
Grade from pump house to river bank (per cent.)....	1.67

7-INCH DISCHARGE LINE (WATER LINE).

Total present length (feet).....	1,080
Elevation at pump	100.75
Elevation at discharge	161.0
Total lift of discharge.....	60.25

6-INCH SPIRAL PIPE (HYDRAULIC SEWER).

Total present length (feet).....	1,090
Elevation of intake (station 1065).....	140
Elevation of station 729	109.67
Elevation of station 375 (45-degree bend).....	103.6
Elevation of station 025 (45-degree bend).....	101.45
Elevation of station 000 (outlet).....	101.25

WORK ACCOMPLISHED AND COST OF SAME.

Total volume of water per minute at 20 complete revolutions of each piston rod equals 428.8 gallons.

Total volume per day of nine hours equals 231,552 gallons, equals 1,146.6 yards.

Total effluent per day equals 1,432.5 cubic yards.

Of this, conservatively, 20 per cent. is solid material, thus giving 286.5 cubic yards overburden disposed of per day of nine hours. Samples of effluent are taken every hour and percentage measured.

COST OF OPERATION.

	Per day.
Boiler fireman	\$2.25
Man at intake	1.50
One man at nozzle	2.00
One man at nozzle	1.80
Total labor	\$7.55
Fuel, $1\frac{1}{2}$ tons, at \$1.50.....	\$2.25
Oil	.15
Maintenance and supplies, including hose, new pipe, etc.	.85
Total cost	\$10.80

At 286.5 cubic yards per day it follows that the cost of stripping and placing is about $3\frac{3}{4}$ cents per cubic yard. (Applause.)

IOWA CLAY BOOSTERS' CONVENTION.

Interesting Features of the Meetings Held at Boone and Ames, Iowa—The Benefits of Land Drainage to be Exploited by an Inter-State Publicity Bureau.

THE TWENTY-NINTH annual convention of the Iowa Brick and Tile Association, held at Boone and Ames, January 25 and 26, 1911, was strictly a progressive affair. Progressive in being held in two different places and progressive in the program and manner of conducting the exercises. As announced on the program, it was a clay boosters' convention. Those of the Iowa clay manufacturers who were clay boosters and the subjects discussed on the program were in the line of boosting clay products.

The committee which arranged the program assumed that those in attendance were more interested in the sale of clay goods than in the details of manufacture.

One peculiar feature of the program was that no announcement was made for formal papers to be read by special authors. There were some very excellent addresses made by men of recognized ability in the lines represented by them, but the subjects and names of the speakers were not printed



President J. L. Stevens, Boone, Iowa.

in the program. As usual, the subjects treated were open for discussion by all who would take part.

Building brick were given a fair share of attention through the representatives of the Building Brick Association of America, who established headquarters in the lobby of the Hotel Holst and distributed valuable reading matter teaching the advantages of brick as building material. Much instructive and practical information as to the need of publicity upon the subject was disseminated.

President J. L. Stevens, in his address, said that the executive committee thought it best to have a free-for-all discussion on the subjects of burned clay and its products and their uses with a view of encouraging their uses. The committee desired that this convention should partake largely of the booster spirit, and their desire and intention were fully realized.

Judge Stevens spoke of the good work being done by the Building Brick Association of America in the promotion of the use of building brick and the general welfare of the building brick business. He said in part: "This association has issued publications setting forth the enormous fire losses in America, where wooden structures prevail, and the comparative freedom from those losses in Europe, where nearly all construction is of brick. Also the freedom from repairs

on a brick house as compared with the continual repairs on a wooden house, and the value of a brick house as an asset compared with the decreasing value of a wooden house.

They also propose the compilation and publication of books containing plans and specifications for brick structures, for the purpose of enabling those who contemplate the construction of homes to see how beautiful and serviceable a brick house can be made. This is not only a selfish motive that prompts us to encourage the use of brick, but it is a good motive.

The Iowa association a good many years ago began a work which has benefited Iowa to the extent of millions of dollars; and they began in the same way that we now propose to begin pushing the interests of brick. This association began to make public the arguments in favor of tiling the ground, and has added millions to the value of Iowa.

Before I leave this topic I wish to call attention to a few of the facts in these publications. Here is the fact, as shown by the government reports, that in 1907 \$450,000,000 was paid for the losses by fire in the United States—a sum greater than all the production of gold, silver, copper and petroleum products in this country for that year. This amounted to about \$2.30 per capita. In the same year it was 33 cents per capita in Europe. That is the difference in the tax which a man pays for living in a wooden house instead of a brick, because you might travel all over Europe for a year and not see as many wooden houses as you see in this town.

I also noticed that the manufacturers have a more diversified product in all those countries. For instance, nearly every brickmaker was making tile shingles and tile for floors and coping and chimney tops, and various things that go into the building trade. In all, I made an inspection of some twenty or thirty plants, and it was very interesting to look into the clay pits where for many generations the raw material had been dug, and to go through factories where those products have been manufactured for centuries; to drive with a taxicab or other means of conveyance for hours, looking for a wooden house in vain, and travel a month and see very few; to see the finest artificial cement stone invariably laid on a brick wall instead of molded and laid in stone; to see the brick walls erected before the Christian era standing as firm and solid as when constructed beside the crumbling stone and marble. All this was enough to satisfy me that the business of manufacturing brick and all kinds of clay products is a permanent industry and bound to become as universal in this country as it is in the old country. It is only a question of the advantages of brick as a building material becoming known.

A Plea for Vocational Schools.

The matter of first cost would not be an argument now if the young men of this country realized how rapidly the art of laying brick can be acquired, or if the mason's trade was as common an avocation as it is in England and on the continent. There ought to be a trade or vocational school in every county in this and every other State in the Union. These schools would afford every boy and girl the opportunity to receive training in some trade. Many of our brightest and best young men are being compelled to elect between leaving school or taking some study which appears to them to be a waste of their time. This aversion is usually because of lack of aptitude on their part or because the study is not related to or underlying the vocation they seek. I would

rather have the judgment of a majority of the young men who know what they desire to accomplish as to whether the study of higher algebra, for instance, will be a waste of time for them than to have the judgment of the ordinary teacher on that question. A young man with a common school education and any useful mechanical trade well learned, at 21 years of age, stands a better chance of acquiring a liberal education and a competence at 35 years of age than the young man who has graduated at the university without any definite aim in life; because such young man has not really secured a liberal education; he has merely secured his marks; he is merely accredited. Within five years he knows nothing of his Latin, German, algebra or calculus, unless he has studied them for a purpose.

This clay industry lies at the foundation of the construction of every permanent building in this or any other country. Every permanent structure is based upon the industry which we represent. The world has no better monuments erected by man than those that are of burned clay, and instruction in the development and improvement of an industry which lies at the foundation of good construction is second only in material importance to the production of food and raiment."

In addition to the president's address the cause of building brick was boosted in addresses by Mr. Frank Wood, of Indianapolis, of the Building Brick Association of America, and Vice-President-elect H. R. Straight, of Adel, the latter taking "Brick Construction" as his theme.

Mr. G. A. Wrightman, secretary Iowa Manufacturers' Association, with headquarters at Des Moines, addressed the convention in the interests of publicity and advertising. He said that we are short on public spirit in Iowa and that his business is to agitate organization for public good. Too many of us are too self-satisfied. We think that so long as we are prosperous what's the use. We should see personal good in general good. We need to think publicly and not so much for the individual. It is not what we know but what we do that counts. Almost all farmers know about drainage. It is the work of the tile manufacturer to put out knowledge in a way that will inspire the farmer to action. Advertising has become more a work of inspiration than of education.

The promotion of the use of clay drain tile was brought to the attention of those present by a folder prepared and distributed by the secretary, and the first steps were taken in the organization of the Western Tile Drainage Bureau.

It is proposed to establish this bureau with a membership made up of clay tile factories in the States of Iowa, Minnesota, Illinois and Missouri and to extend the field as the situation would seem to warrant.

Its Object.

First. To do any and all proper things to thoroughly fix in the minds of tile users the absolute non-destructive properties of clay tile and to conduct a campaign of education with the view of creating a new demand by showing: What constitutes thorough drainage; its cost; why drainage of hills pays; why all farming lands should be tiled; what sizes of tile should be used; how a system of drainage should be planned; the importance of engineering advice; small drainage projects; simple rules for laying tile; work which has been accomplished, and the profits derived therefrom.

To publish booklets and folders on the above subjects, prepared in a plain, practical style by expert land drainage engineers, practical farmers and government experts and to secure a thorough circulation of such literature amongst farmers and land-owners and to do any and all things advisable to make generally known the marked advantages and profit in the use of clay drain tile.

Administration.

There shall be an advisory board selected from the membership in each State and elected each year by mail vote or in convention. The first year this board shall be made up of three members, as follows: H. A. Rawson, of Des Moines;

F. E. Keeler, of Mason City, Iowa, and Geo. Schnurr, of Kalo, Iowa.

G. G. Wheat, of Emmetsburg, who has been very active in securing the enactment of practical drainage laws for the State of Iowa, was an active worker on the floor of the convention. Mr. Wheat has long felt a deep conviction of the needs of Iowa in the matter of water control, and is the author of the movement to create a State Drainage, Waterway and Conservation Commission and also the author of the bill to create such a commission. This commission, by the wise expenditure of about \$15,000. has learned the needs of the State and has answered many questions that troubled those who were draining Iowa.

Mr. Wheat gave the convention a very interesting and instructive address, in which he rapidly sketched the work done by the commission and the work to be done in the future in the way of drainage and the conservation of our water powers.

He said that the proper drainage of our soils is the first step in conservation. To open up all basins and drain them quickly into the streams is considered a menace to those situated in the lowlands. The development of water power is made possible by the control of the streams. Drainage of swamp lands, the conservation of our natural and possible water powers and the control of the flow of streams, together



Secretary C. B. Platt, Van Meter, Iowa.

with the improvement of our waterways, are so closely allied that they must be considered together.

The committee on nominations was appointed as follows:

C. A. Rawson, Des Moines; C. F. Green, Sioux City; W. S. Shutts, Centerville; D. F. Morey, Ottumwa; H. R. Straight, Adel; S. M. McHose, Nevada; D. A. Potts, Mason City; John Gethman, Gladbrook.

The officers elected for the coming year were:

President—C. F. Green, of the Sioux City Brick and Tile Company, Sioux City.

Vice-President—H. R. Straight, of the Dallas County Brick and Tile Works, Adel.

Treasurer—C. O. Reaver, of the Eldora Paving and Tile Company, Eldora.

Secretary—C. B. Platt, of Van Meter, re-elected.

Committee on Resolutions, composed of C. W. Lansing, F. M. Clutter, I. J. Covey, D. W. Stookey, reported the following, which were adopted:

Report of Committee on Resolutions.

Resolved, That the association extend to President Stevens, the local committee and all others of the city of Boone, who have extended to those present so many courtesies, their heartfelt thanks and full appreciation for the kind treatment received.

Resolved, That the college at Ames, and those of the faculty interested and so largely assisting in clayworking and

kindred industries, are entitled to the thanks of this association; that their labors, including practical demonstrations during this session, have been of the utmost value.

Whereas, The State of Iowa maintains at Ames a college for the promotion and advancement of education in agriculture and the mechanical arts; and,

Whereas, The clayworking interests of the State have attained such proportions as to entitle them to a fair share of the consideration and support of those vested with authority in matters of education; therefore, be it

Resolved, That this association appoint a committee to appear before the finance committee and the Board of Education to make an appeal in behalf of the association for the continued support by the State of the ceramic department at Ames and extension of its scope, to the end that this department be placed on a par with instruction in agriculture and other lines of industry, and that the State establish and foster vocational schools.

Whereas, The time has come when, in the interests of the great drain tile industry, some practical and concerted action should be taken by the drain tile manufacturers to further promote the development and progress of tile drainage for the purpose of creating a larger demand for the product of our tile plants; and,

Whereas, It is the sense of this association that the plan



C. A. Rawson, Des Moines, Iowa.

presented to this convention for the organization of a Western Drainage Tile Bureau, to be maintained by the drain tile manufacturers upon the basis of an assessment of one-third of one per cent. per ton of tile products, meets our approval; and,

Whereas, This association has throughout its history led in all movements directed in behalf of the drain tile interests; therefore, be it

Resolved, That this association gives its hearty and unqualified support to the plan proposed and urges every member manufacturing tile to join in the movement, by enrolling in the membership of the Western Drain Tile Bureau.

Resolved, That this association indorses the movement inaugurated by the Building Brick Association of America in its educational campaign to popularize and extend the use of brick as a building material, and appreciates the work already accomplished by that association in the production and distribution of literature which has been of practical value and aid in extending their work.

Resolved, That this association gives its hearty approval to the plan inaugurated at the recent Chicago convention for the establishment of an annual clay products exposition on the lines of the National Cement Show and Electrical Exposition, and we offer the promoters of the movement our enthusiastic co-operation.

President Green appointed the following Committee on Legislation: J. B. McHose, Boone; D. F. Morey, Ottumwa; C. A. Rawson, Des Moines; C. F. Green, Sioux City; D. W. Stookey, Cedar Rapids; W. H. Brecht, Des Moines.

To the Iowa State College.

Immediately after dinner on Thursday the members were conducted to the Iowa State College at Ames by special train for the purposes of inspecting the new buildings and equipment of the School of Ceramics. Immediately upon arrival at the college the convention assembled in the auditorium of Engineering Hall, where they were met by President Edgar M. Stanton.

Dean S. W. Byer, of the College of Engineering; Prof. A. Marston, School of Civil Engineering; Prof. W. H. Stevenson, secretary of the Iowa State Drainage Association; Prof. R. A. Williams, of the School of Ceramics, and Prof. M. L. King, experimentalist in agricultural engineering.

President Stanton gave a very pleasing and cordial address of welcome, saying that he had grown up with the college. He and President Stevens of the association were in the class of 1872. The college was established through the generosity of the State and the nation. During the early years progress was rather slow. Then Iowa was rich in natural resources, but poor in the coin of the realm. In these latter days she has grown rich, and there is a probability of paying a high dividend on these natural resources. Then science was afraid of soiling her fingers if she laid them on the common industries, but now she finds industrial investigation most profitable. During the last decade \$1,600,000 has been added to the equipment, the corps of instructors has been increased from 100 to 170 and the enrollment of students has grown to 2,300, nearly 700 freshmen having entered this year.

We are to judge it as you would a factory. The product it has turned out is something of which to be proud. Here President Stanton referred to several departments of public work of national and world-wide note for which Ames students have been largely responsible.

The wealth of Iowa lies in the soil. If that disappears the value of the State is lost. Engineering experimental work has a great field before it. We should foster both agricultural and engineering experimental work. If Iowa is to have a home market for its agricultural products we must also develop engineering and manufacturing enterprises. What reputation this station has gained and is gaining before the State and the nation and the world is due to the fact that it has centralized its labors on the work of industrial education.

Prof. Stevenson gave an account of the work done and future needs and plans of the State Drainage, Waterways and Conservation Commission. We hope to give an extensive report of this work in a future issue.

Prof. Marston spoke in behalf of the needs of standard methods for testing sewer pipe and drain tile, both clay and cement. No standard for the guidance of engineers has been established, but is very much needed. The quality of the material of which the tile is made, as well as the strength of the manufactured article.

Two tests were proposed: Calculation of per cent. of absorption and computation of breaking strength.

Prof. Marston described tests that had been made at the station and stated that he hoped that those or some standard tests would be adopted by the Drainage Association, the Clayworkers' Association, the Cement Users' Association and the Iowa Engineers' Association.

Prof. Williams invited the guests to inspect the ceramic laboratories and investigate the researches being made. He gave a detailed description of the ceramic buildings, which include departments for storage, chemistry, pyrometry, gas and fuel analysis, water analysis, wet and dry metallurgy, engineering and experimental laboratories, museum, and machine and kiln rooms.

Prof. King gave an interesting description, illustrated by stereopticon views, of the development and details of con-

struction of the Iowa silo. This silo is of hollow clay block construction and the experiment station has demonstrated its superiority over silos constructed of any other material.

A bulletin for general distribution has been issued which gives explicit directions, fully illustrated, for building the hollow block silo. A number have already been built in different places throughout the State and manufacturers of hollow blocks will do well to disseminate information regarding the superiority of the Iowa silo.

Moving Picture Show.

Wednesday evening the members of the convention and invited guests were entertained at the Arie Opera House. Lantern slides were shown of many of Iowa's clay products plants, both large and small, some manufacturing shale and some clay goods. A number of substantial and beautiful business and residence buildings of brick were also shown upon the screen.

Moving pictures were exhibited which vividly showed the old and new ways of setting brick in the kiln. One film gave the old way of tossing the brick by hand, two or four at a time, to the setters.

Another illustrated the new method of setting the kiln by machinery. The brick were shown on the dryer cars set in kiln formation at the machine in sections suitable to be handled by the kiln-setting machine. They were shown including both arch and square formations. The machine operates on the traveling crane principle and is electrically driven and is operated by one man.

The system of setting brick in the kiln by machinery originated in Coffeyville and Cherryvale, Kas. The first machines carried one hundred to one hundred and twenty brick at a time.

The views shown were taken from actual work where in one plant 760 brick were set at one time, and in another where 1,000 brick were lifted from the dryer car and set in proper form in the kiln.

Retired Clayworker Assists in Entertaining.

Prominent and eminently efficient on the committee of entertainment at the Iowa convention was J. B. McHose, of Boone. Mr. McHose has probably done as much as any other man in boosting the interests of clayworking in the State.

He was born on a brickyard in Iowa in 1849. He has operated plans at Davenport and Nevada, Iowa. Twenty-one years ago he established the oldest shale plant in Boone, now being operated under the name of the Boone Clay Works Company. Mr. McHose has been three times president of his state convention, and was an active member of the committee which so successfully labored for the establishment of the School of Ceramics, now an important part of the Iowa State College at Ames. He has retired from active connection with the manufacture of clay goods and is living in a beautiful brick home. This double house, costing \$10,000, is built of standard, side-cut, fire-flashed black Boone shale pavers, rock faced and laid in red mortar. The brick are very hard burned and are black inside, so that the rock facing discloses no lighter shade inside the body of the brick. The trimming is Bedford stone, roof of slate and the house is heated with hot water and is thoroughly modern throughout.

Mr. McHose has given the best part of his life to the business of clayworking and by intelligent industry and public-spirited enterprise has earned the comforts and satisfaction that crown his efforts.

Record-Breaking.

Mr. F. A. Stephenson, of Mason City, Iowa, thinks he holds the record for speed in tilemaking. The superintendent of the Blackmer & Post Co. rode all night to see the Mason City plants and timed the machine while Mr. Stephenson showed him. By actual count 5-inch tile came out at the rate of 96 per minute, or 5,760 per hour.

The die was changed to 4-inch and the visiting gentleman asked for a stop watch. They had none for him, but he counted one hundred and twenty-five 4-inch tile that came through in a minute—at the rate of 7,500 per hour.

1911 Iowa Enrollment.

- Boone Brick, Tile & Pav. Co., J. L. Stevens, Boone.
- O. Wilson, Barnes City.
- Sioux City Brick & Tile Co., C. F. Green, Sioux City, Iowa.
- J. D. Fate Co., H. J. Votaw, Plymouth, Ohio.
- C. E. Travis, Sioux Rapids.
- Corwith Brick & Tile Co., I. G. Holdridge, Corwith, Iowa.
- Dealers' Record, F. M. Clutter, Chicago.
- J. B. McHose, Boone.
- Creston Brick and Tile Co., H. L. Tramp, Creston.
- Walter Newcomb, Corning.
- Centerville Brick Co., W. S. Shutts, Centerville.
- H. Brewer & Co., R. Smith, North English.
- Am. Clay Machinery Co., G. C. Stoll, Bucyrus, Ohio.
- Garrison Brick & Tile Co., C. C. Gross, Garrison.
- James Campbell, Lehigh.
- F. D'Antremon, Monticello.
- H. Britting, Monticello.
- B. Koeler Co., Geneva, Neb.
- H. Melcher, Geneva, Neb.
- Gethman Brick Co., Jno. Gethman, Gladbrook.
- The Manfrs. Equipment Co., I. M. Justice, Dayton, Ohio.
- Vincent Clay Products Co., G. E. Goldner, Ft. Dodge.
- Buffalo Center Tile Co., E. D. Buckman, Buffalo Center.
- Mexico Brick & Fire Clay Co., J. A. Blandon, Mexico, Mo.
- Jno. Dawson Co., Fremont.
- Thos. Dawson Co., Center Junction.
- Chicago Retort & Fire Brick Co., G. S. Deiterick, Chicago.
- Eldora Paving & Tile Co., C. O. Reaver, Eldora.
- Eldora Paving & Tile Co., R. M. Scott, Eldora.
- Main Belting Co., G. E. Nettleton, Mason City.
- Thew Automatic Shovel Co., C. J. Thompson, Lorain, Ohio.
- Algona Brick & Tile Co., G. R. Madson, Algona.
- Straight Bros. Co., L. W. Pearson, Spencer, Iowa.
- Straight Bros. Co., F. W. Straight, Spencer, Iowa.
- Miss Nash, Stenographer, Des Moines, Iowa.
- J. A. Wilson, Dows, Iowa.
- J. A. Conger, Goldfield, Iowa.
- Tate, Jones & Co., G. E. Luce, Pittsburg, Pa.
- S. G. Goldthwaite, Boone, Iowa.
- H. Brewer & Co., Davis Brown, Tecumseh, Mich.
- Davenport Brick & Tile Co., John Berwald, Davenport, Iowa.
- Davenport Brick & Tile Co., A. C. Westerdorf, Davenport, Ia.
- Chambers Bros., E. R. Frazier, Chicago.
- Boone Clay Works, Jno. Yegge, Boone, Iowa.
- E. M. Freese & Co., E. L. Hess, Galion, Ohio.
- Lehigh Clay Products Co., B. J. Whipple, Lehigh, Iowa.
- Des Moines Clay Mfg. Co., C. W. Emery, Des Moines, Iowa.
- J. D. Fate Co., G. B. Drennan, Plymouth, Ohio.
- Ft. Dodge Brick & Tile Co., Wm. Fessel, Ft. Dodge, Iowa.
- Ft. Dodge Brick & Tile Co., J. H. Abel, Ft. Dodge, Iowa.
- Ft. Dodge Brick & Tile Co., Wm. Kehm, Ft. Dodge, Iowa.
- Boone Brick & Tile Pav. Co., F. A. Temple, Boone, Iowa.
- "Brick," C. W. Lansing, Chicago.
- Boone Brick, Tile & Pav. Co., L. L. Lindbloom, Boone, Iowa.
- N. E. Goldthwait, Boone, Iowa.
- Building Brick Assn. of America, Frank Wood, Indianapolis.
- Scandia Brick & Tile Co., F. Tighe, Madrid, Iowa.
- Scandia Brick & Tile Co., F. Matson, Madrid, Iowa.
- S. McHose, Nevada, Iowa.
- N. W. Tile & Clay Prod. Co., E. B. Persons, Emmetsburg.
- N. W. Tile & Clay Prod. Co., G. G. Wheat, Emmetsburg.
- Monmouth M. & M. Co., C. W. Shuttuck, Monmouth, Ill.
- Tama Brick & Tile Co., C. E. Fleming, Tama, Iowa.
- Liscomb Brick & Tile Co., E. P. Smith, Liscomb, Iowa.
- Tama Brick & Tile Co., L. E. Bentley, Tama, Iowa.
- American Fabric Belting Co., W. O. Tourtelot, Chicago.
- "The Clay-Worker," D. W. Stookey, Cedar Rapids.
- Finkle Brick Co., J. S. Finkle, Marshalltown.
- Medeapolis Brick & Tile Co., A. H. Johnson, Medeapolis, Ia.
- Medeapolis Brick & Tile Co., M. J. Johnson, Medeapolis, Ia.
- Keswick Brick & Tile Co., I. B. Crawford, Keswick, Iowa.
- Dallas Co. Brick & Tile Works, H. R. Straight, Adel.
- Eagle Iron Works, B. Aulman, Des Moines.
- The Brown Inst. Co., C. E. Merry, Chicago.
- Colchester Brick & Tile Co., B. F. King, Colchester, Ill.
- T. M. Hill, Minburn, Iowa.
- C. McHose, Maxwell, Iowa.
- American Brick & Tile Co., D. A. Potts, Mason City, Iowa.
- Lehigh Sewer Pipe Co., Lehigh, Iowa.
- Barber Asphalt Paving Co., F. A. Tondrau, Des Moines.
- Improvement Bulletin, I. J. Covey, Minneapolis.
- Iowa Machinery & Supply Co., J. L. Purlington, Des Moines.
- Iowa Pipe & Tile Co., C. A. Rawson, Des Moines.
- Iowa Pipe & Tile Co., J. O. Reaver, Des Moines.
- Des Moines Brick & Tile Co., S. E. Cogswell, Des Moines.
- Sawyer Belting Co., W. Reese, Cleveland, Ohio.
- Sawyer Belting Co., E. Deckert, Cleveland, Ohio.
- Iowa Mfg. Association, G. A. Wrightman, Des Moines.
- Plymouth Clay Prod. Co., G. M. Elenberger, Ft. Dodge.
- Prof. S. W. Beyer, Ames.
- W. H. Shaw, Grinnell.
- Independent Powder Co., C. F. Foley, St. Louis.
- Martin & Younk, New Sharon.
- M. L. King, Iowa State College, Ames.
- Plant Rubber Co., G. J. Mellor, Minneapolis.
- Shackelford Brick Co., Geo. Yarn, Des Moines.
- Enterprise Coal Co., J. A. Cook, Des Moines.
- Ottumwa Brick & Const. Co., D. F. Morey, Ottumwa.
- Dows Brick and Tile Works, Dows.
- Mason City Drain Tile Co., F. A. Stephenson, Mason City.
- American Brick & Tile Co., C. L. Smith, Mason City.
- Carl Stookey, Cedar Rapids.
- Kalo Brick & Tile Co., Geo. Schnurr, Kalo.
- Boone Clay Works, A. A. Yegge, Boone.
- Boone Brick, Tile & Pav. Co., J. E. Stevens, Boone.
- Globe Mchy. & Supply Co., A. J. Dickey, Des Moines.
- Globe Mchy. & Supply Co., C. L. Buxton, Des Moines.
- B. F. Pay, Mankato, Minn.
- Thos. E. Barton, Thos. E. Barton, Fort Dodge.
- C. A. Marshall, Cresco.

BURNED CLAY BRICK FOR SEWER BUILDING.

AT CLEVELAND the value of brick as a tunnel-building material is being demonstrated in the construction of a mammoth intercepting sewer. This sewer averages thirteen feet in diameter and is being constructed about fifty or sixty feet below the ground, at a total cost of \$5,000,000. The contracts are let for a few blocks at a time and already about nine miles of it are completed.

Compressed air shields are used to bore through the earth, a few feet being dug each day. As the shield advances before the men the masons brick up the arch, holding the surrounding material firmly in place.

The picture on this page shows the workmen in the tunnel when just about to break through a wall of clay and rock and join another section. So carefully had the work been calculated that there was only a difference of a couple of inches in the sides of the tunnel when the wall had finally been cleared

There ought to be an ideal in everything—business, love, war, or whatever may be the immediate occupation.

The shopkeeper without an ideal remains a shopkeeper.

Give him an ideal and an idea and he becomes a John Wanamaker or a Marshall Field.

The telegraph operator without an ideal remains in the little country office, acquiring telegrapher's paralysis and such brain fag as may accrue.

Give him a healthy ideal and a live idea and he becomes an Edison.

The balloonist without an ideal continues to do parachute drops at county fairs and is eventually sent to the hospital or the morgue.

Give him an ideal and an idea and he becomes a Wright or a Curtis or a Hamilton.

Napoleon without an ideal would have died peacefully in the barracks—a corporal.

Julius Cæsar without an ideal would have died of old age



A Section of One of Cleveland's Main Sewers.

away. This was soon smoothed down so that the work seemed perfect to the ordinary eye.

Common shale sewer brick are employed, but millions of them are being used in the construction of the work. Concrete did not prove as practicable as brick, so brick has been used for this big undertaking.

IDEALS AND IDEAS.

Ideals are fine things.

Ideas are wonderful things.

The man with an ideal in advertising is apt to go wandering around a good bit.

He knows where he wants to go, but beyond that knowledge he doesn't proceed very far.

It is so much better for him to link his ideal to an idea.

They make an excellent tandem.

instead of making his farewell speech at the foot of Pompey's pillar.

George Washington without an ideal would have considered the job of county surveyor about as good as a man could want.

These men not only had ideals—they had ideas. They could work the two together.

Every once in awhile you see an advertising campaign based upon an idea without an ideal to give it life.

Also you see a campaign aimed at an ideal without an idea to co-operate.

You not only must know where you are going, but how you are going.

Let us say that an ideal is the searchlight which illuminates the road and shows the goal.

Let us say, then, that the idea is the motor which sends you along the road and to the goal.

The man with simply an ideal can only sit still and hold

the searchlight on the path while the other fellows scoot by.

The man with only the idea is going somewhere, but he isn't sure he is going straight. -

Only the men with ideals and ideas make schedule time on the road of success.

And an advertising campaign must have the ideal—which is the Where—and the idea, which is the How—if it is to bring both results and returns.—The Mahin Messenger.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE ACTIVE BUILDING season is at hand, and with it comes a promise of a better season than seemed likely to be the case a few weeks earlier. One of the sure signs of an improved building season is that of labor demanding more money, and several trades are considering demands with more or less openness. Employers, on their part, are also considering the matter. Some of them state that if there were any way of grading men according to their worth they would not hesitate to raise the scale for the better workers, but when it comes to raising it for all, that is quite different.

As yet the volume of new work planned through the Northwest is not up to that in view a year ago, but should the increase continue in the same proportion that it has it will not take long for the present year to have an equal promise with a year ago at this time.

While there seems to be a better demand for brick in many ways than was the case a year ago and much better than in seasons before the last, the situation still requires a better publicity on behalf of the clay product and more effort at making a spontaneous interest in the development of clay materials and their uses. This was demonstrated keenly at the recent cement convention just held in Minneapolis. The daily papers paid great attention to the gathering, although from a numerical standpoint it was not conspicuous, having less than a hundred real cement users from an area covering several states. But the big cement companies were represented and they placed advertising with the dailies. And they got extended mention in connection therewith. It probably is not feasible to suggest that the same thing be followed exactly with the brick interests. There are no million-dollar concerns in the brick business to be represented, and so none that has a large advertising fund from which to buy conspicuous advertising space and secure therewith liberal reading space as well. But if more attention were paid to urging the novel features and the talking points of brick, as has been done in the rival material, there would be a marked difference in the public interest displayed.

A lack of appreciation of the talking points and backwardness about pushing the business is accountable for some of the lack of activity in the brick business as compared with some other materials. But this is slowly being overcome. There is a steadily improving position in this respect, and brick will meet with more and more demand in consequence.

The Supreme Court of Minnesota has held in a recent decision that a master is responsible for the safety of material which he designates to be used for scaffolding, and that an employe who uses such material is entitled to suppose that it has been inspected for determining if it is safe for such use. This seems to throw all the responsibility upon the master, and the workman takes none, aside from such defects as are openly apparent.

The Minneapolis Architectural Club is working on an important plan for standardizing symbols to be used in designating different materials upon architects' plans. As it is now some architects use red coloring on blue-prints for brick, blue for stone and brown for concrete and yellow for wood.

But it is not fixed. Others may fancy a different color scheme, and no estimator can be assured from the colors on plans that the materials designated are what he supposes them to be. The club proposes to work out a complete and comprehensive system of symbols whereby every material will have its own definite designation, so that brick, hollow tile, terra cotta and all other materials will be designated uniformly. This has been done in electrical practice, and the symbols have proved a great satisfaction to all concerned. Architects heartily approve the work of the club, and it is expected that the committee having the project in charge will soon be able to make a definite report, with the various symbols which it favors. Building material estimators will rise up and call the club blessed if the plan can be extended to a fairly general practice. It is no uncommon thing to have several sets of estimators, each handling a different class of work, skip a section of interior or exterior work, each assuming that the work belongs to another. Cornices have been known to be passed by sheet metal men, who assumed they were terra cotta or other work, and by terra cotta men, who supposed them to be sheet metal. Ceilings have been passed by plaster men, who thought them to be stamped work, and by stamped men, who thought them to be plaster. This plan, along with that proposed by the State Association of Builders' Exchanges for a complete model set of specifications, which shall provide for assembling in every specification all the materials of a class, rather than having them scattered under the different departments, will tend to make the work of the estimator less of a gamble and more of a reasonable proposition.

Building permit totals for the Twin Cities for the first two months of the year show gains over the totals for the same months of a year ago. St. Paul had a total of \$1,100,000 for the month, which exceeds the total of any previous January and February. February of 1910 showed \$543,000 and for 1909, \$375,000. In Minneapolis the issuance of a permit for \$1,200,000 brought the total up to a good figure—\$1,597,150, against \$485,000 for the month of a year ago. The two months this year amount to \$1,883,000, against \$1,088,000 for the two months of last year.

The Twin City Tile and Marble Company, of Minneapolis, has moved its office and sample room from 319½ South Sixth street to 312-314 South Seventh street. The house handles ceramic mosaic tiles, both glazed and unglazed.

The Minneapolis Builders' Exchange has taken a strong stand in favor of trade schools and the development of manual training and will doubtless make a strong presentation of the case to the Board of Education, which is about to build two new high schools. A study has been made of the work done at the continuation schools in Cincinnati, and these seem to present the most attractive plan yet found. The question rests largely upon when the trade education is to be taken up. It is contended on one side that the boy is not equipped mentally to determine what he would like to undertake nor physically to attempt the work until he is sixteen years old. On the other hand, the number of boys leaving school a year or two under that age is appalling. If they could be interested and retained in school to start the rudiments of a trade it might be the making of them and keep them long enough to make good mechanics. T. WIN.

Sometimes when we hear railroad lawyers talk we feel sorry for the railroads, and then again, when we hear the opposing lawyers talk, too, we think of an old story about how his satannic majesty was puzzled because no lawyeers were ever delivered below. According to the story, he came up to earth to investigate, entered a court room and listened to the opposition counsel in cases at court and after hearing both sides, he shook his head and went back below, saying something to the effect that letting the lawyers go elsewhere was beating the devil out of his own, but if he had them down below they would beat him out of his throne.

Written for THE CLAY-WORKER.

MEXICO AS SEEN THROUGH BRICKMAKER'S GLASSES



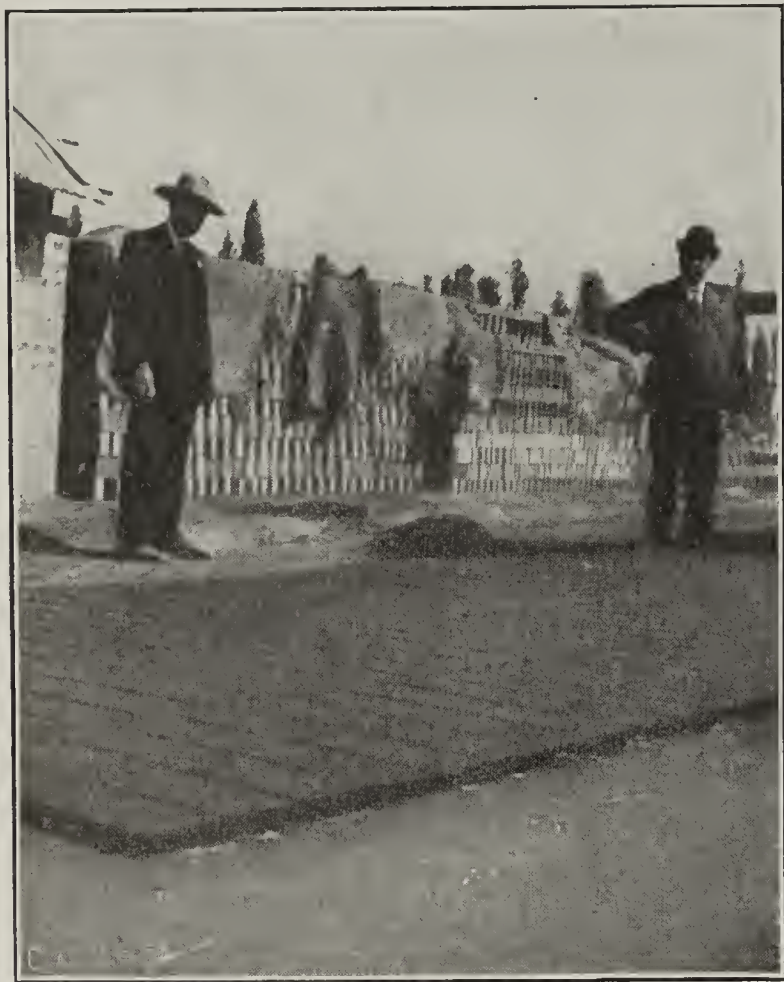
ON DECEMBER 1, 1910, it was the pleasure of the writer, in company with R. G. Eisenhart, of Horseheads, to join a party of 35 gentlemen from the East at Chicago, who were invited to take a trip to Mexico as the guests of Mr. A. E. Stilwell, president of the Kansas City, Mexico & Orient Railway.

We left Chicago in a special solid Pullman vestibule train over the Rock Island Railroad. We soon discovered that our host was a prince, and while his purpose was a business one, yet he presented to us, in an able and convincing way, a perspective of the great railroad that he is building, without aid of Wall street, from Kansas City, Mo., to Topolovampo, Mex.

The road is not a dream, but bids fair to be one of the leading transcontinental railroads of the continent, as the distance from Kansas City to the Pacific coast is over 1,000

Nuevo Laredo, a small Mexican town. It was plainly apparent that we were in another country, for the people were different in many respects. Some of us, who had heard so much of the excellency of Mexican cigars, rushed out to make our first purchase, which proved to be a disappointment.

The next morning when we awoke and got our first real glimpse of Mexico we were traveling in a desert, a sight which one never forgets—mountains on each side of the railroad, without a sign of vegetation, and a little valley between as dry as a sand bank, with here and there a shrub. Villages and hamlets were scarce and far between, although in the most lonely parts of the desert we saw travelers with their families and their game rooster, which is considered a part of the family, moving from place to place. Some places along the line of the railroad it is so dry that it is necessary for the railroad company to bring water for the natives, which is one



Drying Yard on a Mexican Brick Plant.

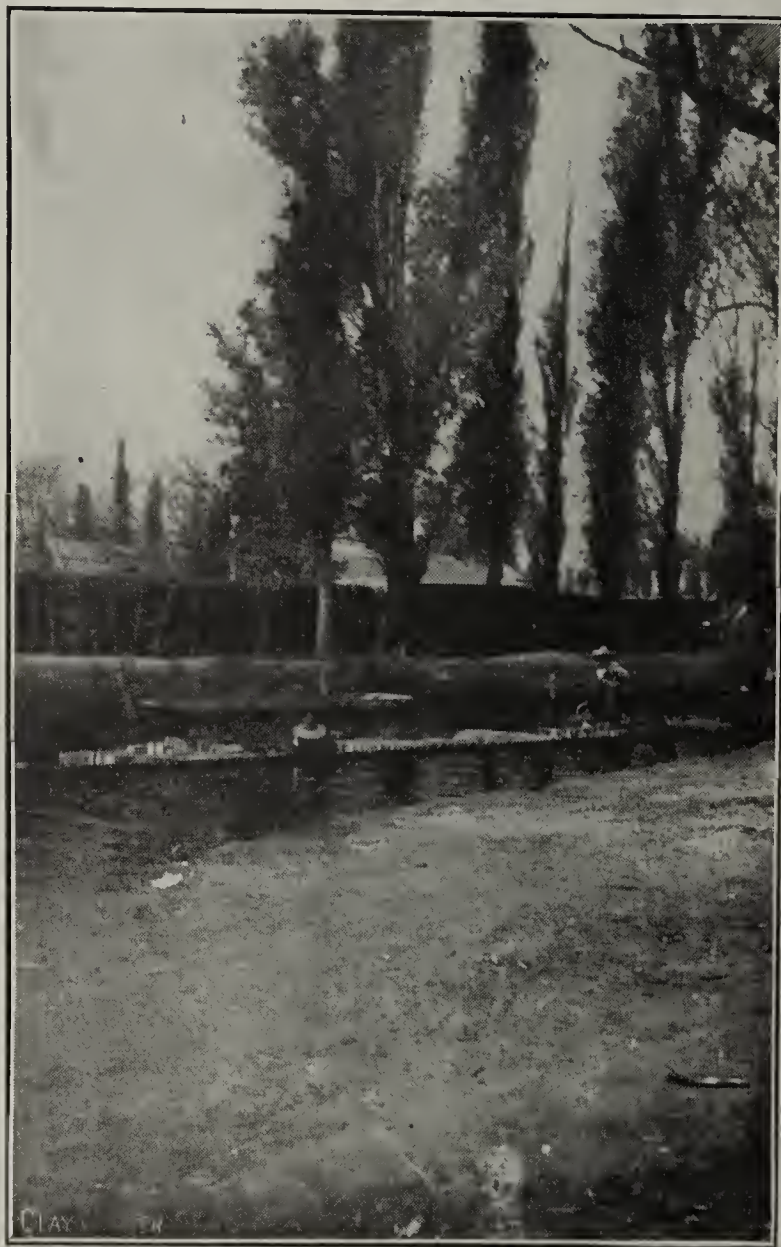
miles less by this route than by any other. About 1,000 miles of this road is now in operation, and about 500 miles still remains to be built.

The building of this great road seems to be in the hands of honest and capable men, who thoroughly understand their business and deserve the confidence of the people, who are looking for a safe investment.

Our first stop was made at Wichita, Kas., a thriving Western city, the present eastern terminus of the railroad. From there we traveled over the Kansas City, Mexico & Orient Railroad to San Angelo, Texas, where we were given a reception by the business men, who came from far and near to entertain Mr. Stilwell's guests, although the town is comparatively young, yet judging from its business men and the energy they are putting forth, it certainly will be a success.

Our next stop was made at San Antonio, Texas, a most thriving and beautiful city, with a delightful climate, beautiful buildings and fine streets, some of which are paved with brick.

On Sunday evening, December 4, we crossed the Rio Grande just at sunset, and in a few moments we stopped at



Shipping Brick by Water in Mexico.

of the conditions of the franchise granted by the government to the railroad company.

The natives of the desert are a half-starved, half-clad race, who seem to subsist largely by begging, and at one place we actually saw the children and dogs eating together from the refuse thrown from our dining car.

The actual distance from Nuevo Laredo to the City of Mexico is about 800 miles. There are only three stations of any importance between these places.

We arrived at the City of Mexico on Tuesday morning and were immediately assigned to the different hotels. It was our lot to be assigned to the Iturbide, one of the oldest hotels in the City of Mexico and for many years the leading one. We were assigned to one of the best rooms, which cost \$12 Mexican money. We found the room a large barnlike affair, furnished with furniture which would do honor to a modern curiosity shop. Having traveled for several days, we first

sought the bath room, only to find the water cold and no soap. The towels were as large as bed-spreads and other things accordingly. One night at this hotel was sufficient, as we came to the conclusion that antiquity was all right in its place, but not for a weary traveler.

The next day we moved to the Sands, a newer and more modern hotel, which we found much more pleasant.

The City of Mexico is certainly the Paris of America, and one of the most interesting cities on the American continent. It has beautiful parks, fine drives and some of the most beautiful streets on the continent, especially the one leading to the Chapultepec castle, where President Diaz lives.

A day or two after our arrival we were invited to a luncheon at San Angelo's Inn, which was built nearly 300 years ago, and from the court of this hotel, where flowers were blooming, we could see Mt. Popocatepetl, which is covered with snow.

On the following day we were given a reception by Presi-

a great chance for manufacturing industries in certain lines in that country.

The balance of our time in Mexico was spent visiting the many features of interest throughout the city, which are interesting, especially the churches, many of which were built in the fifteenth century.

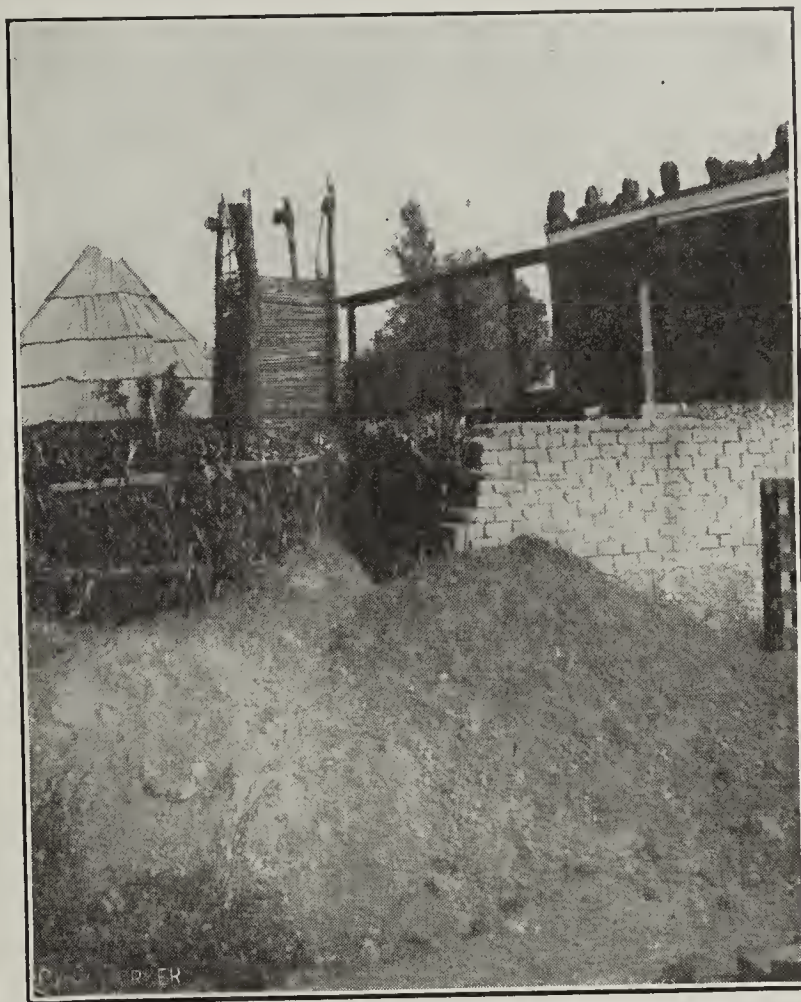
While we were in the city there was a bull fight, which is the national sport, and out of curiosity we attended, but we are frank to state that we lost our nerve when the fourth bull was killed, as that was sufficient for us. What the people can see to interest them in this sport is beyond the comprehension of the average American, and I predict that in time as the people become more enlightened the so-called sport will be abandoned, as it is brutal in the extreme, especially when they take a poor, defenseless horse into the arena to be gored by a mad bull in order to prepare him for the fight, which always ends in his death.

There are practically two classes of people in Mexico—the laboring class and the rich—and it is a common thing to see a \$10,000 automobile, with a chauffeur and footman, going down



Mr. Eisenhart Examining Pile of Mexican Clay.

dent Diaz, who is one of the most wonderful men on the American continent today. When one looks at this great man and listens to him he is at once impressed with his greatness and wonderful power. In times past much has been written regarding his harsh treatment of the people, but if one would study the people and their peculiarities they would realize that it requires a man with an iron hand to govern such people. During his administration Mexico has grown beyond measure, railroads have been built, mines have been developed and the country has been improved generally, although there is much yet to be done. In time the greatness of Mexico will be more fully realized and developed, as the Mexican government does all in its power to interest foreign capital to come to their country and develop its riches, which are many and varied. The railroads of Mexico are all on a paying basis, the mines are turning out millions, and there is



Another View of the Same Plant.

the street followed by a poor man carrying a coffin on his back.

The outlook for business in Mexico is very good. Practically all the large concerns there are run by English-speaking people.

The brick business is one of the most crude, although there are more modern yards than the one illustrated herewith, which is located near the Floating Gardens, which are very interesting to the traveler. This yard was discovered by our good friend Eisenhart, who can see a brick through a strawstack, and there was no such a thing as returning without making a visit to this yard. The picture here given shows the primitive way of making and marketing brick, as carried out there, and one thing is sure, no American brickmaker should go to Mexico to learn to make brick, although the Aztec Indians have made pottery and different cooking utensils for hundreds of years in Mexico, some of which are glazed in a manner which would do honor to our ceramic school.

M. E. GREGORY.

Hollow block looks like a good thing for brick manufacturers to give more attention to.

*BUILDING BRICK AS A FACTOR IN NATIONAL CONSERVATION.

BY E. F. KNIGHT, BRADFORD, PA.

MR. CHAIRMAN and Gentlemen of the Convention—I do not feel as a stranger would feel in being called upon to speak from this platform and to this convention. About one year ago in the same city, in the same hotel, and in the same room, I first became acquainted with some of the members of the N. B. S. A. The secretary, president and many of the members at that time extended a very cordial greeting to me, and I have since formed a closer acquaintance with many of the members whom I had not known up to that time. The Bradford Pressed Brick Co., whom I have the honor to represent, has long enjoyed a very gratifying trade with many of the members of your association, particularly in the eastern part of the country, and I am convinced that great good can be accomplished by a closer acquaintance between the manufacturers and the dealers, such as this association advocates. We should one and all remember that it is impossible to bring about immediately the conditions which each one of us may consider the ideal arrangement, but we must be content from year to year if a substantial advancement has been made towards the goal for which we are striving.

Once upon a time in a far-off country there lived an old pig with her family of little ones, and finding that the living expenses were constantly increasing and that she was unable to properly care for all of her family, she selected the three oldest and presumably the wisest of her family and instructed them to go forth and root for themselves. The three little pigs, after saying good-by to home and friends, went out into the world, even as you and I, and the story goes: The first little pig met a man with a load of straw, and he said, "Please, man, give me that straw to build me a house with," and the man did; and the little pig built a house of straw. And by and by a wolf came to the door. He said, "Little pig, let me come in," and the little pig said, "No, by the hair of my chinny chin chin." Then the wolf said, "Then I'll huff and I'll puff, and I'll blow your house in," and he did; and he ate up the foolish little pig that had built his house of straw.

And the second little pig going forth met a man with a load of boards. He said, "Please, man, give me those boards to build me a house with," and the man did; and the little pig built him a house. And by and by the wolf came to his door and said, "Little pig, let me come in," and the sad story was again repeated; and the foolish little pig No. 2 was no more.

But the third little pig was a wiser pig. He passed up the man with the load of straw and the man with the boards, and finally he met a man with a load of brick. He said, "Please, man, give me those brick to build me a house with," and the man did; and the little pig built a house of brick. And by and by the wolf came to his door and said, "Little pig, let me come in," and the pig said, "No"; and the wolf said, "Then I'll huff and I'll puff and I'll blow your house in," but he found that while he was able to prevail against the house of straw and the house of boards, that the good house of brick withstood all of his assaults; and the little pig was able to live out his life to a good age in his house of brick. Now, when this story came to the ears of the king he issued a royal decree, ordering that when this little pig became of age he should not be known as a "common hog," but was allowed to write after his name W. O. P., which meant "Wise Old Pig."

My friends, I never read this little story without thinking that there is a lesson in it for the people of America, and for you and me, and it is with the idea of being able to do something here, which may eventually be of value in discouraging

such foolish building operations as we now see on every hand that has caused me to consent to address you on this topic.

A young married couple moved to Montana immediately after their marriage and began raising cattle. As he was an industrious man, he prospered, and soon he and his wife were able to build them a home. There being no brick man on the ground, they built their home of wood, and when the house was completed the husband left on a trip to Chicago with a shipment of cattle.

One morning the neighbors noticed the house in flames and though every man in the vicinity rushed to their assistance, the home was in ruins before they could arrive.

The poor woman was found in the front yard wringing her hands and crying, "Oh, just think of our beautiful house with the new dining-room table and the new carpet in the sitting-room and the new pictures on the wall, and I had the picture of Peter and the Apostles and the Virgin Mary, and they are now all burned up and gone to hell and not a dollar of insurance."

I am afraid that the subject about which I have undertaken to talk this afternoon must appear to be a very dry one to most of you. At the present time we are more or less familiar with the campaign being conducted for the conservation of our national resources. This country has been blessed with such wonderful national resources that we have had no appreciation of their value and have gone about our business like a drunken sailor. For every dollar's worth of value which we have utilized we have wasted two, and the big problems with which we are now face to face are caused by such a wasteful policy. But if there is one thing of more importance at the present time than anything else it is the conservation of our present forests. All of you can remember the day but a few years ago when lumber for building operations was cheap and plentiful, and you all know what the prices are today. This condition is, of course, due to one thing—the rapid disappearance of our forest reserves. Each one who gives this matter a thought cannot but be appalled and ask himself, "What can I do to prevent a further useless depletion of our standing timber?"

You are doubtless familiar with the effort being made by public and private interests to reforest lands now barren, but many years must elapse and millions of dollars must be spent before we could even begin to realize the benefits which we have lightly thrown away. It is not too late even now to take some steps which will conserve the standing timber. Does it not seem absurd and foolish to spend so much time, energy and money in planting new forests when the same attention given to the forests already standing will preserve them for ourselves and our posterity?

The government is already moving actively in this direction and in the forest preserves, already set apart by the national government, have forest rangers, whose business it is to protect the timber, but the greatest menace of our present forests is the profits that can be realized and are being realized by the lumber manufacturers.

How long do you think that the present indiscriminate raid on the forests would continue if the demand now made for lumber should be cut in two? This brings us face to face with our own particular interest in the matter. The report of the United States Geological Survey entitled "Forest Products for 1908," shows the following table concerning the percentage of lumber consumption for the United States during the year:

Furniture	.17
Boxes	.086
Railroad transportation	.07
Implements and vehicles	.048
Shipbuilding	.016
Miscellaneous	.01

Total of the above items 40 per cent. The remaining 60 per cent. is used in the construction of buildings, and I think that you will doubtless agree with me when I state that probably 75 per cent. of the amount now used in that trade could be saved if we were to stop building wooden houses and use instead non-combustible materials, such as brick, stone, terra

*Paper read before the Twelfth Annual Convention of the National Builders' Supply Association.

cotta, iron, steel and cement. Just imagine for a moment what it would mean to us if we were able to bring about such a condition, which, according to statistics, would increase the sale of face brick 500 per cent., and, my friends, I am here to state that we can bring about such a condition if we are willing to use the arguments at our hand. We cannot dodge the evil effects on us as a nation and to ourselves as individuals if we allow present conditions to continue.

Aside from the destruction of our forests, let us look at the matter from another angle. I suppose that every man here carries insurance on his buildings, and if there is a monopoly existing at the present time in any industry there is in the insurance business. Let us not curse the insurance companies for taking advantage of our position, but rather let us see what can be done to make unnecessary the enormous insurance premiums which we are now paying.

A recent report of the State Department contains a well-written report by Consul Joseph L. Brittain, of Prague, Bohemia.

He says that in the last three years the loss from fire has been less than \$20,000 annually in that city and that it has been fifteen years since a life was lost by fire. In the ordinary American city of half a million population the fire loss would average at least \$1,000,000 a year, while the deaths from fire would have been numerous.

Prague's immunity from loss is chiefly due to the superior construction required by law, the careful habits of the people and the responsibility that fire damage entails upon the owner of property. Most of the buildings are of brick or stone, with tile roofs. The hallways are usually of concrete, the stairs of stone and the kitchen floors are built of concrete, with tile wainscoting.

The erection of hazardous buildings is not permitted, and when a man is so unfortunate as to have a fire he is looked upon as an offender in the eyes of the law and is held responsible for any damage that may be done to adjoining property. The per capita fire loss of \$3 in American cities as compared with such a record as this shows the enormous price this country is paying, both in life and property, for its hazardous construction and general carelessness.

At the November meeting of the Philadelphia Chapter of the American Institute of Architects one of the speakers made some remarks regarding the fire losses of the country. He said substantially as follows:

"The curtailment of the enormous fire losses which we have in our country will not be accomplished until the subject of fire prevention and protection has received the same consideration by the general public that has been given to the stamping out of contagious diseases. How long would the cities of any community tolerate a condition that would be conducive to the spreading of a contagious disease? Unfortunately, the general public is not aware of the conditions existing in many buildings throughout the land, which could justly be called 'death traps,' and cause as much heartache and sorrow as the average disease epidemic; in fact, the chances of a fight for life are far less in many existing 'death traps' than they would be in an epidemic of disease."

We want to close this argument as far as the insurance tax is concerned by a quotation from the December issue of the Chicago Evening Post as follows:

"To date this half-year we've done \$514,000,000 worth of new buildings and repairs. This looks good and prosperous and progressive. It means approximately \$1,000,000,000 of construction for the year.

"But look upon the reverse of the picture. If nothing extraordinary happens, no abnormal conflagration (the Baltimore and San Francisco fires were but two years apart), our year's fire losses will total up about 1,700 people burned to death, 165,000 buildings destroyed and \$280,000,000 worth of property destroyed. The insurance companies recoup us in part for the loss, but we pay them \$3 in premiums for every dollar we get out of them, and then our fire departments, water supply and such items cost us \$300,000,000 more, in total a net loss or cost of \$564,000,000 for fire. If the billion dollars expended in new buildings means progress, this terrific loss represents retrogression, asinine folly and gross stupidity."

Think of it, in this year of grace, in this splendid country

where we have non-combustible materials at lowest cost, and where we claim that most people are superlatively intelligent, over 61 per cent. of all new building was of wood, actual fire traps, tinder boxes, fresh fuel for fire.

The insurance people are not really anxious, for good building conflagrations hurt them, but ordinary fires are profitable to them. Our cities are afraid to pass too stringent laws compelling good construction, and our people are so accustomed to second and third-rate buildings, kindling wood affairs, that they really have the notion that that is the way to build—and there you are.

Practically the cure rests with the individual investor and with our city administrations. One might go back still farther and assert that it rests with the people as a whole, but that is hardly a prudent way to put it, for if the people ever saw with any vividness the heavy tax which our flimsy construction placed upon each and every one of them, we might have mobs and barricades in the streets until stupid misrule of such builders was brought to a summary end.

Now, gentlemen, if I have not wearied you, let us for a moment consider just where our own particular interests lie in this matter. Any retail dealer who is so eager to make his own profit as to forget his customer's profit is not doing business in a fair way. The best dealer is one who is as careful about the service given as the profit earned.

We must constitute ourselves consellers to the American people and see that every prospective builder is made aware of the folly of wooden construction and is shown that his home can be built of brick at first cost but slightly higher than wood and should be convinced that the increase in value of his lot will be much more by the erection of a brick house than of wood. The Building Brick Association of America recently conducted a competition with the purpose in mind of ascertaining the comparative cost of a brick house and a studded house with clapboards, and the result was interesting to any brickmaker or brick dealer. In New England lumber is still much cheaper than in some portions of the country, owing to water routes, and the forests of Maine and Canada, while face brick is comparatively dear, yet the average of the ten bids showed the cost of the brick house faced with face brick to be but 13 per cent. higher than a studded wall, while comparing the two most favorable bids a difference of only 10 per cent. in cost is shown.

Now, gentlemen, how many people would continue to build of frame if they knew these facts?

I have taken your time today discussing how this matter should appeal to us from a public standpoint, and I now desire for a moment to call your attention to our own peculiar position regarding the reform which I have advocated. It is not often given to a trade or a profession to be in such a fortunate position as we are placed; not only is it our duty to bring before our neighbors the folly of continuing the construction of residences built of combustible materials, but our own profit lies in just such an action on our part.

It is my belief that every dealer in brick, mortar, lime, etc., should have such arguments as these at his fingers' ends. He should make it a point to keep in touch with every operation coming on in his territory, and having learned of such an operation, should never rest until the owner is convinced of the wisdom of using non-combustible material. Let us make a noise about our business. I recently noticed a postal card on which was printed the following: "When a duck lays an egg she waddles away and says nothing; when a hen lays an egg she immediately proceeds to make a great noise about it. Hence the great popularity of hen's eggs."

The dealer who is content to sit in his office and wait for his customers to come to him with the business will never last very long in the modern competitive conditions. I am more or less familiar with the conditions that exist in your business. I have, for instance, in my mind the example of a man who has been in this business for many years. His idea of doing business was to keep a stock of masons' materials on hand and to serve who might come to him looking for such materials. He has been in business for many years and has but little competition, yet he has not prospered as he

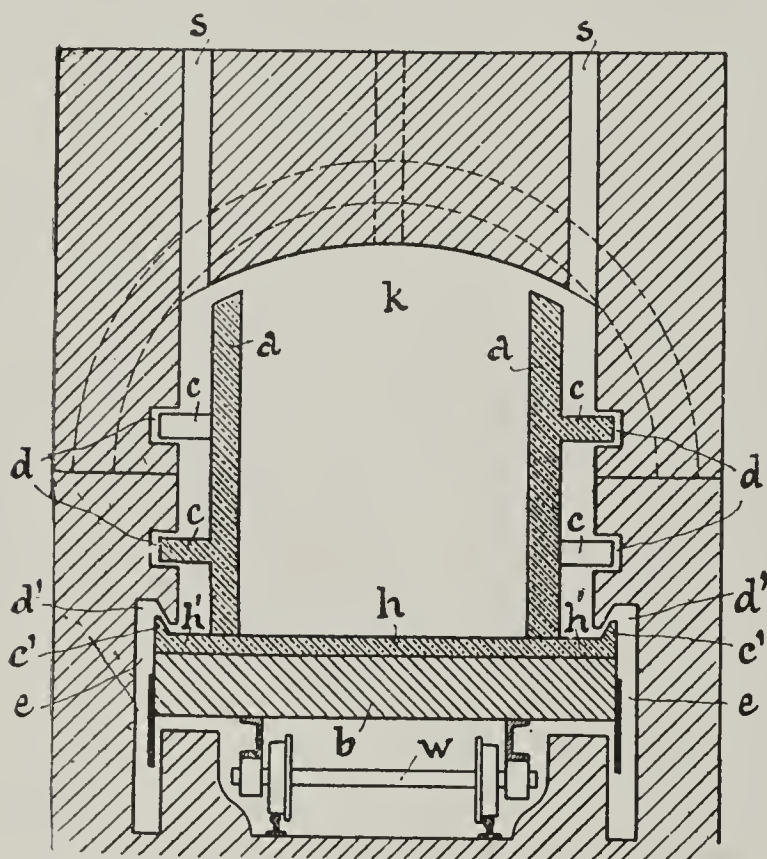
should have done because he has failed to take advantage of his position. He has allowed his neighbors to continue building fire traps, when a word from him might have caused them to have built more wisely, with consequent advantage to himself.

The average man, upon deciding to build, has very little idea of the facts with which you are familiar. His father, his brother and his neighbors have always lived in wooden houses. He has the idea that the construction of a brick house means a much greater expenditure than the cost of building of frame.

Here is the opportunity for the manufacturer or dealer of non-combustible materials. The building brick manufacturers are ready to furnish all who are interested booklets with plans, showing that the cost at the present time of building of frame is but slightly cheaper than the cost of brick construction.

The high prices of lumber cannot fail to assist in proving your arguments, and I hope that all of you will go home from this convention with a determination to do all in your power to bring about a reform in our methods of building.

981,109.



Continuous Kiln with Traveling Hearth.

"Rome was not built in a day," nor can we hope to bring about the above desirable condition at once, but natural causes are already assisting us, and it would be worse than folly not to take advantage of them.

There is every reason why the dealer in masons' materials should be the teacher and leader in this movement.

When you get back home make up your mind to keep in touch with the building operations in your territory as fast as they mature. Do not be satisfied to accept an order for a few hundred brick for chimneys, with perhaps a few hundred more for mantels, with a few barrels of lime, but determine rather to attempt to so influence the prospective builder that he will build more wisely and will be coming to you for all the materials which will enter into his completed home.

Gentlemen, the opportunity is yours, but energetic work and patience is required.

The manufacturers of the country are eternally looking for the man who can get the business in their respective localities. Not only are they looking for such persons, but they are ready to co-operate with them and assist them in every way to produce such results.

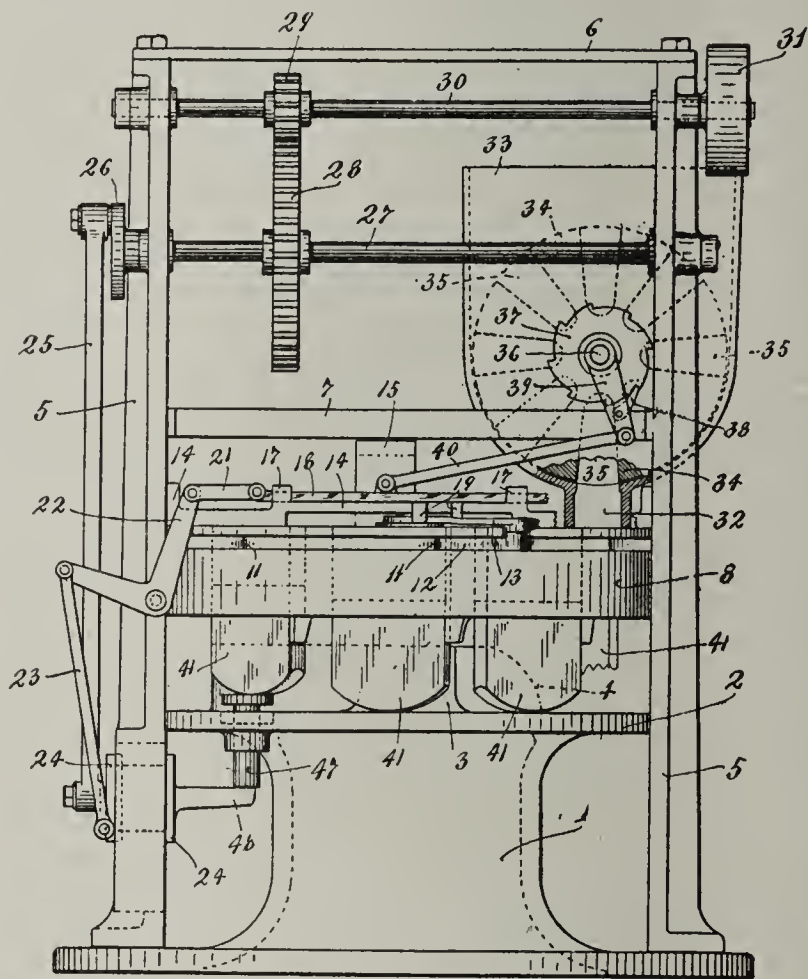
The Building Brick Association of America is an associa-

tion of about 250 of the leading brick manufacturers and brick sellers of the country. It is the intention of this association to conduct an advertising campaign in the magazines of the country, calling the attention of all prospective builders to the value and virtue of building brick in the construction of their homes. Booklets and pamphlets will be distributed, setting forth the reasons why brick should be used, and this organization will only be too glad to co-operate with you in bringing about this great reform.

For more specific information I have here five booklets: "A Revolution in Building Materials," by H. S. Chapin; "The Brick House Safe from Fire," "Brick or Frame—Which," "The Maintenance of the Brick House," "The Beauty of the Brick House." I will be glad to have the names of any of you who desire these pamphlets and to see that you are furnished with a copy of them.

And now, gentlemen, in bringing my address to a close I desire to extend to you my thanks for the invitation to address you, for the attention you have given me, and I hope

981,219.



New Brick Machine.

that what I have called to your attention may prove of permanent value to you.

It has been a pleasure to address you and I hope to have the pleasure of meeting you all personally.

By persuading your customers to stop building wooden houses you will assist the great work of conserving our forest reserves, will decrease the great fire loss and attendant loss of life with which we are cursed, and if you can get him to use brick instead you will in the first case double and treble your own business and will have conferred a positive and lasting benefit upon him.

Brick is easily adapted to any building condition, lends itself readily to the architect and builder, who may desire individuality in their creations, and is at once the most modern and the most ancient of building materials.

Granite disintegrates and crumbles into particles of mica, quartz and feldspar. Marble soon moulders into dust of carbonate of lime, but hard, well-burned clay endures forever in the ancient landmarks of mankind.

RECENT PATENTS.

Material for this department is compiled expressly for THE CLAY-WORKER by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F street, Washington, D. C., and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same, should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cents.

Brick Machine.—August H. Olsen, Casper Pedersen and John Andersen, of Minneapolis, Minn. 981,219. Patented January 10, 1911.—The object of this invention is to provide an improved brick machine, the details of which are too numerous to describe within our limited space. Those interested should obtain a complete printed copy of the patent.

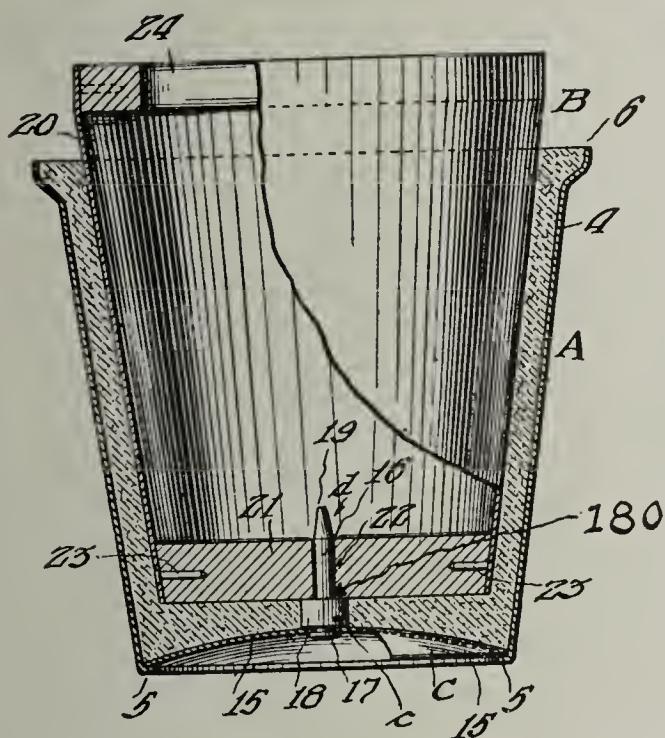
Machine for Making Hollow Bricks.—Ira W. Brison, of Aspinwall, and James A. Hunter, of Monongahela, Pa. 981,839. Patented January 17, 1911.—This invention relates particularly to machines for making specially shaped fire brick such as are employed for nozzles, etc., used in metallurgical furnaces. The machine comprises a rotating core (20), which is adapted to be forced into the mold (7) containing the plas-

after being burned to ashes, makes a tight joint between the tongues and grooves.

OUR BUSY INVENTORS.

The United States is one place where the inventive genius seems to work overtime. There is never a dull year in inventions, and the United States leads all other countries and comes very near leading the whole world once in a while in the way of the number of inventions turned out and patented. The Official Gazette of the Patent Office reports that there were received during 1910 63,293 applications for mechanical patents, and 1,155 for design patents, and also some applications for reissues, trade-marks and registrations. During the year there were issued on these applications 35,807 patents, and there are now awaiting for final payment of fees 11,336 other new ones that will be issued as soon as fees are paid. During the year the number of patents expiring was 22,768, so the total balance of new patents is practically 25,000 in 1910. The total amount of money received by the Patent Office during the year was \$2,025,537. The expenditures were \$2,005,712, leaving a surplus for the year of \$19,-

981,267.



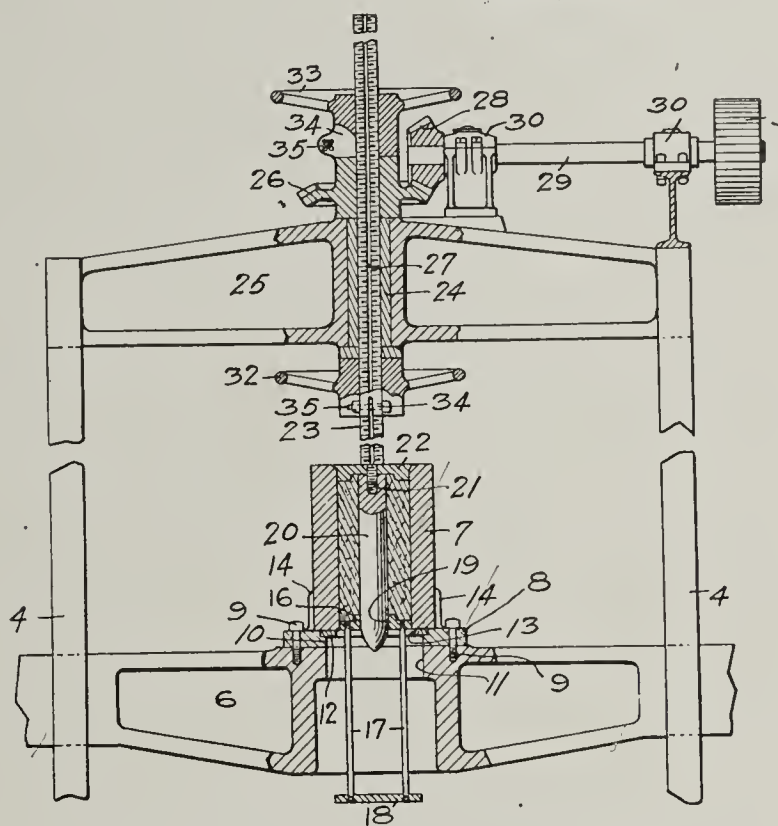
Apparatus for Making Plastic Earthenware.

tic material, while a stripper plate (16) is adapted to push the finished hollow brick from the mold after the core has been withdrawn. The apparatus is so arranged that the parts may be readily adjusted for bricks of different sizes, and the bricks are formed accurately with smooth regular bores.

Plastic Block and Earthenware Apparatus.—Frederick H. Howard, of Montebello, Cal. 981,267. Patented January 10, 1911.—This invention relates to molds for making flower pots and the like. As shown in the drawing, the improved mold comprises inner and outer vessels, the outer vessel having a concave bottom (15), through which extends a pin (16) for properly centering the inner vessel, while the core member (c) surrounding the pin serves to form the hole in the bottom of the pot.

Continuous Kiln with Traveling Hearth.—Johann Rappold, of Allswil, near Basel, Switzerland. 981,109. Patented January 10, 1911.—This invention relates to kilns of the car and tunnel type and seeks to provide improved means for sealing the charge after it is in place. To this end grooves (d) are provided in the sides of the tunnel wall into which fit tongues (c) carried by a car. Fuel is fed through the holes (s) and,

981,839.



Machine for Making Hollow Brick.

825. There has been a surplus accumulating every year until now the Patent Office has to its credit in the United States treasury the tidy sum of \$6,998,228. In other words, the Patent Office is faring much better than the Postoffice and is one of the few institutions operated by the government that does not have to be relieved by a congressional appropriation. It is making its own money and some to spare.

The statistics of the Official Gazette show that the United States has been a greater producer of patents than any country in the world. Has produced more than twice the number of the next nearest competitor, which is Germany. Great Britain is third on the list, France fourth, Belgium fifth and Canada sixth. Uncle Sam's people are so far in the lead, however, in point of quantity of patents produced that the rest of the world may be classed as "also ran." The only pity to the whole thing is that so many patents taken out both here and elsewhere are not worth their original cost, and often the useless ones interfere with others. Some day we will probably get our patent regulations on a different basis, where there may not be so much encouragement of freak inventions, but there will be better protection for those of commercial importance.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



CONDITIONS IN THE New York market have not changed materially from the last reports. Business has been in a small way principally, with the exception of here and there a buyer who has taken advantage of the low prices and has purchased rather liberally of the brick that came in so freely at the close of the season. Demand for brick for immediate use has not been as free as most holders would have liked to see, yet the situation has improved somewhat during the past week or two and now promises reasonably well at the beginning of the season. In some instances it was said that the building outlook depends upon what the workmen may decide to do this May, but apparently that is erroneous. It is quite likely that there will be no trouble with the workmen unless it is foolishly brought about through unwise and unnecessary demands by these same men. At any rate it is said that the outlook is better in that respect, too.

The discussion of the extension of the subways continues, though so far almost nothing definite has been accomplished. It might be said that more than ordinary care is being exerted in considering the extension and who shall have the contracts than has usually been given to these projects in New York, and it seems probable that the people will be better served than they have been before. But the delay is making traveling conditions worse on Manhattan, and before the relief afforded by the extensions now under consideration can be brought about the population will have increased to such proportions that even the new subways cannot handle the traffic. The new one will be almost as large as the former ones and will be built through a portion of the city which did not have them. More burned clay will probably be used in the new ones than was utilized in the construction of the former ones. Burned clay is looked upon as the most durable and the cheapest structural material to be used. Many millions of brick and much tiling and terra cotta will be utilized, while the stations, as in the old one, will be of white and tinted tiling.

The Hudson river brick fields are frozen close in their winter mantle. It will be some weeks yet before they can be operated, but in the meantime the association difficulties are being settled and the future looks even better for the manufacturers up there than ever before. The old association has been closed up, and the new is about ready to do business. It is too early to say what the effect upon the business will be, but those who have been instrumental in organizing the new are confident that it will be beneficial in a number of different ways. As a whole the movement has been supported by all the firms doing business in that vicinity.

It is said that a good many wholesalers in New York and vicinity have stocked up well for the opening spring season. They believe that trade would improve with the opening of the spring, and are now in position to do business in almost any quantity desired. It might be said that in some instances they bought brick they now hold at a substantial reduction from what they are likely to sell for later. This is, however, merely conjecture since it is impossible to say what prices will prevail with the opening of the spring. It is quite probable that the advance contemplated will be more than was expected, which will create some disturbance. The determination of the holders seems to be to maintain a high range of values. And they are quite confident they have the situation so thoroughly in hand that the future will be quite to their liking. In view of the uncertainty that exists the outlook is not altogether to the liking of the holders, especially if they bought heavily before navigation closed.

While the movement of common brick is slow, being chiefly upon old contracts, handlers and others in and about New York are of the opinion that trade is seasonable. Conditions are substantially the same as always govern at this season of the year. Increased activity is expected as soon as spring opens, which, it is pointed out, cannot long be delayed. Even though the weather is cold as this is written, it is March, and that month in this latitude is always the beginning of spring. Front brick is held at unchanged prices, though movement has developed somewhat of late. Other varieties remain un-

changed. Following are quotations as given out by one firm:

Front buffs No. 1, \$28 to \$30; grays, shaded and specked, \$32; white No. 1, \$32; Hudson River common, \$5.25 and \$5.50; light, hard, \$4.00 to \$4.25; pale, \$3.00 to \$3.25; No. 1 fire, American, \$25; No. 2 fire, American, \$20; Scotch, \$35.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



HILE BUILDING conditions in other cities during the month of February showed a falling off, there was a distinct gain in the Cleveland district, the return showing an increase of 30 per cent. in the value of permits issued this year, as compared to the same period a month ago. Already this month the volume of work is in advance of any former year, just as February and January have been greater than any similar periods in the history of the city. The outlook for the year is excellent, there being more large projects planned for development during the coming summer than ever before. During February 483 permits were issued for buildings valued at \$766,660.

Plans are being perfected for a twelve-story building on the Public Square, adjoining the eleven-story American Trust building, by Architect F. W. Striebinger. The building will be of brick or terra cotta, and will be strictly fireproof throughout. It will cost several hundred thousand dollars to complete it. It is for J. A. Sanders, who will use it as a hotel, with a fine large restaurant on the ground floor. Adjoining it W. G. Marshall is planning to erect another twelve-story building of the same general type of architecture. Plans for both projects are now well under way.

A four-story building of white tile and brick is to be erected by the Avenue Realty Company at East 46th street and Euclid avenue. The property has been idle for many years, but is now being improved with this modern building. There is considerable building activity in the same section of the city, there being a number of brick residences and mercantile buildings planned for the neighborhood.

By the end of this month bids will have been let for the three new Y. M. C. A. buildings for Cleveland, according to an announcement just made. Bids have been received for the East building, to cost \$65,000, and the West building, to cost \$100,000, and contracts are to be let at once. A little delay has been experienced on the main building, which is to cost about \$400,000, but the directors expect to be able to let contracts on that also before the end of the present month.

A new four-story building of white tile and brick is to be erected at Lakeside avenue and Ontario street opposite the new county court house by Barnhard Schatzinger. The building will have a frontage of 132 feet on Ontario street and will contain seven stores, with offices for lawyers and others above. Plans for the building were prepared by Architect Harry A. Cone.

Work begins next month on the new six-story store building for the Commercial Building Company on Euclid avenue near East 9th street. It will have a frontage of 90 feet and a depth of 172 feet. The front will be of white glazed terra cotta and the walls of brick. Contracts will be let within the next few weeks. The building will cost about \$400,000, according to present plans.

The contract for the finishing of the new West Side market house, a \$350,000 structure, has been let to the W. B. McAllister Company. This will call for the extensive use of glazed brick in the interior work and some terra cotta, too.

A four-story building, with two fronts of white terra cotta tile, is to be built at once on property at Euclid avenue and East 46th street for the Avenue Realty Company. It will be 200 feet square and fireproof throughout. Two stories will be built at once and the others added next year.

A \$100,000 storage warehouse, with stores on the first floor, is to be erected on West 25th street near Detroit avenue for the Fireproof Warehouse Company, of which Jay Latimer is president. The fronts and walls will be of dark brown and red pressed brick.

The Cleveland Board of Education has completed plans for a new \$400,000 West Side Technical High School. Founda-

tions for the building are being installed and contracts for the superstructure will be let within the next few weeks. An effort is to be made to have the building ready for occupancy by January 1 next. The exterior will be of red or brown pressed brick. The building, when completed, will have a number of workshops in addition to the regular class rooms, and will accommodate about 1,000 pupils.

Two new schools have been contracted for by the Lakewood Board of Education. Lakewood is a suburb of Cleveland, lying at its western border. Each school will have nine or ten rooms and will be fireproof throughout. The work is to be done by Cleveland contractors.

Paving operations in Cleveland this year are already contracted for. About 30 miles of brick pavements will be laid at a cost of \$1,300,000, of which the city will pay \$175,000. In the county an even greater mileage will be laid. The commissioners of Summit county have contracted, at a cost of \$375,000, for the paving of the road leading from Akron to Cleveland, so that one of the worst stretches of road lying between two important Ohio cities will henceforth be paved with brick. It is the first of the general plan to connect all big Ohio communities with brick roadways. Lake county, lying to the east of Cleveland, is also planning to do extensive paving operations this year, using brick for the purpose.

During the past month the Cuyahoga Builders' Supply Company was launched in this city. It is a combination of the W. A. Fay Company and the retail building supply department of the Pittsburg & Cleveland Coal Company, with W. A. Fay as general Manager.

A new company incorporated in Cleveland during the past month is the Cuyahoga Brick and Shale Company, with a capital of \$125,000. The incorporators are: R. J. Dawson, C. R. Cross, John D. Fackler and Reuben Hitchcock. It is to engage in the manufacture of brick.

A number of the brick and supply concerns have signed up for space at the bid Ideal Homes Show, to be held in Central Armory the latter part of May. It will continue for eight days, and there will be on exhibition every product which goes into the construction and maintenance of a home. Herbert Matthews, Williamson building, has already booked several good displays from abroad and has secured a train-load of government exhibits in addition.

BUCKEYE.

An extra session of Congress may be a good thing, but it might have been worse without it.

A GREAT CLAY PRODUCTS EXPOSITION.

An Important Enterprise That Will Prove of Immense Value to Clayworkers and Builders of Permanent Homes.

HERE IS JOY in the hearts of progressive clayworkers for, as expected, a most promising child has been born and christened the International Brick and Clay Products Exposition Company. For short THE CLAY-WORKER prefers to nickname the offspring the Permanent Homes Show. The brick home is a permanent home, a home that is safe and sanitary to a degree not equaled by any other building material. The properly constructed brick home is fireproof and expense proof, and it is with a view of demonstrating most forcefully these prime qualities to the home builders

of America that this Permanent Homes Show has been conceived.

The success of this great enterprise depends upon the support accorded it by the manufacturers of clay products, both in the matter of exhibits and the boosting. Every clay-worker in the land is directly interested and should give to the enterprise not only recognition and kind words, but substantial support that will encourage those who are going to devote their time, talents and means to it, to do their very best. With the assurance of real earnest interest on the part of the trade in general, the work can be started and carried on with enthusiasm that will spell success, and if successful the Permanent Homes Show will benefit



Evens & Howard's Pavilion in Manufactures Bldg., St. Louis World's Fair, 1904.

every clayworker in the land, whether he be a maker of brick, tile, pottery, terra cotta, sewer pipe, sanitary ware or any other clay product. Every branch of the industry will be benefited and affected by a successful exposition of the sort contemplated.

The exact date of the exposition has not yet been determined, but it will probably occur in February, 1911. This may seem a good ways off, but the exposition properly carried out means a vast amount of labor, and no time should be lost in starting preliminary work. Those who are to make exhibits must mature their plans in time to do their very best, for the exposition must embody the most artistic display possible in every branch of the clay industries. Ample time must be given those who are willing to make elaborate displays to design and produce ware for the special purpose, and this will be done in a large number of cases, we are sure.

Displays Made by Clay Product Manufacturers at St. Louis World's Fair



Exhibit of Northwestern Terra Cotta Company in Chicago.



Exhibit Pavilion of Hydraulic Press Brick Company, Which Occupied Position of Honor in the Clay Industries Display.



Entrance No. 1 to Clay Industries Exhibit. Columns by the Excelsior Terra Cotta Company, New York.



Entrance No. 2 to Clay Industries Exhibit. Columns by the St. Louis Terra Cotta Company.

With a view of stimulating thought and interest in this direction, we reproduce views of a number of the exhibits at the World's Fair at St. Louis, which challenged the admiration of the sight-seers at that time. Since then improvements have been made in many lines of clay trade, and it is not unreasonable to suppose that more attractive exhibits may be made now at a distinctively clay products show which will attract the prospective home builders, contractors and engineers from every progressive community in the land.

Those having the enterprise in charge will issue a prospectus and announce their plans and program more in detail in the very near future, to which every clayworker in the

SEEN IN NEW JERSEY.

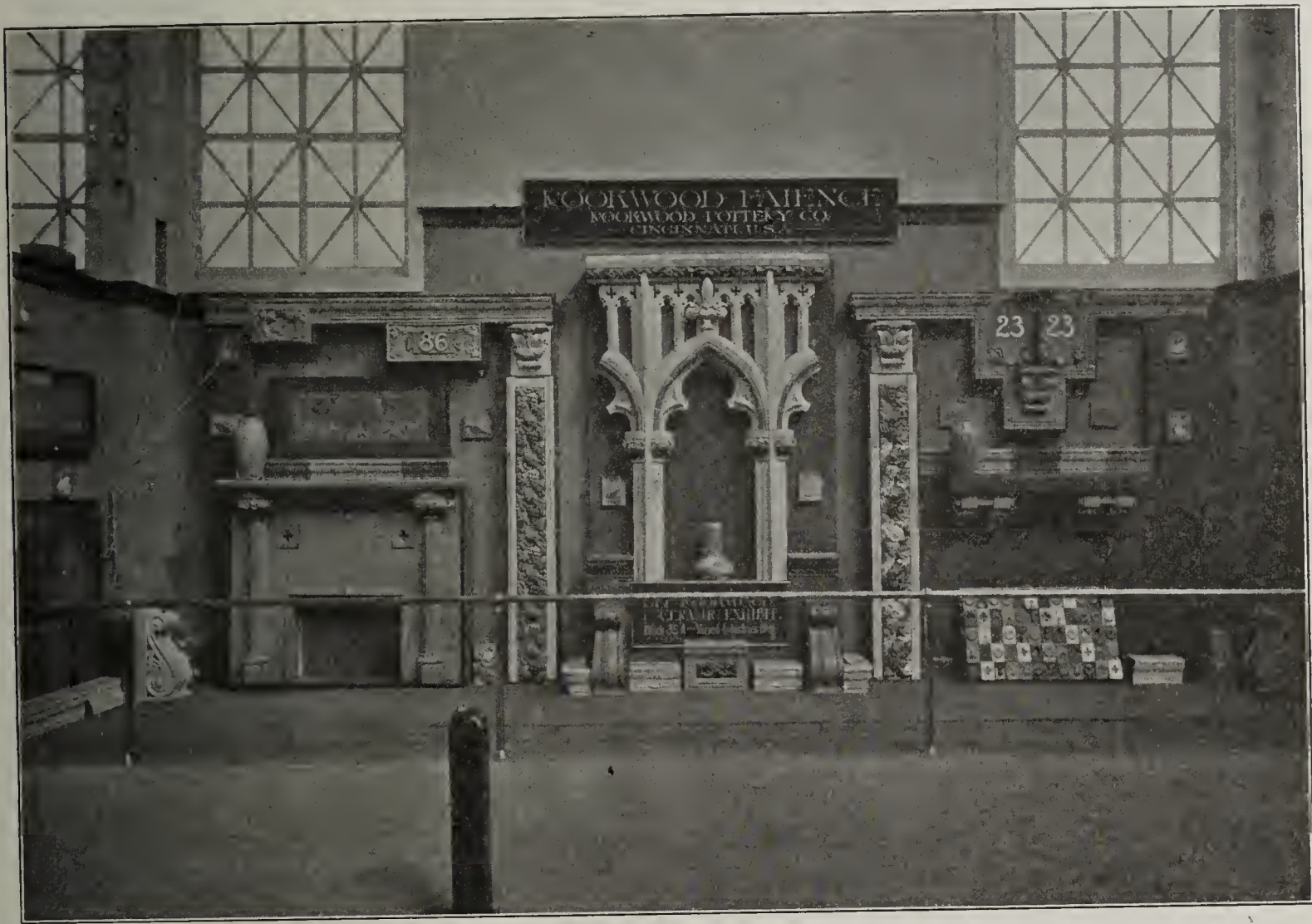
BRICKMAKERS in New Jersey seem to be more sanguine of the future than those of other eastern manufacturing centers, and in some instances are preparing for increased business, though they are not investing any

ferent. At Sayreville manufacturers have stopped quoting New York and are merely taking what orders come to them. Inquiries are received by these firms in considerable number for early spring delivery. Some orders were received for late February delivery, and in some instances these lapped over into March. The outlook is considered reasonably good, and as soon as navigation opens New York shipments will begin again.

Henry Maurer & Co., of Mattawan, say that business with them for the year was fair and prospects for the coming season promise nothing more.

At South River, where the American Enamel Brick and Tile Company has a big plant, the outlook is promising. The company anticipates a year of better prices than in 1910, and probably better demand.

At Kingsland the New York and New Jersey Brick Company is looking forward to a prosperous year. It bases this prognostication upon the contemplated structural work now under consideration. The firm, while not materially increas-



Display of Faience in Colors by Rookwood Pottery Company at St. Louis World's Fair, Held in 1904.

considerable sum of money in improvements. Those near New York are sanguine chiefly because of the fact that building promises great development under the influence of the opening of tunnels and the general improvement of suburban transportation lines. It is hoped that these changes will result in the improvement in demand for brick. In that case, it is pointed out, the increase in business would result in benefits to all interests involved.

Along the Hackensack river few manufacturers contemplate additions to their plants. Some may make improvements, but no additions under present conditions. They say they shall consider themselves fortunate if they succeed in doing business enough to make their present plants profitable.

The Merhoff Brick Company, one of the largest and one best favored with contracts heretofore, will make such improvements as are necessary to maintain the efficiency of their plant. This firm is conservative, makes a superior quality of brick and usually does as good a business as anyone in the trade.

Along the Raritan river the situation is not essentially dif-

fering its facilities, will arrange to handle a bigger business than ever before.

Hackensack is to build a new grammar school to contain not less than 23 class rooms, with an assembly room to seat 1,200. It will be brick and terra cotta. W. H. Stoddard, of New York, is the architect. It is to replace a grammar school recently burned and will cost \$175,000.

The vigorous advertising campaign conducted by the National Fireproofing Company is bearing fruit. Inquiries are numerous and many sales have resulted. The use of terra cotta in ornamentation is increasing and many builders are considering it who never thought much about it before. For example, the polychrome decoration of the new Vanderbilt Hotel is to be in terra cotta, and other large buildings will have more or less of it in their decorative schemes. Other firms profit by the advertising the National people have done, and altogether the prospects for the coming year exceed those of any previous year in the history of the business.

A. L. B.

*HIGHWAYS IN INDIANA.

By WILL P. BLAIR.

WE HAVE LISTENED with a great deal of interest to the discussion relative to the various kinds of roads that are supposed to be acceptable to the audience here, and all over the United States. I was very much interested in the discussion of the roads that seem to be satisfactory to Mr. Light, of West Virginia, and I could not help but think that there was a certain idea running through his talk that sometimes comes to a man when he crosses the State of West Virginia—that they have not very much to go over their roads there except shadow and sunshine and, therefore, they are content with the mud road, or the road made of dirt. We have had other roads described to us, such as seem to satisfy the States of Massachusetts and New Jersey, but there is a kind of a road in this country, gentlemen, that up to this time has not received much attention on the part of this convention through its speakers, and that is the excessively used highway.

We have conditions in some states that are very different from the conditions in others. For instance, in many parts of Indiana we raise on each 160 acres a ton of produce for every day in the year, and many of our farmers in Indiana, Illinois and Iowa require a better road than the mud road.

The kinds of roads we have in this State are not satisfactory to a very great extent. We have heard from the gentleman from Johnson county that they have splendid gravel roads. So they have. They raise an immense tonnage in that county and the traffic to which these roads are subjected wears them out and brings them into a bad state.

I am sorry there are not more people to hear suggestions, because most of the speakers from our own State and in this locality have not taken off the blanket and let you see some of the nakedness of our own community. I recall that last year, the fifth or sixth day of March, I undertook to go over one of the highways in this city in an automobile on one road upon which they had expended in 25 or 30 years \$25,000, and I got stuck. I turned over to the boulevard which was built only year before last and I was stuck with the automobile, and I had to turn around and come back. It was a gravel oiled road. I went out on the National road, four miles from this city. I happen to know the history of parts of the National road, and I have gathered some statistics in reference to the maintenance and repair charges of the roads leading out of this city fourteen miles westward from the old National road. I have photographs which I took of that road on the 5th day of last March showing a farmer coming to town with produce. He was walking along the road to relieve his team. And yet there has been expended upon that road in forty years more than \$50,000 per mile for maintenance.

You have heard it stated that in Indiana we have something like 60,000 miles of roads yet to be improved. Of those 60,000 miles some will do for dirt roads and some can be built of gravel and some of stone, but there are a certain number of miles, I do not know how many, perhaps 500, which no material that has come into common use will answer, because in many cases more than 5,000 teams pass over those roads every twenty-four hours. What are you going to do with them?

I believe that some of the states have perhaps solved the problem. In northeastern Ohio, leading out of large cities like Cleveland, there has grown up a system of roads, the construction of which you may want to know something about. Mr. Lea, I regret, is not here to read his paper. I have received a telegram that he is sick and unable to attend the

convention, and this accounts for my trying to explain his work in building hard roads. In the construction of hard roads, just as in that of soft roads, there must enter into the consideration a thorough understanding of how these roads should be built at their best, else you will get bad results. Now I am going to tell you very quickly how Mr. Lea builds the hard brick roads of northeastern Ohio, and why they are so popular. I suppose that in Cuyahoga county alone there are 400 miles of that kind of road. The first four or five roads that were built in that county were not very satisfactory because they were not properly constructed, but the roads built subsequently have not carried with them any maintenance charges whatever, and are not likely to have any maintenance charges against them for many years to come.

A good many people think it is a simple thing, and it is in many ways, to build a brick road, but you must build it so as to give the wearing surface the best possible advantage, the same as any other kind of road. First, I am going to describe the typical roads of northeastern Ohio, the roads which have been pointed to as being the best adapted to the conditions there, the road is paved with brick to a width of fourteen feet, with a seven-foot clay track by the side, with ditches on either side of the road, draining one way. The foundations must be smooth, and in this case it is made of concrete, four inches thick. Upon that foundation is spread a two-inch sand cushion. It is necessary to compress this sand. We find it necessary in all cases, because if you do not compress the sand cushion you will get an uneven surface and a lack of uniformity in the support that the sand cushion is supposed to furnish. So you must compress it with a roller so that when the brick is laid you will have a uniform foundation under the brick surface. Upon this cushion you lay the brick. Just at this point, as every one knows, or ought to know, a little common sense must be used in the rolling.

I think mistakes are often made all over this country in the construction of roads. The worst, in that it does the most damage and often ruins the construction of all kinds of roads, is the attempt to use too heavy a roller. In the construction of a road it is better to roll three times with a roller one-third as heavy than to use an excessively heavy roller. You will get better results. So in the compacting of this brick surface use a light roller. Following that is the application of the cement filler, and perhaps at this point wrong methods in applying the filler results in failure more often than does any other part of the work. You must get the correct proportions of sand and cement in place in the interstices, and you cannot secure that by mixing in large quantities. That is a method often followed and that often results in utter failure.

By exercising a little care, as I have outlined briefly, you will get a road that will practically eliminate repairs. It is not to be expected that this kind of road should be used here and all over the country, but I say that in order to secure the elimination of the repair charges that now obtain on roads adjacent to large cities where heavy travel converges, you must build a road to suit the load.

We have a law in the State of Indiana which ought to be wiped off the statute books. It is wrong. This law is such that if a man hauls a load beyond a certain weight he is subject to a fine if the load is carried upon a tire of a certain width. Therefore, in Indiana at a time when we ought to be using our highways to the best advantage to the farmer, the loads are legislated off the roads. While all are preaching in reference to good roads in Indiana, we never as yet have built roads to suit the loads. So particular have we been in that regard that we have made it a misdemeanor for a man to haul a load beyond a certain weight in some streets. Last year a man was arrested and fined for hauling a load over a certain weight on an improved highway. To keep from being fined, hauling his corn to market would cost him 30 cents a bushel.

This is an explanation of why we needed the convention and needed you, and why we asked the officers of this association to come to Indiana and use their influence towards securing for us better roads and a better system of maintaining them.

*Informal talk made before the National Good Roads Congress held recently in Indianapolis.

Written for THE CLAY-WORKER.

A CHANGE OF BASE.

The National Paving Brick Manufacturers' Association Establish Headquarters at Cleveland.

AS PREVIOUSLY announced, the general offices of the N. P. B. M. A. have been moved from Indianapolis to Cleveland, and Secretary Will P. Blair is now located in Room S24, Brotherhood of Locomotive Engineers' Building, Cleveland, where all correspondence relative to the Association or its work should be addressed.

As the readers of THE CLAY-WORKER well know, for we have so stated many times, Cleveland is now the best paved city in America, and her best pavements are brick pavements. so the board of directors of the Association deemed it wise to establish headquarters in that city, where those interested in permanent street improvements might be afforded ocular demonstration of the superior merits of properly laid brick pavements.

Not alone the streets of Cleveland, but the country highways for miles beyond the city, have been paved with brick, and these streets and roadways are so popular and have gained such favor in the eyes of the taxpayers, that petitions for many more miles of brick roads are pending, and brick roadways will be built as soon as arrangements can be perfected and contracts let.

In the nature of things, Cleveland must be the mecca for engineers and municipal officers who are investigating this most important feature of public service, and consequently the officers of the N. P. B. M. A. can more readily keep in touch with prospective road builders there than at any other point, and with more effect, for "seeing is believing," and to see the fine brick-paved streets and roads of Cuyahoga county, Ohio, is the most convincing argument possible in the interest of permanent roads.

PENNSYLVANIA COMPANY BOOKS BIG CONTRACT FOR PAVING BRICK.

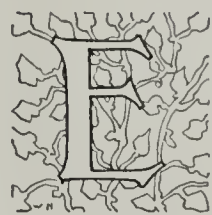
The Clearfield Clayworking Company, of Clearfield, Pa., through their secretary, Mr. R. L. Winslow, has just closed what is possibly the largest single contract ever awarded at one time in the State of Pennsylvania. This work calls for the delivery of approximately seven million paving blocks for Altoona, Pa., and will be used for street paving purposes at that place. The work will require the expenditure of approximately \$350,000. Over fifty streets will be improved. The city engineer, Mr. Frans Engstrom, is giving particular attention to the latest improved methods of construction, and it is expected that Altoona will have some of the finest paved streets in the East. This is further evidence of the increased popularity of vitrified brick as a paving material. The plant of the Clearfield Clayworking Company has not been shut down a single day for over twelve years except in case of accident or for repairs. The company has been manufacturing paving blocks for 20 years and consequently is well known throughout the eastern part of the United States.

A SUCCESSFUL GRAVITY BRICK CARRIER.

One of the firms that has met with success in the clayworking field in the last decade is that of the Mathews Gravity Carrier Company, of St. Paul, Minn., manufacturers of the Mathews brick carrier, an efficient and practical mechanical device, that has won distinct favor with brick manufacturers for the reason that it plays an important part in cheapening the process of manufacture, that desirable condition to which all brick manufacturers are bending every effort. The carrier has been fully described in our advertising pages, but detailed information as to cost of installation, etc., will be cheerfully furnished on application to the company.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.



VER BEEN in Boston?" That's where the expression, "Take you round the town," originated. That's the only way they can take you. Whichever way you go, if you just try to go straight ahead, eventually lands you right where you started. Really, "seeing Boston" makes me dizzy, so I just give it up and stop in at the depot lunch counter for my breakfast rather than rush to danger outside.

Am surprised to find other things than baked beans there, and for a moment doubt whether I have really arrived in Boston, but decide to breakfast anyway, and being an invalid, order a glass of milk and an egg. Can you beat it?

Married couple comes in agitated by having arrived. Am sure they are married. You can sometimes tell, and this is one of the times. She has the inset lips and he has a loose ear and is trimmed with bundles. There were three empty stools there and she told him she didn't want to be crowded, and she told him quick, and she didn't have to give any more orders. He was onto his job, broke to the harness, ready with the service. He didn't want to occasion the unnecessary opening of those thin lips not one unnecessary time. She slid to the middle stool and he covered the other two with bundles, slid down the line to a little corner seat that no one wanted, apologized to the man next him for taking it, drew a long breath of relief and cast a shifty glance along the line of faces opposite, which look bore volumes of apology on his part for being on earth at all. She settled herself on her stool, made little nervous motions, fooled with the menu card and sniffed at the waitress. And you know what that means. She would get hers. I have sometimes had rash intervals and done rash things, but never that. With men, and with some women in other walks of life, you would have some chance, but with a waiter, or, worse yet, with a waitress, you just know one thing—they will get even with you some way, and the only uncertain thing is the uncertainty as to how they will do it.

She ordered a baked potato and a cup of tea, and she was particular about it, and she told the waitress so. I couldn't see, of course, what she got for tea, but got a pretty good idea as she explained her idea of it to the waitress. However, the appearance of the potato, its hostile exterior, soggy interior and generally dejected appearance tallied pretty well with her crisp description to the waitress. The waitress had such a satisfied look that I knew the potato, bad as it was, couldn't stand for all the joy in her face, and I felt that some way her tea was the triumph of her revenge. Meantime the hero of the loose ear was in a revel of "sinkers and." He hadn't attracted any attention and didn't want to. Attention meant just nagging to him. His long suit is dodging. When anybody looks at him he hides. He couldn't attract a waitress' attention if he tried, but he does attract her sympathy without trying, and she helped him promptly, gave him an extra "sinker" and saw that his coffee was hot and thereby contributed a large page in the small volume of the happiness of his life. He knows he isn't a man, but just a walking apology for being alive and aspiring to the image of a man. A real womanly woman honors and respects a manly man, and no womanly woman who isn't a real womanly woman ought ever to own, control or associate with a manly man.

All the wrecks, the walking apologies for manhood, are, however, not just born so. They can be educated to it. They can be trained to it. They can be made by hand. The thin lips and little shifty motions of the woman with the potato and whatever it is she has in the teacup tell convincingly that she has done most of the wreckage work on the loose-eared individual busy with the sinkers at the end of the counter.

Hell has no terrors for him, for, as Uncle Joe used to say,

"He has done been dar." He has lived there many years and never had a vacation.

If he had been a real man he—but what's the use? If he had been a real man he wouldn't have mated with her. A real man just wants a womanly woman, lovable and appreciative, and when the manly man and the womanly woman marry they will vie with one another as to which shall be first to concede to the other in every little thing, his every act testifying of protecting care and reverence and hers of tender regard and affection.

They finished. She threw her parting message at the waitress, but the waitress' face bespoke such quiet satisfaction that I knew it had been in the tea. The loose-eared slave gathered the bundles and took his orders, and I turned to finish my glass of milk, and it had soured. GATES.

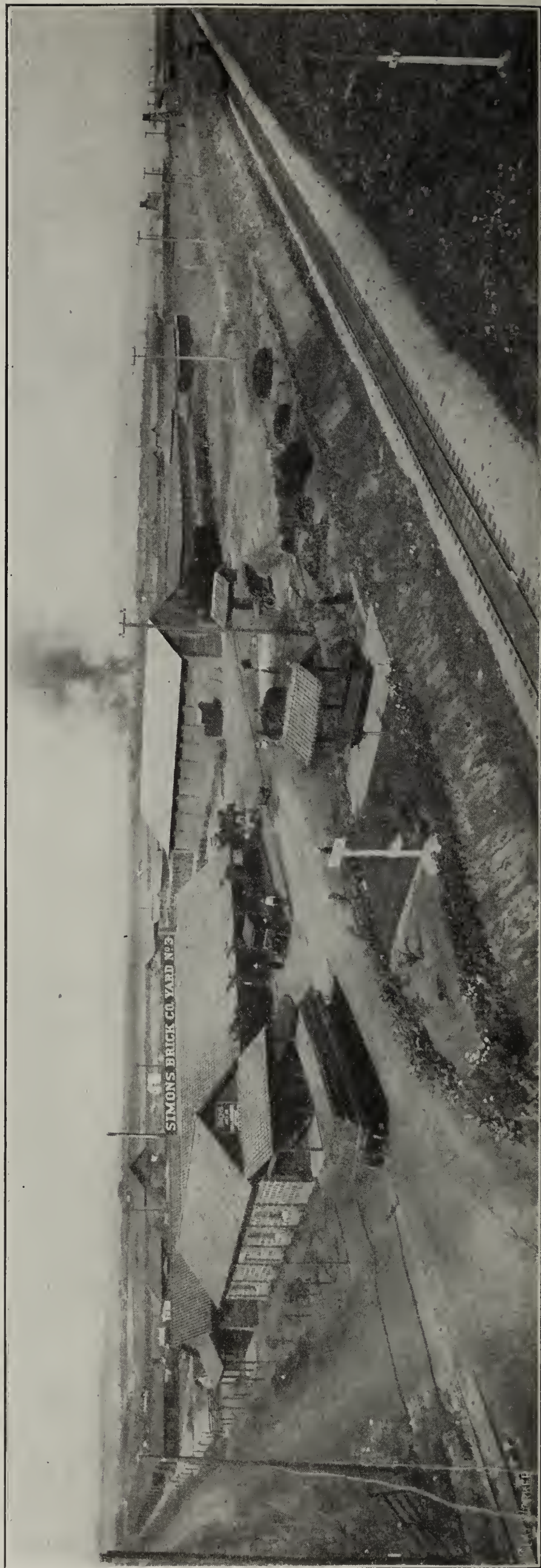
NATIONAL BUILDING MATERIAL EXPOSITION.

THE FIRST "building material" exhibition ever held in this country will take place at Madison Square Garden for a week during the month of May next. It will be officially known as "The National Building Material Exhibition," and will aim to cover the entire field of public and private building construction down to the minutest detail. Plans for the exhibition have been carefully laid and the support and patronage of all of the most prominent architects, manufacturers of building materials and the various mechanics and building trades associations have been enlisted, and it is the general opinion that this exhibition will greatly stimulate the interest not only of those directly associated with building construction, but also that of the general public. Among those who have placed the seal of approval upon the venture are: McKim, Mead & White; Hardee & Short, Jas. E. Ware & Sons, Janes & Leo, Pollard & Steinan, architects, and Jas. A. Farley, Wm. Crawford, Dawson & Archer, Fountain & Choate and Geo. A. Fuller Construction Company, builders.

While the coming show is to be a "national" building material exhibition, it will in reality be of international importance, as it is the direct outgrowth of the Building Show building in London for the past ten years, and there will be shown at Madison Square Garden a great variety of imported appliances and accessories. As the London show has met with the greatest success, both from the standpoint of the producer and the general public, the field in this country is so much more extensive owing to the rapid advancement in recent years in building construction that the initial exhibition here promises to far surpass the one of older date. The scope of the coming show will cover such a large field that the architect, the general builder and the man who specializes in interior and exterior appurtenances and the householder will find upon entering the Garden everything appertaining to the construction and fitting out of any kind or description of buildings.

One of the big features of the show, and something that will certainly create a sensation, will be the daily building and completion of an entire house. This is something that has not only never been attempted before, but which has only been made possible by the wonderful advancement in construction work of the past few years. While this is in progress an expert upon the fitting out with modern appliances of public and private buildings will lecture and give a practical demonstration of the many wonderful and useful recent inventions and improvements.

It has been suggested that an exhibition by the prominent architects of this country of the pictures of our most famous public and private buildings will constitute a wonderful art show in itself, and the concert hall in the Garden has been reserved for this purpose while the show is in progress. Another attraction of the exhibition will be a display of modern country and suburban residences, showing all of the best features of architecture and the innumerable conveniences by which recent inventions have placed the life of the twentieth century suburbanites upon a par with the householder who lives in his own house in the city or in an up-to-date metropolitan apartment.



PANORAMIC VIEW OF SIMONS BRICK COMPANY'S YARD NO. 3, SIMONS, NEAR LOS ANGELES, CAL.

Written for THE CLAY-WORKER.

MAKING SAND MOLD BRICK IN CALIFORNIA.

THE INDUSTRIOUS town of Simons, Cal., is located on the Santa Fe railroad, six miles east of Los Angeles. The town has a population of more than 450 people and affords comfortable housing accommodations, a restaurant, stores, school house, postoffice and in fact all the conveniences of a modern town, with its own water and electric light plant.

It is in this interesting town that the Simons Sand Mold Brick Plant is located. The factory has a capacity of 30 minimum carloads per day of common building brick for foundation and sewer construction. Owing to the superior quality of the clay found in this locality and the fact that the most modern equipment is used in the manufacture of their ware, they turn out brick that they claim cannot be equaled in the West.

The raw material is a surface clay averaging 16 feet in depth. It is taken out of the bank by means of a steam shovel, hauled to the plant in cars drawn by mules and taken up an incline to the platform above the Potts disintegrators in the ordinary way with winding drum and cable. The brick-making machines, six in number, made by C. & A. Potts & Co., Indianapolis, Ind., are set in pairs, side by side. Three men, one for each pair of machines, are employed to draw the clay and feed same into the machines. Each machine has a Potts mold sander attached. The capacity of each of these machines is 5,000 brick per hour and they are driven by a 30 h.p. electric motor. The brick are taken from the machines, placed on pallets and carried on wire rope conveyors to the drying racks. In this method two men only are required to put the output of each machine in the racks. Wire rope conveyors are also used for taking dried brick to the kilns, which are the up-draft clamp type, having a capacity of 750,000 to 950,000 each. Oil is used for fuel and has proven very satisfactory. Three and a half to six days are consumed in the burning.

The first brick machine purchased by the Simons Company was a Potts wood frame horizontal machine. From this small beginning the Simons plant has grown to be the largest sand mold brick plant on the Pacific coast.

HUDSON RIVER BRICK ASSOCIATION DISSOLVED.

The affairs of the old Hudson River Brick Association are being wound up. The report of Referee Henry Kohl has been confirmed by Justice Morschauer and a voluntary dissolution was ordered. The order also directed John B. Rose, treasurer, to divide the money in the treasury, amounting to about \$5,000, among the directors.

The Hudson River Association of Brick Manufacturers was incorporated May 8, 1895, and the preamble to its constitution read:

"To reform abuses in the conduct of the brick business, to promote a more enlarged and friendly intercourse between members, to organize and preserve and disseminate accurate and reliable information among members, to procure uniformity and certainty in the customs and usages of trade, to protect members from unjust and unfair competition."

Most of the original directors held office at the time of the dissolution, as follows: William K. Hammond, New York; Robert Main, New York; John B. Rose, Newburgh; Everett Fowler, Haverstraw; H. N. Wood, Haverstraw; Lucien Washburn, Haverstraw; H. Ramsdell, Newburgh; A. E. Aldridge, Fishkill-on-Hudson; Charles A. Schultz, Rondout; Albert Terry, Rondout; George W. Washburn, Saugerties; Jerome Walsh, Newburgh; F. W. Bartlett, Newburgh.

The association was deemed in violation of the Sherman anti-trust law, and voluntary dissolution was considered the wisest move. Another organization has been formed, which, when perfected, will accomplish the same purpose of helpfulness without incurring the danger of violating the law.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



PROSPECTS APPEAR to be brightening all the time in the building brick business, and all clayworking institutions report a splendid line of trade in view for the near future. The outside brick demand is unusually strong at the present time and large quantities of building brick are being constantly shipped out to meet these requirements. In fact, the demand all over northwestern Ohio and southeastern Michigan has been active for months, and Toledo brick concerns have found enough business to keep them busy. Most of the local plants have operated a large part of the winter. At present all local plants are closed down except the Ohio Brick Company plant and perhaps one or two others, but it has been simply a question of repairs, and all will again be running with renewed impetus within a few days. The Collingwood Brick Company and the Hydraulic Pressed Brick Company both announce that they will be again manufacturing brick early in March after a temporary shut-down of a few weeks for repairs. Some of them have added extra equipment for this season, and all are preparing for a season of unusual activity.

Thus far there have been plenty of brick to be had to meet all demands, but there is no large surplus on hand, despite winter operations of the manufacturers, and if building business develops to the proportions indicated it is probable that there will be some scrambling for building brick in this section before the season is over. In Toledo proper there is an enormous amount of building assured for the early spring that will tax brick industries to their limit, especially if outside trade should continue as brisk as it has been.

Prospects for the paving block and sewer pipe industries were never better. There will be a large amount of paving in Toledo the coming year, and the same is true in most of the smaller cities of this section. Much legislation has already passed the preliminary stages, and it seems certain that the volume of business will be far greater than last summer. The financial condition is much clearer and municipalities are finding no trouble in marketing their bonds. Prices are holding up well for both paving brick and building brick. The latter are selling at about \$7.50 for foundation brick and \$7.75 to \$8.00 for face brick. Brick men are full of optimism and conditions appear to warrant their faith.

Plans are under way looking to the ultimate sale of the business of the Toledo Builders' Supply Company to the France Stone Company. The latter concern virtually controls the stone situation of this section, and should the present deal be consummated, the concern will handle all kinds of builders' supplies. The company is an unusually strong one financially, and during the past year has secured in road contracts from Lucas county alone more than \$100,000. It will undoubtedly become an important factor in the builders' supply business of this section, if the bargain is successfully concluded.

Involuntary bankruptcy proceedings were recently instituted in the federal court at Toledo against Richard C. Kerlin, one of the best known paving contractors of northwestern Ohio. Petitioners claim that Kerlin is insolvent and that he has preferred creditors. No list of liabilities nor assets has yet been filed.

The Collingwood Brick Company has removed its offices from the Ohio building to the plant. The removal was made to facilitate business. The concern reports a splendid trade all winter and a large volume of good trade just ahead. The plant, which has been closed for annual repairs for a few weeks, will soon be in operation again.

The packing plant of the Potters' Co-Operative Company, at East Liverpool, Ohio, was recently burned to the ground, entailing a heavy loss. Damage to the building is estimated

at \$5,000 and about \$1,700 worth of finished ware was destroyed. The blaze is thought to have been incendiary.

"While local trade is a trifle slow," said Secretary Kuhlman, of the Ohio Brick Company, "outside business is holding very strong." The company has been operating its local yards practically all winter without cessation. Some new machinery was recently added to the plant greatly increasing its output.

The Carey Porcelain Plant, a new concern recently organized at Carey, Ohio, will soon be operating with a force of 50 men at the start. The company is backed by local capital. Announcement is made that the entire output of the plant has already been sold. The business will be under the management of W. H. Bish, of Findlay, Ohio. T. O. D.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.



BUILDING AT Memphis, Tenn., and other centers of the South looks good for the springtime. A number of notable structures will go up in Memphis during the first part of 1911. The brick firms here and in the smaller towns give favorable trade reports.

A five-story apartment house will be erected in Memphis by W. R. Malcolm, a capitalist from Chicago. It will cost about \$200,000. Lee Horn, of Horn Bros., Memphis, who sold the land, says that plans are being drawn by Louisville architects.

A six-story glass house for loft building, front and rear of plate glass, will also be built. The cost will be \$85,000. The house will be completed by September 1 and the owners will be Misses Belle and Rowena Lee.

It is reported that the 'Frisco Lines (the other self of the K. C., M. & B. railway) is preparing to build new shops and yards in Memphis on a site purchased a few days ago.

President Chas. H. Markham, of the Illinois Central Railroad, who was in Memphis a few days, states that work will begin in a few days on a new passenger station. It is estimated that the new station will cost about \$750,000, and will be on the site of the present Union Station, at Main and Calhoun streets. Colonial architecture will be used.

Architect Geo. R. Mann, of Little Rock, Ark., has been appointed to draft plans for the new Pulaski county court house. About \$200,000 will be expended in enlarging the building, which is of brick.

E. C. Rice has succeeded O. O. Howard at Memphis as secretary of the Builders' Exchange. L. T. Lindsey was elected president.

The Camden Brick and Tile Company has commenced business at Camden, Tenn., and will manufacture all kinds of tilings, bricks, etc. The company is headed by Granberry Greer.

The N. C. & St. L. R. R. depot at Chattanooga will be extended 120 feet. The walls will be of brick.

Henry Hubbart, of Huntingdon, Tenn., is building a new Methodist church at McKenzie, Tenn. It is of brick and stone, the exterior of pressed brick, colonial design.

The Memphis Country Club will erect an \$85,000 clubhouse to replace the one that burned a short while ago. Work will start in ten days or two weeks. The structure will be of brick.

W. E. Dunwody, president of the Standard Brick Company, of Macon, Ga., has been recently elected president of the Central Capital Association, which organization has as its object the removal of the State Capital from Atlanta to Macon, Ga. Recently Mr. Dunwody was elected a director of the Building Brick Association of America.

C. Sparks, of the McKenzie Pottery, at McKenzie, Tenn., is running that institution full time and reports trade good.

The pottery turns out jars, vases, tiling for hearths, jugs and other clayware.

The McDade Brick Company, of Houston, Texas, has been incorporated with a capital stock of \$40,000. The incorporators are: E. F. Brown, Geo. L. Teat, S. J. Spencer and N. F. Delatte.

The Mercantile Bank of Memphis contemplates the erection of a new brick banking house on the site of its present home at 109 Madison street some time this year. The cost will be \$75,000. C. Hunter Raine is president.

Work is in progress at Nashville on a new Catholic cathedral after plans by Architects Asmus and Norton. The design of the building is Roman Basilican. The material to be used in the construction will be hydraulic impervious brick.

DIXIE.

A GOOD BUSINESS CONNECTION.

We are pleased to announce in this issue the fact that the Manufacturers' Equipment Company of Dayton, Ohio, has been successful in engaging the services of Mr. I. R. Lamport of



I. R. Lamport, Mapleton, Kansas.

Mapleton, Kas., in a selling capacity. Mr. Lamport will travel through Kansas, Oklahoma, Arkansas and Missouri, and will represent the full line of his company in these States. Mr. Lamport is an indefatigable worker and has had many years of active experience in the manufacture of clay products, which peculiarly fits him to handle his new line of work successfully. In addition to this he has a wide range of acquaintances in the territory in which he will travel, which is largely the result of his pleasing personality and the uniformly courteous treatment which he extends to every one with whom he comes in contact. We predict for Mr. Lamport very good success and congratulate the Manufacturers' Equipment Company on their good fortune in having obtained so worthy a representative.

Mechanical manipulation is not only a great boon to our industrial life, but it is a saving grace of our high wages, for without it to carry on our industries as we do would necessitate even skilled workmen working for the small wages that they do in the old countries, and yet practically every labor-saving device is viewed with more or less concern by the laboring men.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

We are located in Mississippi, have a great quantity of low-grade fuel, which is practically a waste product from our yellow pine sawmill, and it has been suggested that this fuel, which is too low grade to utilize in burning brick, could be utilized by converting it into producer gas. So far we have been unable to learn of any process by which this can be done. Can you give us any information on the subject?

In good gas producer practice two important facts should never be lost sight of, and they are, first, any kind of solid or liquid fuel can be gasified in a properly designed and constructed gas producer, and, secondarily, such producer gas generally enables the clayworker to effect higher temperatures in ceramic kilns than is possible to attain by using solid low-grade fuels direct. The quantity and quality of gas produced is somewhat dependent upon the type of fuel used and the manner of operating the gas producer, but no matter whatever kind of solid fuel is used the operation of making gas is subservient to the internal working zones of the gasifying or generating process, and they are combustion, gasifying and distilling zones, and in your case, should you use green or wet wood, we might add a fourth zone and call it the drying zone—the point where the moisture contained in the wood is evaporated.

The shape of the producer is somewhat dependent upon whether wood, plat shavings, sawdust, tanbark or any other fuel of the cellulose type is used, or whether fossil (coal) fuel is used, such as lignite, bituminous (caking or non-caking) or anthracite or the allied cokes. The size of the producer depends upon the quantity of gas there is required in a given time. Temperature and area go hand in hand, for the higher the temperature and the larger the surface of glowing hot fuel, the more rapid and surer will the gasification go on; and therefore inversely: The lower the temperature and the smaller the bed of glowing hot fuel, the slower and more uncertain will the gasification be, hence a larger producer cannot be run economically to make a small quantity of gas. The question of temperature in the gasification zone is of vital importance in order to change the products of combustion into gas, even with an ordinary suction or natural draft producer, but with a steam-blown gas producer it is surely of still greater importance, owing to the decomposition of the steam into hydrogen and oxygen. As evidence that the various types of cellulose (woody) fuel have been and are used the following analyses are presented:

	Wood.	Peat.	Charcoal.	Coke.
Nitrogen	53.2	63.1	64.9	64.8
Carbon Monoxide	34.5	22.4	34.1	33.8
Carbon Dioxide..	11.6	14.0	0.8	1.3
Hydrogen	0.7	0.5	0.2	0.1

The analysis of the gas from charcoal and coke are merely inserted for the purpose of comparison. The benefits to be derived from producer gas made from low-grade or difficult-to-handle fuels, as against direct firing, are well known and need not be mentioned here. However, it may not be amiss to go a little farther into the wood fuel gas producer proposition, owing to the fact that the fuel you intend to use in the gas producer contains rosin, or, as it is sometimes called, resin. Now, rosin is a substance that is susceptible to destructive distillation at what might be termed at low temperatures, while the gasification in the gas producer should then be termed a high temperature process, thus placing the two conditions out of harmony. The question of interest in designing a gas producer for using such fuel is this: Shall

the condensible distillation products of the rosin part be collected as oil or tarry products or shall the producer be operated to gasify everything that is susceptible of gasification? As rosin is in the class of unsaturated hydro-carbons, the retort gasification products will be largely in the shape of hydro-carbons, and 100 pounds of rosin would give about 1,300 cubic feet of very rich gas, containing no nitrogen, and would burn very effectively even when cold, as compared to its gasification product from a gas producer, owing to the then present nitrogen. But in the distillation zone of the gas producer no such high temperatures are found as would be required in a retort gasification and the destructive distillation of the rosin in the gas producer is more along the temperature conditions of the turpentine and rosin oil industries. The distillation temperatures used in the rosin oil industries all lay below 400 degrees, as is shown by the following table giving the distillation products and their distilling temperatures as well, viz:

Acetic Water—About 3 per cent. under 165 degrees.
Spirits—About 15 per cent.
Heavy Oil—About 25 per cent. under 290 degrees.
Light Oil—About 25 per cent. under 315 degrees.
Blue Oil—About 15 per cent. under 350 degrees.
Tar (Residium)—About 10 per cent.
Non-Condensable Gas—About 7 per cent.

The tar at this stage is still limpid and can be run off through a cock, but some manufacturers keep on distilling this tar until the residue amounts to only about 4 to 5 per cent. of the total rosin and is in the shape of coke. The above named volatile hydro-carbons are condensible at a temperature slightly below the distillation temperature, and it should not be difficult to arrange the gas producer to gather up the oily products and use them as a by-product, especially so as the producer gas would contain quite a large percentage of moisture coming from the green lumber. It stands to reason that the heat temperature which can be obtained from a dry gas is very much higher than could be obtained from a wet gas. This fact is shown in the following data given by "Rimman": A producer gas containing 32 per cent. moisture after passing through a condenser contained only 2 per cent. moisture, or water vapor, and upon combustion with cold air created a burning temperature of 1950 degrees C and with air and gas at 1200 degrees C, a temperature of 3100 degrees C was effected and owing to the presence of moisture in the green fuel it is impossible to create such high temperatures. However, should it not be desirable to use these condensible hydro-carbons as by-products then the gas producer must be so arranged that they will pass through the decomposing zone of the gas producer and be converted into hydrogen, carbon monoxide or non-condensable hydro-carbons. To design a gas producer which will convert all the combustible portion of the original fuel into gas should not be a difficult task, and the fuel conditions at your location may be such that it would be advisable to get all the heat value out of the fuel that can be obtained. Before this article is closed I would like to call attention to a very important fact; that is, absence of sulphur in wood producer gas. This condition makes this gas particularly valuable for burning high-grade potteries, glazed ware and calcareous clays. It can also be used for direct heat in drying tunnels and is of excellent service in drying wet clays in the revolvable clay dryers. It is also an open question whether the ashes would contain potash in sufficient quantity to pay for leaching out. In my home country wood ashes are considered a valuable fertilizer for fruit trees,

and a ready market should be found in the Southern fruit belt.

Can clays other than shales be used for paving brick?

It is the popular belief that shale clay is the only clay that is adapted to paving brick manufacture because the successful paving brick manufacturers in the United States are using shale clay for such purposes. It is indeed fortunate that such extensive shale beds exist in the United States. Europe is not so fortunate in this respect, and other clays, mixture of clays or mixture with other qualifying or modifying substances at times have to be used. As is well known, the demands of a good paving brick clay are that it not alone vitrifies, but that it must also furnish a tough product. Hence it is possible that a certain shale is not good for paving brick, but just as the potter, fire-brick and sewer-pipe manufacturer can obtain desired results by judicious blending of the raw materials, so should the paving brickmaker be able to blend his materials to obtain the product he desires. The European paving brickmaker is aware of these conditions and processes and to show their resourcefulness it can here be cited that pavers are there made out of calcareous clay, a mixture of other clay with calcareous clays, a clay similar to our Western Loess clay, and so forth.

In making a preliminary determination of the value and merit of a clay for paving brick or for any other purpose or use, it is well to take cognizance of the rapid sudden fusion of the lime products, the gradual softening of the feldspar, the slow and regular fusion of the magnesia products, the relative effect of the ferrous and ferric oxide, the relative stability of the kaolinite as such, the permeating effect of the iron-lime silicate, and also to take care of the molecular values of the elements as to their combining value and weight. Besides, it is a very good plan to make a rational as well as a mechanical (wash) analysis of the submitted clays in order to determine the physical conditions of the component parts of the clay. In using the results of the physical determinations in conjunction with the results of the elementary chemical analysis a good ratio insight can be obtained that will aid materially to a utility determination of a clay, one of the requisites being that the alkalies are determined as soda and potash—each separately. The method can be outlined as follows: The soda and potash in their proper proportion of silica and alumina are calculated as feldspar, the remaining alumina, with its proper proportion of silica is figured as kaolinite. A test calculation is then made whether the remaining silica (making allowance for the coarse-grained silica) is present in quantities sufficient to form bisilicates or trisilicates with the remaining fluxes or is in excess of a trisilicate. Based upon these results so found, the following ratios are tabulated:

Kaolinite to feldspar.
Silica to remaining fluxes.
Kaolinite to iron lime and magnesia silicates.
Iron to lime and magnesia silicates.

Furthermore, the intentional or probable use of the clay is taken into consideration; that is, whether the clay is to be burnt with fossil fuel (solid or gasified), containing sulphur, or whether the clay is to be burnt with oil or gas and the possible formation of the iron-lime silicate, and also making allowance for the possible formation of sulphate of lime or its reduction and all the detrimental or beneficial effects and methods of burning.

From this resultant data it is not so very difficult to fairly correctly calculate the missing links that will lead to a higher or lower vitrification temperature, a differing body texture and a better burning method may possibly be determined also. Such auxiliary substances being magnesia or iron in some cheap form, feldspathic granite, porphyry basalt, blast furnace slag or some other cheap material having equivalent effect. It is not out of the range of possibilities to calculate processes or mixes that will improve defective clays. This

compounding or blending method for raw materials to be used for paving brick manufacture is compulsory in quite a number of plants in Europe, in order to secure the required or demanded conditions or properties of a first-class paver, and there exists no good reason why the same methods when adopted in this country should not lead to equally good or beneficial results.

The following European paving brick are cited, viz:

Buda-Pesth—Calcareous clay.

Schattau—Calcareous clay and fire clay.

England—Calcareous clay and red clay; so-called ferro-metallic pavers.

Dresden—Lime, marly clay.

A letter is before me from a European paving brick-maker in which it is stated: "Paving brick made according to my method and process have been down on the street for 23 years, and the total wear in that time has only been 3 millimetres (about $\frac{1}{8}$ of an inch)."

This is a remarkable showing, and speaks well for foreign paving bricks. The writer has seen English pavers (yellow) that sold for \$36.00 a thousand in Philadelphia.

It would strike almost anyone that if a paving brick concern has to remove very much overburden (in one plant between 30 to 40 feet) it would surely pay to have a testing laboratory look into the problem for them and devise a method of utilizing such overburden. Freight rates today are on a par for everyone and it is possible that paving brick may be made at a slightly increased cost if the quality is improved, thereby in a measure allowing competition as to other pavers that have to come from a greater distance.

THE NORTHWESTERN CLAY ASSOCIATION.

THE annual gathering of the Northwestern Clay Association in Minneapolis was held at the Hotel Radisson, March 15 and 16. The attendance was not as large as hoped for, due some thought, to the late date and the fine weather, which had resulted in many manufacturers beginning the season's operations, which prevented their attendance at the meeting. There were representatives from different parts of the State, and a good meeting was held.

Industrial training was the keynote of the convention, and the organization is in favor of it and will work to that end, as the resolutions will show:

RESOLUTIONS.

Resolved, by the Northwestern Clay Association, That we endorse the work of the Building Brick Association of America in its campaign to present to the building public of America, the advantages of burned clay construction in the building of houses, and we urge upon our members and brick manufacturers everywhere to co-operate with the work of this organization, and to plan their individual advertising to reinforce the work of this body, to the end of each assisting the other.

Resolved, That this association urge upon school and educational authorities the necessity of revising the school courses, to the end of offering a better opportunity for training children toward the development of whatever their native inclination may be, and that we urge the improvement of manual training and its extension along such lines as may lead to the development of skilled mechanics. We urge the legislature of Minnesota to appropriate funds for a school of trades, including brick-laying at the State Agricultural College as a model for the school districts of the State.

Resolved, That the hearty thanks of the association are extended to the Commercial Club of Minneapolis for the courtesies extended during the convention.

Resolved, That the management of the Hotel Radisson be given our sincere thanks for their co-operation and assistance during our meetings.

Resolved, That we express our thanks to Prof. Bell for his valuable address on the subject of "Trade Schools."

The officers elected are as follows:

E. H. Cobb, Hydraulic Press Brick Co., Minneapolis, president.

A. C. Ochs, Springfield, Minn., vice president.

Axel Anderson, Minneapolis, secretary.

R. B. Hinkly, Luverne, Minn., treasurer.

Executive committee—President, vice president and secretary, ex-officio, and Rufus P. Morton, Brickton, Minn., and J. P. McLean, Menomonie, Wis.

The new president will name the standing committees on finance and industrial education.

W. H. M.

TUBE BLOWING CONTROL.

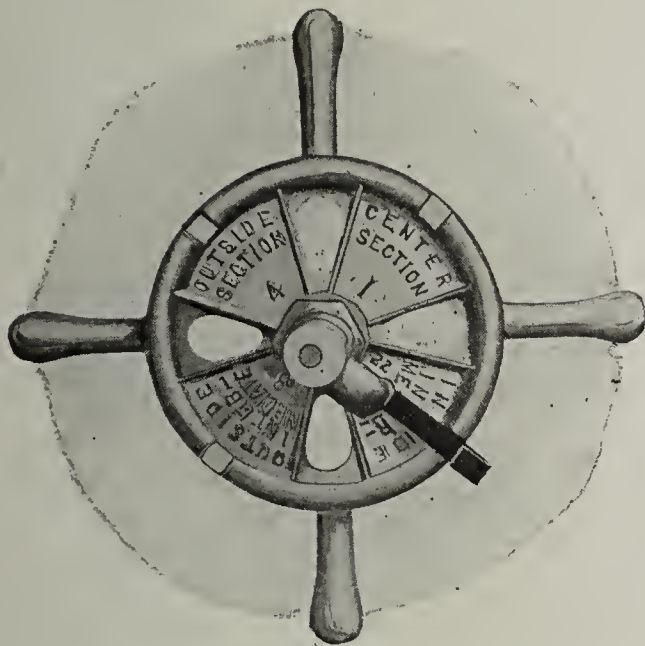
THE ILLUSTRATION shows the hand control wheel of the New Marion Flue Blower, which indicates at all times the exact operation of the blower. In operating this hand wheel, start with the valve spring lever in notch No. 1 on the hand wheel and turn the hand wheel around slowly two or three times and, as the indicator shows, it will clean the center section of the tubes of the boiler and at all times the steam action of the blower will follow the spring indicator on the lever.

After cleaning the center section of the tubes then move the spring lever to section No. 2 and revolve the hand wheel slowly three or four times, which will clean the inside intermediate section of the tubes of the boiler.

After this is done move the spring lever to notch No. 3; do not turn the hand wheel entirely around but see-saw the hand wheel backward and forward on the right-hand and left-hand side of the operator, which will clean the inside intermediate tubes of the boiler.

Then move the lever to notch No. 4 and see-saw the hand wheel on the right-hand and left-hand side of the operator, the same as when the lever was in notch 3, which will clean the outside tubes of the boiler.

By watching the indicator on the hand wheel, it will be-



come apparent to the operator that, in cleaning the outside intermediate and outside tubes, as the distance to the nozzle of the blower is further from the outside tubes of the boiler than it is from the center tubes, the reason for not turning the hand wheel entirely around in cleaning the outside intermediate and outside tubes of the boiler is that it would cause the steam to play against the arch of the boiler, which is entirely unnecessary, if the engineer will follow the indicator of the blower.

Also, in following the instructions as shown by the indicator, it will eliminate, to a great measure, the amount of soot that is blown into the boiler room in operating the blower, which has been a great objection in some instances in operating rear end blowers.

By operating this blower as shown by the indicator, the steam at all times is playing only on the tubes of the boiler and, in conjunction with the heavy natural draft caused by the operation of the blower, all of this soot will be drawn out through the chimney, thus keeping the boiler room, to a marked degree, free from soot.

Further particulars may be obtained by addressing the manufacturers, the Marion Machine, Foundry and Supply Co., Marion, Ind., whose ads. appear on pages 532 to 535, this issue.

The "missing link between failure and success in the brick business" is to be forged out of hustle, and proper advertising is recognized as an excellent implement to use for the forging.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



MOISTURE HAS BEEN exceedingly abundant in this section of the country during the past month, and there is no excuse for brick plants to be shut down for lack of water. There is plenty of water to make steam out of, and an abundance to make brick out of—if it could be hardened. The dry spell was of long duration, but there is enough water now to make up for all of it, and those who are acquainted with the eccentricities of this section now expect the weather to continue wet for a long time.

There was a time when continued wet weather was something the brick plants dreaded, as it put them out of business, making the clay and shale unworkable, but now so many of them use steam shovels, which take the shale off of a perpendicular face, and are never laid out by moisture, that plenty of rain is no drawback to the business.

Just at this time there is great activity in every town where there is a brick plant, and those which have been closed down for months are opening up, and as they have generally overhauled and improved their plants, there should be a good output of brick the coming season. Indications are that it will take a good while to glut the market this summer, for, according to general report, there is a strong demand from every direction for everything in the brick line. The big demand still continues to be for paving brick, and plants turning out good pavers are already booked away ahead, and at practically their own figures. Kansas City is not doing much brick paving, but cities in all directions from it are using all the brick they can get hold of, and they are making a much more durable paving than is being placed in this city.

Indications now are that the demand for common brick in this city will be much greater this year than ever before. Of course it must be realized that the indications at this season last year were that many more brick would be used than were actually sold that year, and the same may be the case this year, but there is a different feeling reported this year. Those who have money seem to be anxious to loan it, and it seems evident that even the timid ones who refused to make loans last year have become tired of holding their money where it brought them no revenue, and want to get it out at interest again. The city appears to be on the verge of a great building era, which should last for a number of years, and nothing will hold it away from such an era unless there is something unforeseen happens to the entire country.

The builders of the new union depot now state that they expect to have the building completed in 1913, and a vast amount of building hinges on this one proposition. Then the new bridge across the Missouri river, which will be open to both wagon and street car traffic, will certainly be a considerable factor in the erection of a different class of buildings in the North End, and will probably cause the building of hundreds of residences on the north side of the river on the hills which now overlook this city. The completion of the freight terminals and the establishment of the union freight stations in various parts of the city will cause great outside factory development, for it will be handier for a factory to then be located in the Blue valley than in the West Bottoms, for there will be but one station to which the freight need be hauled there, no matter what road it goes out on.

Thomas Eadie, head of the Eadie Building Supply Company, is expected home from a visit to southern California within a few days.

A big advance is expected on common brick as the spring comes on unless the factories begin to get large quantities of brick on the cars. There has already been two fifty-cent advances and another one is expected within a few days. The

price of common brick is now \$6.00 per thousand on board cars.

Tom Green, of the Sioux City Brick and Tile Works, paid a visit to Kansas City last week while on his way for a Southern trip.

Secretary Baird, of the Kansas City Hydraulic Pressed Brick Company, has resigned and has gone into the brick jobbing business on his own account in this city. Mr. Baird has many warm friends among the contractors here and ought to build up a good business within a very short time.

The Kansas Buff Brick and Manufacturing Company, of Buff City, Kas., has opened up an office in the Reliance building in this city. Up to this time it has marketed all brick sold in this city through local jobbers.

The Lyle Brick Company is now turning out a repressed paving brick from its yard in the south part of the city.

The Standard Brick Company has in course of construction a plant at Leeds, Mo., a suburb of this city, where it will manufacture a sand-lime brick. K. A. W.

NEW JERSEY'S CLAY INDUSTRY.

Volumes of statistics are frequently elaborate and contain much valuable information, but they are often late in appearance, which reduces their usefulness to some extent. The New Jersey Bureau of Statistics has issued its report for the year 1909. It is late, but there is much in it that is valuable, and its information regarding the clay industry of the State is well worth reprinting, or such portions of it as are of interest. The figures given are for 1909 in all instances. The 1910 figures will not be available until next year.

The report starts with the declaration that the principal increase in capital invested in any industry was in brick. The total in 1908 was \$14,411,411 for both brick and terra cotta, and in 1909, \$19,641,447, an increase of \$5,230,036, or 36.3 per cent. No other industry even approached that showing. Pottery remained about the same as it was in 1908.

There were 74 establishments in 1909. The average capital invested was \$215,095 in 1908, compared with \$265,425 in 1909, an increase of \$50,330, or 23.4 per cent.

The value of the stock used in 1909 was \$2,802,471, compared with \$1,928,699 in 1908, an increase of \$873,772, or 45.3 per cent.

The value of the goods made in 1909 was \$8,690,903, against \$5,056,155 in 1908, an increase of \$3,634,748, or 71.9 per cent.

In describing the number of people employed in various industries the department points out that the fluctuations in the brick and terra cotta trades as regards the number of people at work is due to what is termed the season. There is almost nothing doing in the winter, and these employes are virtually idle. A few are employed about some of the plants, but in the main they have no work. The total employed during the year was 7,093, compared with 4,792 in 1908, an increase of 2,301, or 48 per cent.

The average yearly wage was \$484.27 in 1909, compared with \$430 in 1908, an increase of \$54.27, or 12.6 per cent. The companies complained some about this increase in wages when the employes demanded it, and in one or two instances strikes resulted before the matter was satisfactorily adjusted.

In the art tile industry the total amount of capital invested aggregates \$831,078, which is distributed among seven firms. In pottery the total investment is \$8,763,754, distributed among 49 firms. The value of the stock used by the art tile manufacturers was \$205,295 and the value of the finished product was \$762,699. The stock used in the potteries was valued at \$2,397,358, while the finished product aggregated \$7,370,398 in value.

It has been a good spring for selling and putting in drain tile, and reports from throughout the country indicate that fairly good use has been made of the time.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

An Appreciative Clayworker.

Editor THE CLAY-WORKER:

Enclosed find \$2.00, for which please continue to send me The Clay-Worker. The journal is certainly of great interest to those engaged in any line of clayworking, and I take pleasure in recommending it to my friends. It is one of the best clay journals published. LOUIS ENGLER,

Cincinnati, Ohio.

A New Word in Clayworking Nomenclature.

MY DEAR MR. RANDALL:

In conversation with a friend not long ago the subject of "polychrome" terra cotta was brought up and discussed. We were speaking of how artistic it was when properly used and how extremely inartistic when improperly used. This friend suggested that the latter form of terra cotta, i. e., the inartistic, might better be known as "polly-chromo" terra cotta. It certainly fits the case.

Barberton, Ohio.

Yours very truly,

FRANK H. RIDDLE.

Kept from the Convention by Grippe.

DEAR MR. SECRETARY:

Enclosed you will find my check for \$3.00 in payment of my dues to the N. B. M. A. I was sorry I couldn't be with the boys at Louisville, but I got an attack of the grippe after I had my ticket bought, so I couldn't go, and I've been in the house ever since, but am feeling better again. If you have any badges left I would be thankful to receive one.

Yours very truly,

Quincy, Ill., February 22, 1911.

JOHN T. HUMMERT.

N. B. M. A. Convention Instructive.

DEAR RANDALL:

I trust you reached your home safe after such an exciting time at Louisville and again settled down to the usual business which, I trust, will be more successful this year than any previous.

On my return home I found the pear, peach and plum trees in blossom, and indeed a beautiful sight, especially when compared with the weather conditions that we experienced right down to Knoxville, where the snow was falling quite fast.

My first convention proved a very instructive one and I enjoyed the time spent at Louisville, and would have liked to have given a great deal more of my time to have gone more fully into some of the discussions had time permitted, especially the fire brick question, grog, etc. This has been one of the branches of our trade I have studied for years.

Jacksonville, Fla.

DANIEL COBB.

Iowa Brickmaker Acquires Additional Plant.

Editor THE CLAY-WORKER:

We received your N. B. M. A. convention number this week and wish to congratulate you on same.

My father, J. A. Wilson, just recently purchased the Garrison Brick and Tile Company's plant at Garrison, Iowa, and will commence to improve and increase the capacity of same at once. This makes three plants now controlled by him, viz: Dows, Livermore and Garrison. I am general manager of the Dows plant and also conduct the office work for the

Garrison plant, where J. R. Patterson is manager. O. N. Heldebrant is the new manager of the Livermore plant. Business is opening up briskly at all three plants and the outlook is good for another successful season.

Wishing yourselves much success, I remain,
Yours very respectfully,
Dows, Iowa. W. J. WILSON, General Manager.

California Brickmaker Reduces His Stock Pile.

Editor Clay-Worker:

Please find enclosed \$2.00 for subscription to The Clay-Worker for 1911. Just to give you an idea of what we are doing down here without tiring your patience with a long letter, will say we shut down in October with 2,200,000 brick on hand. We have sold everything, including the bat pile. We will begin making just as soon as possible.

With my best wishes for THE CLAY-WORKER,
Yours very truly,
Visalia, Cal. J. H. JOHNSON.

Executive Department,
Office of the Mayor.

Louisville, Ky., March 11, 1911.

Theo. A. Randall, Editor Clay-Worker:

My Dear Sir—I received a copy of your magazine several days ago. You certainly made a splendid report of the convention and deserve great credit for the same. Your magazine was full of news, and the photos and everything were gotten up in such splendid style that several who looked at it thought it was extraordinary work, and you may rest assured that the people of Louisville appreciate it, and I personally appreciate it beyond words to express. We hope some time in the future to be able to repay you for your kindness to our city. I hope to see you and Mrs. Randall in Louisville again in the near future. Any time you come over do not fail to come to see me. With kindest regards, I am,
Yours very truly,
W. O. HEAD.

Treasurer Sibley Pleased with Convention Report.

FRIEND RANDALL:

The Silver Anniversary Convention Number just to hand, and I wish to congratulate you on its prompt appearance and the artistic merit and finish. The convention was a great success from every standpoint. The National Association, with its affiliated bodies, has been given an impetus that presages a wonderful growth for all of them during the coming years.

The assistant secretary has always worn a most winsome smile, but it certainly reached "killing" proportions while on that subterranean journey. Wish I could have joined you on that trip, but had to hurry home.

With kindest regards, Yours sincerely,
JNO. W. SIBLEY, Treasurer.
Greater Birmingham, Ala., March 2, 1911.

The New Phase of Convention Work.

Dear Mr. Randall:

The convention was useful to us in a variety of ways. It marked a departure from old-time methods. Instead of taking up our time with never-ending discussions whether it is better to burn our clay seven days or eight, every man found it was up to him to take his place in the campaign against lumber and cement. For the first time since my connection with the convention at Chicago in '93, I felt convinced the brick-makers had it firmly in mind to make some money.

As Spencer Kimball used to say, "We will capture the country if we only keep after them." A handful of able manufacturers, backed up by a few factory bred distributors, now have it within their power to bring a very worthy trade into its proper position, and I shall be surprised if we do not make an advance this year that will put the industry on a new footing.

Very truly yours,
E. J. BURKE.

EFFECTS OF A ROUGH VOYAGE.

Charles J. Newman, of Jacksonville, Fla., who is now on a trip to Europe, writes under date of February 15, just after landing in Queenstown:

"I was not sick a bit;
Had a splendid time—nit!
The sea was rough,
My sleeping tough,
And I didn't eat a bit."

From which the reader may draw his own conclusions as to Mr. Newman's state of mind at that time.

AN OLD FIRM UNDER A NEW NAME.

The Burke Brick Company, of Rochester, N. Y., is the title under which the facing brick business commenced by Mr. E. J. Burke in 1890 will be known hereafter. Following a number of changes due to changing methods, the business has been con-



John F. Burke, Rochester, N. Y.

centrated in a selling organization, which will handle specialized products only. Every factory in the group is a recognized force in the facing brick business of the Eastern country, and the combined output will be sufficiently large to lend confidence to the largest buyer. Mr. E. J. Burke, president, is known to all the manufacturers whose products find Eastern markets. Mr. John F. Burke enjoys the confidence of the architects and contractors whose operations are scattered over New York and New England territory. It has been said the orders go to the concern that watches both ends of the job—manufacturing and delivery. If this is true, the Burke Brick Company, of Rochester, shall trust to round out a successful career, as the people connected with the new organization know how to play the game from the inside. The commercial side, however, will not be overlooked for the ideal. Both will be developed under the stimulus of larger markets. Sales and exhibit offices, showing the artistic use of bricks, are now established in the new Sibley, Lindsay & Curr Co. building, Rochester, where prospective builders will be cordially welcomed and afforded every convenience.



DEEP SOIL.

The big ditch dredge working near Arion, Iowa, ran into the stump of a huge tree that had been chopped down years ago. The stump was buried under eight feet of soil in the Boyer valley and the ax marks on it were still plain. The stump was three feet through.

A CELERY GARDEN.

Forty thousand dollars is being expended by a Sioux City (Iowa) company in draining a marsh of about 500 acres of Missouri river bottom land in Woodbury county. The land is to be used for growing celery.

CEMENT IMITATIONS NOT "JUST AS GOOD."

That failure of cement drain tile in Sac county, Iowa, in which 980 feet of 36-inch tile were found broken and imperfect after having been laid in the ditch, is another example of the uncertainty of cement tile. Maybe cement tile will give satisfaction and maybe they won't. In this case the experiment proved to be quite expensive. We wonder that men will try such things that are new and that have not established their reliability when they know well-burned clay tile may be relied upon.

Cement tile are only a cold-water compound, while burned clay tile are a "time tried and fire tested certainty."

GOVERNMENT AID.

Here is a clipping from the "Rural New Yorker" in reference to aid furnished by the Canadian government to those needing funds for land drainage. It will be found interesting and probably some good will arise from a comparison with the methods in vogue in the States. We invite communications and discussion upon the subject by those who may be in position to give information and instruction:

Those Canadian Drain Loans.—The provincial government set apart a certain sum for this particular purpose, and each township could make application for a certain sum or percentage, and when that amount was withdrawn that particular township could not secure any further loan until there was a repayment of part of the loans. Then any land-owner wishing to take advantage of this loan makes a personal application to the township council for a stated amount. The council employs a practical man to inspect the work upon which the loan is to be charged; the amount of loan is never more than two-thirds of the value of the work, and is charged directly to the lands benefited, said loan being collected in twenty annual instalments, including interest at 7 per cent. (along with general taxes) This plan is working well in South Gosfield, and has been the means of bringing many acres of low land under cultivation, producing excellent crops and giving a man of ordinary or perhaps poor circumstances a chance to help himself, as well as a great benefit to the township at large. I speak of this particular township as that was my location up till a few months ago; but the same scheme applies to the whole province, but to what extent it has been used outside of South Essex I could not inform you.

The farmers in South Essex have done a great amount of work in this way.

Ontario, Canada.

IVAN SHEPLY.

GOOD ROADS.

Drainage is the necessary foundation for a good dirt road.

Black dirt prairie roads are the best in the world when they are dry and smooth, and the worst when wet and muddy.

Three hundred Good Roads men recently met in convention in Des Moines, Iowa, and adopted the following resolutions:

"Resolved, That we favor the compulsory dragging of worked roads and the creation of a non-divertable drag fund.

"Resolved, That we favor a special system of road management, under a centralized authority, which shall work with skilled and competent appointed officers.

"Resolved, That we favor some form of state aid to encourage good road building.

"Resolved, That it is the sense of this conference that an increased percentage of our road fund be intrusted to the management of the board of supervisors."

One of the interesting and practical things of the meeting was the description of the road work done in Poweshick county, given by Supervisor Manly and Road Engineer D. Stanton.

The Poweshick county board of supervisors had used the 1 mill county road levy to improve thirty-two miles of what was formerly a very bad road and which connects Malcolm, Grinnell, Montezuma and Brooklyn. During the past two years twenty-five miles of this road have been perfectly graded and drained at a total expense of about \$600 per mile.

Mr. Stanton described in detail the system used and asserted that by the improvement of the road values of land adjoining had increased ten dollars per acre.

Mr. Eldridge, of the United States Government, gave an interesting address upon the history of roads and the great improvement in roads that the government has wrought in various sections of the country, together with the most practical methods of improving the roads of the prairie states.

The address was illustrated with views of muddy and dry roads before and after treatment. The dry roads were smooth and hard after being perfectly graded, drained and dragged. He stated that the problem before Iowa at present was undoubtedly the improvement of her dirt roads and not the use of macadam and other expensive materials.

Governor Carroll, in his message to the General Assembly, said:

"I believe that some legislation is needed with regard to highway construction and maintenance. I would clothe the board of supervisors with power to employ a competent engineer to work under the direction of the board. I would abolish the office of county surveyor and have the duties now devolving upon him performed by the engineer. As a special fund to be used for dragging the roads I would set aside one-quarter or one-third of the taxes collected for road purposes and to be expended by the trustees, and would forbid its use for any other purpose than that of dragging. Then it should be provided that the work of road building should be done before the fall of the year, when to work the roads, except to drag them, means to put them in condition often almost impassable during the winter and spring months."

In an address before the South Dakota Good Roads Association James J. Hill, the great railroad president of the Northwest, said:

"Good roads are expensive; but it costs more money to do without them than to build them. The attempt to improve the highway by the old system of local supervision, small appropriations, taxes worked out instead of paid in cash and petty political control wastes every dollar so expended. Improved highways must be built under the direction of state

commissions, by the orders of state engineers, according to scientific methods. It is a bit of technical engineering, where results will always be measured by the amount of money appropriated and the methods employed.

"The thing most to be avoided is the common error of proposed centralization, which generally shelters somewhere the suggestion of a more or less genteel graft. Congressmen are ready to ask the federal government for billions to build improved roads in the states, and appeal to local greed to support them. This system might easily bankrupt the nation, but it would no more furnish the people with good roads than our system of internal improvements has given them available waterways. The President has been compelled to say that the last 'pork barrel' has been opened. Federal control of highway improvement would open not a pork barrel, but a slaughter house.

"Next after the preservation of the productive power of the soil I know of no material aid to the farming population so important as the creation and maintenance of good roads. What the telegraph is to general information and the railroad to commerce, that the country highway is to the agricultural interest. The roads of any community are like the nervous

system of a human body—upon their condition depend its health and growth. There are more than two million miles of roads in the United States. We spend on these from \$80,000,000 to \$100,000,000 a year. Less than 10 per cent of the road surface has been permanently improved in any way. It has been estimated conservatively that a moderate improvement which would permit four bales of cotton to be hauled at one load instead of three, and seventy-five bushels of wheat instead of fifty-five would effect a saving of \$10,000,000 on the cost of hauling these two crops alone to market."

HYDRAULIC STRIPPING.

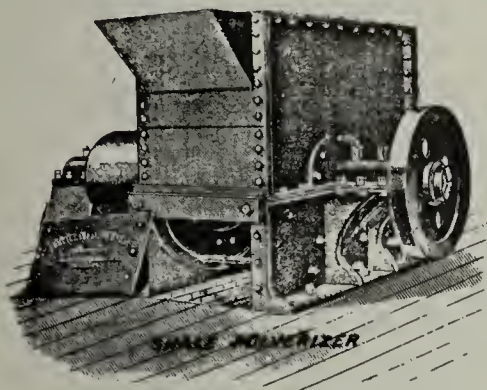
The removal of the overburden or top soil from clay and shale deposits is a matter of much importance to many of our readers, whose attention is called to the able paper in this issue by Paul Beer on that subject. The Universal turret nozzle, which is illustrated on page 525 of this issue, is being used very effectively in this character of work, and the manufacturers, the Universal Nozzle Company, of Indianapolis, are prepared to prove that it is the most efficient device of the sort now on the market. Write them for full particulars, mentioning The Clay-Worker.

"THE PROOF OF THE PUDDING."

PAUL GRIESEDECK,
PRESIDENT

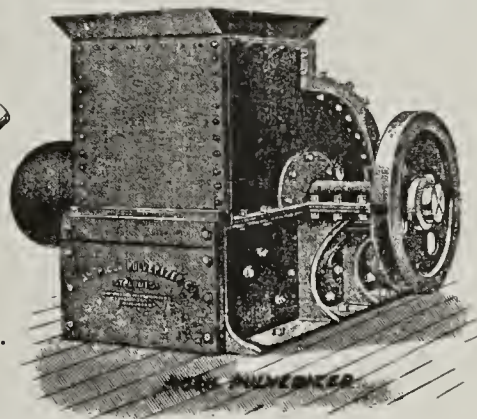
GEO. C. VIDETTO,
SECRETARY

E. H. ELZEMEYER,
TREASURER



PULVERIZERS
REVOLVING SCREENS
AIR SEPARATORS

GENERAL OFFICES
SUITE 410 MERMOD-JACCARD BLDG.



St. Louis, Mo. Feb. 18th, 1911.

Publishers Clay-Worker,
Indianapolis, Ind.

Gentlemen:

Herewith find check covering balance due as per your statement of the first inst. We pay this as we have paid all of your previous bills, promptly and cheerfully, for we feel that you are giving us good value. The returns from our ad in the Clay-Worker have always been satisfactory. We know from the inquiries received that you not only put us in communication with the brickmakers throughout our own country but in foreign countries as well.

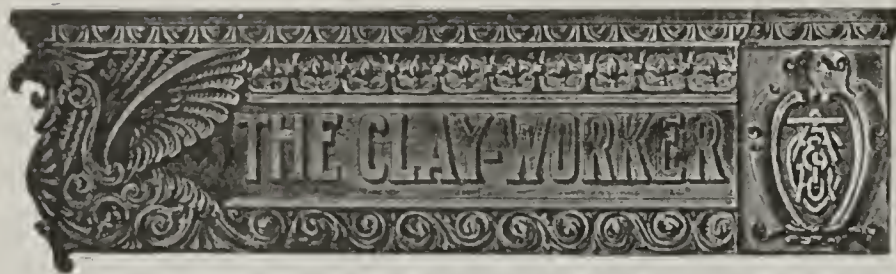
We want to compliment you on your January issue. It was a splendid magazine.

Wishing you continued prosperity, we are,

Sincerely,

AMERICAN PULVERIZER CO.,

Geo. C. Videtto, Sec.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. Lv. MARCH, 1911. No. 3.

CURRENT COMMENT.

The two-inch cube may be a good thing for road surfacing, but a regular paving brick is better.

* * *

Isn't it up to the roofing tile people to answer the question, What is the best fireproof roof for a waste-heat dryer?

* * *

Most of us are inclined to treat the Mexican revolutionary troubles as jokes, but sometimes even jokes are a serious matter to some people.

* * *

Manganese steel is an infant in the clayworking industry that is beginning to make considerable noise around the gear devices and crusher equipment.

* * *

Hollow block dry kiln construction for wood-working industries is a good thing that we can probably have more of if the clayworking people will keep pushing the matter right.

* * *

There is absolutely no danger of getting too much enthusiasm in the clayworking industry. It may get misdirected in spots and get a few bumps, but there will never be too much of it.

* * *

Not only does too much of the brick man's money go up in smoke, but there is too much of everybody's money going up in smoke. The answer is improvement in kilns and brick burning generally and improvement in general construction with fireproofing as the goal.

* * *

Fire brick not only resists fire, but the multitude of different uses it is put to makes it resist some earnest efforts at standardizing and classifying. In other words, it has been demonstrated that what may be a No. 1 fire brick for one purpose may not grade No. 1 for another, and so it goes. The

fire brick man must study and cater to whatever particular use his product is being put.

* * *

The railroads have been shunted into a siding with their rate-raising train, and let us hope they stay there awhile and give us a rest from rate wrangling.

* * *

Every brick and clay product man, whether he manufactures clay roofing tile or not, should lend a hand to boosting this product, because the use of one clay product helps the use of another.

* * *

It looks like there is a building boom and in consequence the prices of lumber are being advanced rapidly. This makes a double opportunity for building brick manufacturers to push their products, and we hope they will be active in taking advantage of it.

* * *

The paving brick manufacturer should neither dread nor wait for the criticism or judgment of a municipal inspector of paving brick. He and those associated with him in manufacturing their product should know when they are turning out an ideal product and be able to pass judgment on it before it leaves the plant.

* * *

There was perhaps not as much said at the last convention about color in clay products as in some of the former ones, but it seems to be in the minds of the people just the same, and it should be kept alive, too. What we need is plenty of color variety to help boost the clay products in architecture of all kinds.

OUR MEASURE OF PROSPERITY.

In a special bulletin of the Bureau of Statistics on the prosperity in the United States, as measured by imports of luxuries, it is said that the importation of articles usually classed as luxuries will show a total for the past year of somewhere between \$200,000,000 and \$300,000,000 value. This includes in addition to diamonds, which are an important item, automobiles, art works, laces, feathers, furs, wines and liquors, tobacco, decorated chinaware and a number of other articles.

THE PROFIT-SHARING IDEA.

One of the latest amended ideas that looks somewhat better than others and is evidently in the line of improvement, is to take a sort of profit-sharing plan, arrive at a rational schedule of wages, either by the day for different men at different capacities, or by some piece-work basis. Have this low enough to keep it down to some rational wages on which a man can live comfortably and have it what is considered a fair return for their work. Then divide the business into departments in the final accounting for profits at the end of the year and pay back to the laborer or working equipment a percentage of the net profits of the year based on the relative percentage of the cost of labor itself and the total cost of manufacturing and marketing the product. In other words, if the labor cost represents 25 per cent. of the total cost of production and marketing, then return to the laborers in a ratio proportioned according to their rating on the wage or salary list 25 per cent. of the net profits of the institution for the year.

There are other institutions where a more limited plan has been conceived where so much of the ordinary labor comes and goes and is not permanent where this profit-sharing arrangement is simply made with superintendents, foremen and other active lieutenants. Still others make the profit-sharing agreement extend to all of those who have been

with the institution two years or more and state in the original agreement or plan that a specified amount—8 or 10 per cent.—of the profits are to be divided among the workmen in the ratio of their wages.

The one great object of all these things and the one we should keep in view all the time is to get harmony of work between labor and capital and satisfaction that will keep both working together for the general good of the industry; will prevent men from becoming restless and shifting about here and there without materially benefitting themselves, and will prevent employers from having to be eternally casting about for new help. In other words, these things should make for the permanency of industrial institutions and the men who work therein. Therefore, they need encouragement and continual experiment until we do arrive at something that is about as near perfect as can be devised and kept in action by ordinary humans.

SNAGGING A GOOD IDEA.

During the convention a pioneer brick manufacturer, who is a man of enterprise, related incidentally an effort once made by himself and others in the community to push brick by co-operative effort. They issued a call to all the brick-laying contractors in their town to meet with them for a discussion of ways and means to improve the brick business and increase the quantity of brick used.

It seems that the spokesman of the bricklayers was a rank union man, more given to striking out at some other fellow than to taking in and digesting ideas for future profit. So, when he was asked for ideas and suggestions as to how the brick business might be extended and the use of brick encouraged, he said: "You folks reduce the price of brick. That's the thing to do. If you can furnish brick cheaper, then we can put up brick buildings for less money."

And right here that good idea of the brick manufacturer struck a snag. To appreciate the full measure of his predicament it is only necessary to relate that the brick market in his town at that time was one of the cheapest markets in the country and none of them in the trade were making what they ought to out of their business. That is why they had been inspired to call this meeting—in the hope of enlarging the market and developing better opportunities for profit.

It is a pity this effort struck the snag it did, because it was a splendid idea that needs furthering. There is need for co-operative effort between the men that make brick and the men that lay them in the walls. They should be a team working together for the upbuilding of the brick industry, and this is the logical way to get them working together. Get them meeting together and discussing ways and means for interesting the public and doing more brick building. Therefore, we hope that even though a few snags like this are struck when other efforts are made that the trade will keep at it and keep calling brick manufacturers, brick contractors and bricklayers together until all are working together harmoniously to furthering the use of brick in the building world.

ARCHITECTURE AND ESTIMATING.

One of the things that has helped lumber people sell lots of their product is the widespread practice of drawing house plans and of making estimates on the cost of building. This feature is referred to now because it suggests itself as being a valuable one to take up in connection with publicity and advertising for the upbuilding of the brick business.

Take the bungalow, for example, and there is no question but what lots of people have been encouraged to build who perhaps otherwise would not have done so by being bombarded with literature, circulars, booklets and advertising matter, in which was featured unique and attractive designs in varied types of bungalows. These were usually accom-

panied by approximate estimates of probable cost and offers to supply a book containing a number of plans for a nominal sum and supply detailed blue-prints and specifications at a modest cost for any plan selected.

While the brick manufacturers have done some of this work, they have not taken advantage of all the opportunities and have not extended the work of estimating and plan-drawing and architecture like the lumber people. For one reason they have not been in as close touch with the general building public. The lumber trade can reach the general building public through the retail lumber yards. So, it was but natural that they should be first to develop this method of advertising.

It is time, now, for the brick people to get into the game, too, and not merely incidentally, but get into it enthusiastically and use some of the same thunder. It may be advisable to get in closer touch with the retail lumber yards themselves and to extend the work in some instances and take up special features of home building and home decorating, like fireplaces and tiling. These are things, however, that will suggest themselves when the work is once well under way of developing ideas in modest architecture for general home work with plans and estimates on the probable cost of construction with brick and other clay products. The main thing is to get at it. Get at it individually and collectively. Get draftsmen and estimators and designers. Make noise and make a showing that will attract public attention and arouse public interest and appreciation. It will take time and cost money, but the results should justify the expenditure.

ADVERTISING AND SIGN BOARDS.

Every brick manufacturer, while the talk is warm and going on all around about advertising and promoting business, should either commit to memory or have engrossed for reference that wind-up jingle to the address on "Winning the Public for Brick" by Mr. Andres, of Evansville, delivered at the recent meeting, which runs as follows:

"The man who whispers down a well
About the goods he has to sell
Won't reap the shining golden dollars
Like he who climbs the tree and hollers."

Also there comes to mind right now that in the beginning of the paragraph preceding this wind-up reference was made to the man who spends a fortune in building a modern plant with large capacity and then lets it stand idle part of the time for lack of spending a little money in advertising. He might well have added to that also that many a man spends a good many thousands of dollars equipping a plant and fails to put on it or about it a suitable sign board announcing to the passer-by the name of the business and institution.

Sign-board advertisements of all kinds may not be good, but every institution should have its name on a sign board conspicuously enough to be seen from a distance and to be read from a passenger train going by. It only costs a few dollars to equip on some conspicuous place about the plant a big sign board that will return every year more than its original cost in the way of advertising the business to the world.

In other industries people are beginning to take notice of this more than ever. There was a time when only now and then we would see these conspicuous signs, but now if a man builds a mill or any industry he likes to top it off with a big sign board announcing the business to the world, and the brick manufacturers ought to always do their share of this.

It is not so easy to practically encompass the whole brick works with a sign board as it is with a store or mill building, but there is always a place around every plant where something in the sign board line can be made to show up conspicuously by the expenditure of only a few dollars and a

little time. In other words, this sign board at the plant is the least expensive of any advertising one can get, and it should, therefore, not be neglected.

TRADE LITERATURE.

THE MARION MACHINE FOUNDRY AND SUPPLY COMPANY, of Marion, Ind., has out a new and very attractive brown covered pocket catalog, in which much of interest to brick and tile manufacturers is found. It illustrates their feeders, mixers, cutting tables and flue blowers, and the method of operating same. Write them for this catalog. It is well worth looking over.

THE DAVENPORT LOCOMOTIVE WORKS, of Davenport, Ia., have recently issued an eight-page booklet, containing interesting illustrations of their several types of locomotives at work hauling half a dozen or more loaded clay cars. The descriptive matter is valuable, and the table of figures showing difference between cost of hauling by team and by locomotive should attract the reader and set him to studying on the fact that he has been losing money while not employing a locomotive for clay haulage. According to the Davenport Company's figures, they can save \$440 in one year for the man using six teams for getting in his clay.

CLAY TO-DAY is the title of an eight-page monthly bulletin being mailed to the trade by the H. Brewer Company, of Tecumseh, Mich. This issue, which is the first of a series, which we hope will long continue, is attractively covered with an imitation clay panel, giving title, date, table of contents and the Brewer trade mark. As indicated on the cover, this number treats principally of a new high-grade horizontal drain tile machine, which has been placed on the market recently by the Brewer Company. This new magazine, like their machinery, is true to their trade mark, "If marked Brewer, it's good."

"MARION STEAM SHOVELS," in large gold letters, appears on the leather-bound catalog issued recently by the Marion Steam Shovel Company, Marion, O. The catalog is one of the finest we have received in many months, and contains one hundred and forty-one pages of illustrations and descriptive matter, setting forth the many merits of their product. A copy will be sent free to any steam shovel user writing the Marion Steam Shovel Company, Marion, O., mentioning The Clay-Worker.

NEW HOME NUMBER is the special issue of The Clay Crafter, an interesting advertising medium published by the C. W. Raymond Company, of Dayton, O. The new home number is dedicated to the arts and science of clay crafting, and contains a well-written article describing the C. W. Raymond Company's new factory at Dayton, O., which is one of the finest in the country. There are pictures of their factory in 1880, 1886, 1900 and 1911, and the evolution disclosed is very interesting and shows how the C. W. Raymond Company has grown and what a force it is to-day in the clayworking world.

FUEL OIL BURNING EQUIPMENT FOR CERAMIC INDUSTRIES is the title of the latest circular, No. 133A, of the Tate, Jones & Co., Inc., Pittsburg, Pa. It is a twelve-page, 11 by 8½-inch pamphlet, printed on a high-grade enamel paper, and contains discussions on the value of oil as a fuel, its advantages over other fuels and its usefulness to the clayworker in all departments of his factory where fuel is needed. Write the Tate, Jones & Co., Pittsburg, Pa., for one of these bulletins, for it is well worth studying. Their ad. will be found on page 456.

THE BOOK OF SMILES for March, that clever bi-monthly which is supposed to be taken for the sake of the liver, and kindly mailed the trade by the Standard Dry Kiln Company, of Indianapolis, contains the usual number of witty stories and excellent jokes. The only fault to find with this remedy for that tired feeling is its homeopathic character. The doses are too few and far between. It's well worth writing for.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 538.]

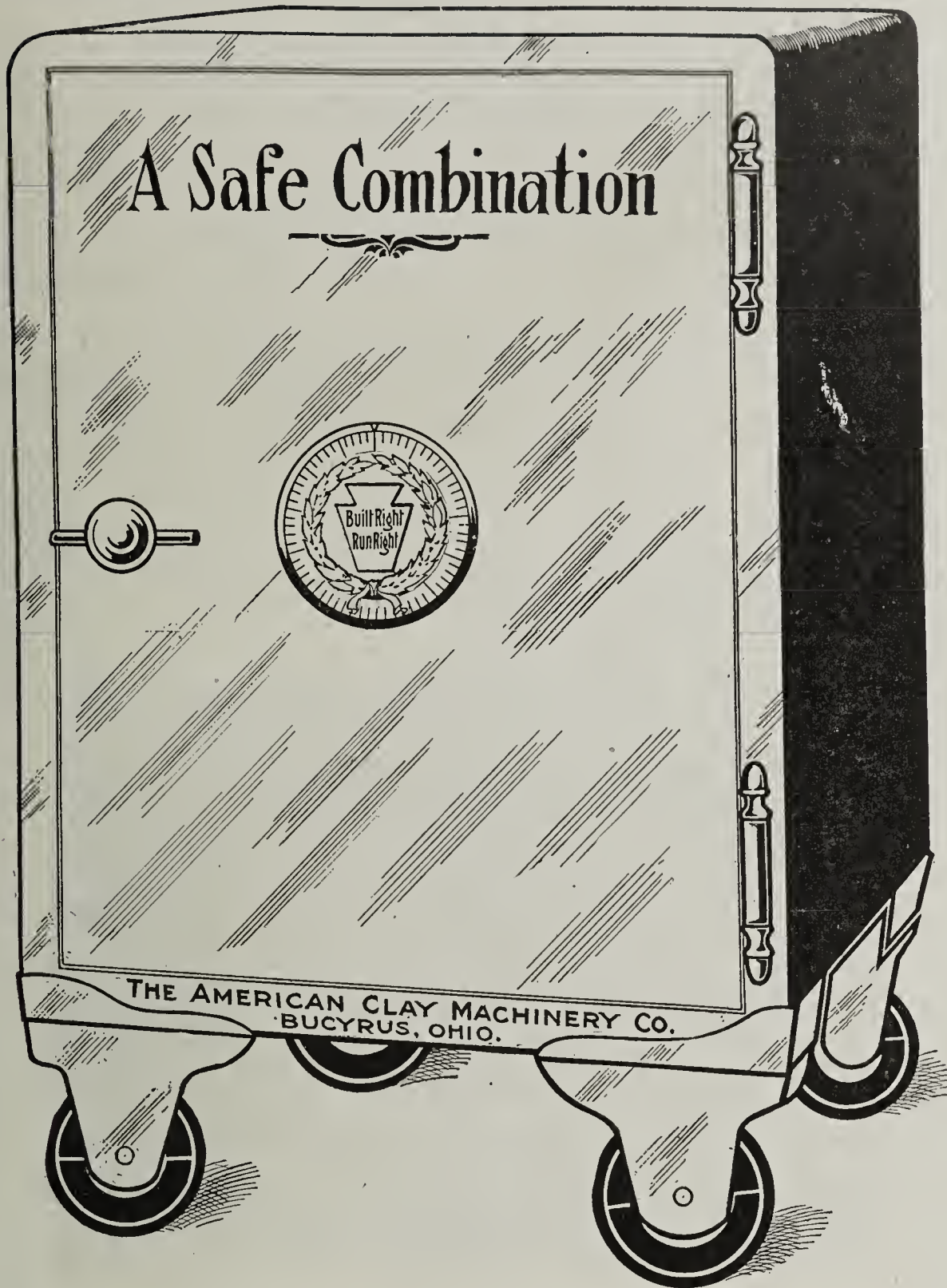
FOR SALE, WANTED, ETC.

WANTED—Position as superintendent of brick works and brick construction; practical in both branches. Address BOX 2, A. E. W., 2 1 d Care Clay-Worker.

WANTED—To engage as superintendent with a building brick concern. Have the experience necessary to insure the best success. Experienced erecting engineer withal. Address J. G. J., 2 tf d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on pages 524, 526 and 527.

The World's Largest Manufacturers of Clayworking Machinery.



LOOK AT THE COMBINATION ON THIS SAFE. "It is a safe combination to tie to." We can both make and save you money by increasing your production and its quality and saving you repairs. Try this combination.

We are facing the new year with the determination to leave upon the sands of time footprints of new progress, new accomplishments and new achievements toward the betterment of the Clay Trade.

If you were to trace backward the sixty years of activity of The American Clay Machinery Company, you would find that the great majority of improvements in Clayworking Machinery were due to our energy and enterprise. Through succeeding revolutions in demands, methods and processes, we have met the needs and led the procession of progress.

In the future, as in the past, we will be found in the forefront, striving with renewed energy, and with the unerring certainty which comes from long experience, to promote that which is to the very best interest of the Clay Trade, whether it be in machinery, modes or methods.

Our organization is the best in the world and is at your disposal.

We build every machine and appliance required for the manufacture of Clay Products by all processes.

The American Clay Machinery Co. :: Bucyrus, Ohio

"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

Much the Largest Manufacturers of Clayworking Machinery in the World.

THE KEYSTONE OF DRYING SUCCESS IS ASSURED

An Enthusiast Who Investigated the Steam Pipe Rack Dryer Has This to Say:

"I am pleased to report that the Steam Pipe Rack Dryer is, without qualification, the best and most economical dryer that I ever saw. It will dry the stiff mud brick made on the No. 6 Penfield Auger Machine—delivered on the steel pallets, nine brick on the pallet, brick are not separated—in from eleven to twelve hours; and if the brick were separated on the pallets, it will dry them in from eight to nine hours easily. In addition to the brick not being separated on the pallets, they are very soft and it would be impossible to handle them by hand or hack them on the cars, and the way the dryer does its work is almost unbelievable. If the brick in the same condition and close together on the pallets as they are, were placed on



cars in a tunnel dryer of any kind, it would take three or four days at least to dry them.

"It is customary when they are placed in the racks, after they have stood for a day or two so as to stiffen up, for them to put the men at work and separate them on the pallets, which, as you can readily see, entails quite an expense and furthermore, damages the brick more or less. With the way that this dryer is handled, the brick are carried direct to the kiln on the pallets and not touched by hand until being set in the kiln, which will greatly improve the quality of the brick. I consider this dryer more economical, by at least 25 per cent than any dryer I have ever seen."

We build the Steam Pipe Rack Dryer and all other clay plant equipment.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

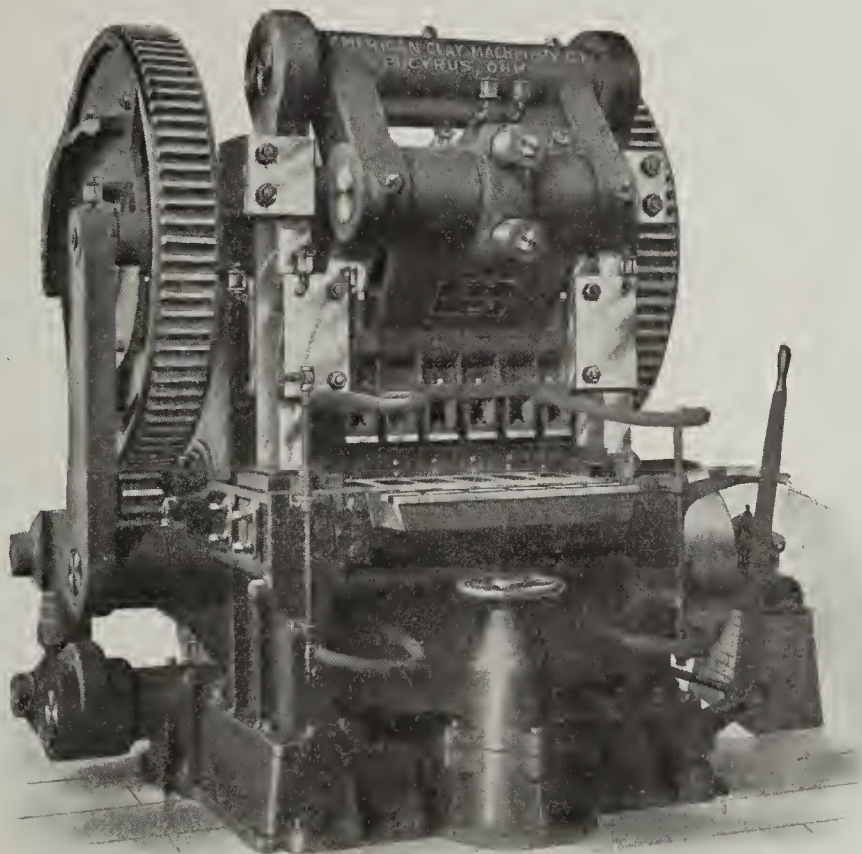
"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.

No. 599 Six-Mould Press

¶ This press is built in a most substantial way and it is made to stand many years of hard labor. It is constructed on the simplest possible lines, all its parts being accessible and easily kept in repair. The mechanical movement of the press is such that the full pressure is held long upon the brick and without loss of time or diminishing the capacity. The result is a brick that is perfect and uniform throughout, and without a flaw, seam or granulation. ¶ The machine is supplied with a friction clutch pulley, enabling the operator to have complete control over the machine at all times. The stresses incident to the pressing of the bricks are taken up by two immense steel side bars which have a double purpose, as they also serve as guides for both top and bottom cross-heads. ¶ The machine is on a toggle principle, very heavy, with all the wearing parts adjustable. The lower cross-head moves upward in ejecting the brick, this arrangement relieving the press of excessive stresses or using unnecessary power. The charger is arranged with separate guides. The mould box liners can be quickly changed and the liner adjustment changed. The thickness of the brick can be regulated. The bearings are long and gearing ample, while the crank shaft is of steel. ¶ A full description of this and other clayworking machinery may be had for the asking. Write today. ¶ We manufacture every class of clayworking machinery for all processes and have a merited reputation for machinery quality. Write us concerning your wants.



No. 599 Six-Mould Dry Press.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



"A Quality Above All Others in Clayworking Machinery."

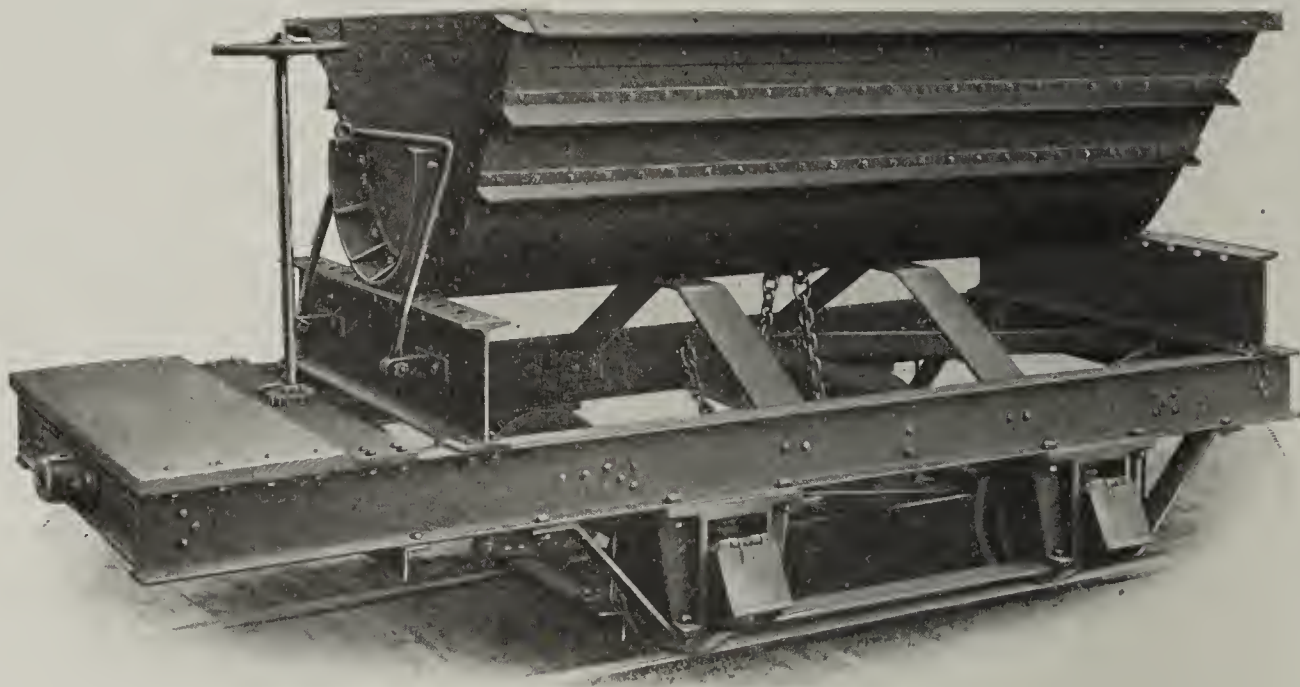
Mention THE CLAY-WORKER.

The World's Largest Manufacturers of Clayworking Machinery.

Steel "I" Beam Dump Car

No. 197 ROCKER DUMP CAR.

In order to lower the Clay Car expenses on the brick yard, we have designed the No. 197 Rocker Dump Car. The bed is made of heavy steel, reinforced, and has a capacity of $2\frac{1}{2}$ cubic yards. Steel rockers are bolted to each end of the bed, which rests on 12-inch "I" Beam rocker tracks. The "I" Beams are provided with holes in the top side which receives the projections on the steel rockers. In addition to the 12-inch "I" Beam rocker tracks the bed is supported by two heavy steel intermediate supports, all of which are riveted to the 8-inch "I" Beam steel frame. This main frame is securely riveted and braced. The trucks are designed according to the rules of the Master Car Builders' Association. The axles are 3 inches in diameter, on which are keyed heavy chilled wheels 17 inches in diameter. The trucks are provided with pedestals which guide Oil Boxes provided with oil cellars for holding oiled waste, which is placed against the under side of the revolving axles. A hinged lid is provided to protect the bearing from dust, also to permit the brass bearings being removed. The journal bearings are provided with springs to take the heavy shocks both in loading and jolting on the tracks. The pedestals are also braced by heavy straps bolted to them and to the main frame of the car. Double brake beams are provided on which are mounted one brake shoe for each wheel. All are operated by a brake wheel, staff and



ratchet. The car with brake attachment is provided with an extended platform made of wood for the operator to stand on, and on each end of the car is securely bolted a draw head so that several cars can be coupled together.

The car is also provided with heavy steel attachments to hold the bed of the car in an upright position while in transit, and also with heavy chains one end of which is attached to the bottom of the bed and the other to the sides of the frame. This prevents the bed from rocking off the frame.

The height of this car is 5 feet $5\frac{1}{2}$ inches; width over all, 5 feet 9 inches; length over all, 12 feet $1\frac{1}{2}$ inches. Wheel base, 48 inches. Track gauge, 36 inches.

No. 212 ROCKER DUMP CAR.

This car is the same in every way as the No. 197 car except that there is no projecting platform or brake attachment. All dimensions are the same except the length and weight. The length of the No. 212 car is 9 feet 7 inches.

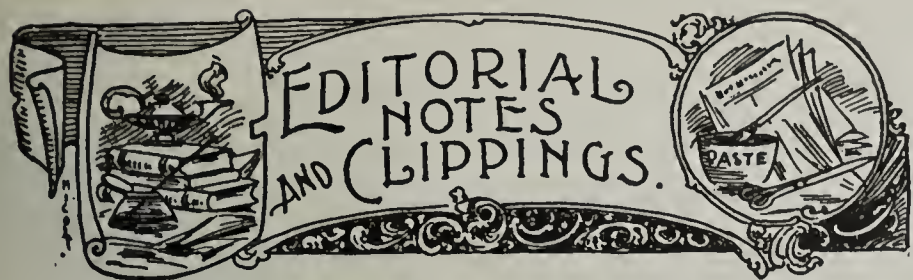
The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



"A Quality Above All Others in Clayworking Machinery."

Mention THE CLAY-WORKER.



P. J. Connell will erect a new brick plant at Holton, Mich.

Charles Healless, of Clinton, Iowa, has leased a plat of ground on which he will construct a drain tile plant.

L. A. Prickett, of Gas City, Ind., has purchased the drain tile factory at Amboy, Ind., and will operate same to full capacity.

The Altavista Brick Company, of Altavista, Va., has been incorporated by H. T. Walker, E. L. Jones, of Altavista, and B. F. Moore, of Radford, N. C.

The Kiesel Fire Brick Company's plant at Rochester, N. H., is to be closed down and the business transferred to Haverhill, Mass., where the company has a large factory.

Monticello, Ga., is to have two new brick plants. B. Jordan and E. S. Broddus have plans under way for the establishment of two large modern brick plants in that vicinity.

The Uniontown Brick and Tile Company, of Uniontown, Ky., will make improvements at its plant to include the installation of special machinery for the manufacture of clay tile shingles.

E. W. Giek, tile manufacturer, of North Manchester, Ind., would like to get in communication with manufacturers of fireproofing and building block within convenient shipping distance of that place.

The large hay barn of the Empire Brick Company, at Stockport, N. Y., was totally destroyed by fire recently. It contained about twenty tons of hay and the same amount of straw, all of which is a total loss.

The plant of the Fallston Fire Clay Works, at Beaver Falls, Pa., was damaged to the extent of \$20,000 by fire, which started just after the plant was closed down, March 7. The burned portion will be rebuilt at once.

Notice has been published of the dissolution of the firm of the Mayer Pottery Company, at New Brighton, Pa., and Joseph Mayer, Ernest Mayer and Luther Platt have been elected trustees to settle the affairs of the company.

The Barbourville Brick and Tile Company, of Barbourville, Ky., is installing new machinery and is remodeling its present plant with the view of doubling the capacity. When complete the plant will give employment to 100 men.

Suit for \$30,000 damages has been filed against the Alton Brick Company, of Alton, Ill., by Fulton Goodwin, through his father, Charles Goodwin. The Goodwin boy lost an arm, it is alleged, when it was caught in machinery. Negligence of the company is charged.

A company of which T. C. Hornaday, of Indianapolis, is manager has taken over the plant of the Sheridan Brick Company, at Brazil, Ind. Twenty-five thousand dollars will be spent in improving the plant and putting same in condition to be operated to full capacity the coming season.

The Auburn Shale Brick Company, which has been making extensive improvements and additions to its plant at Gettysburg, Pa., hopes to have same ready for operation by the first of April. They have installed a system of drying by waste heat in addition to the other improvements. When complete the plant will have a capacity of 35,000 brick daily.

Ore City, Texas, a new iron mining and manufacturing town in the northeast part of the Lone Star state, wants a brick manufacturing plant, and offers splendid inducements to the first brick manufacturer who locates there. The city ordinance requires all buildings built within the fire limit to be built of brick, and they have an excellent quality of clay from which to make the brick. Interested parties should address L. C. Luckel, The Ore City Co., Hughes Springs, Texas.

W. E. Dunwody, president of the Standard Brick Company, of Macon, Ga., and generally recognized as one of the most progressive and wide-awake young business men in the South, has recently been elected chairman of the executive committee of the Central Capital Association, which organization has as its object the removal of the state capital from Atlanta to Macon. Recently Mr. Dunwody was elected a director of the Brick Building Association of America, he be-

ing one of two Southern men who were elected to the directorate of that important association.

A. Kahn & Sons, brick manufacturers of Selma, Ala., contemplate the erection of a large brickmaking plant near Leeds, Ala.

The Barbourville Brick and Tile Company, of Barbourville, Ky., plans to increase its capacity and has already purchased equipment to that end.

The Vulcan Brick Works, Vulcan, Mich., is in the market for a grinding machine for grinding brick bats, which they expect to utilize for molding sand.

The New Brick Company, of Grand Rapids, Mich., has been incorporated with \$100,000 capital stock, and with it has been merged the Grand Rapids Brick Company.

The Sumter Brick Works has been incorporated at Sumter, S. C., by J. A. Ryttenberg and John P. Maurer, with \$20,000 capital stock. They will erect a plant of 60,000 daily capacity.

The stockholders of the Alton Brick Company, Alton, Ill., recently voted to increase their capital stock to \$250,000 for the purpose of purchasing the plant of the Fee Fee brick plant at St. Louis.

At a meeting of the stockholders of the Kushequa Ceramics Company, of Kushequa, Pa., the plant of the company was leased to E. J. Kane, of that city, who will operate same in the future.

The New Brick Company and the Grand Rapids Consolidated Company have been merged into one company, to be known as the Grand Rapids Brick Company, which has been incorporated with \$100,000 capital stock.

The Gulf States Brick Company, manufacturers of face and common building brick, at Beaumont, Texas, are putting in an equipment from the shops of the American Clay Machinery Company, Bucyrus, Ohio, for turning out hollow building block and drain tile.

The Northwestern Brick and Tile Company has commenced operations at its plant at Wichita Falls, Texas. The company is capitalized for \$100,000. A. Kentner is president; J. A. Kemp, vice-president; C. B. Woods, secretary, and T. C. Thatcher, treasurer.

Theodore L. Holbrook, son of Theodore L. Holbrook, Sr., president of the New Washington Brick Company, Washington, D. C., died at the Homeopathic Hospital of that city recently following an operation for appendicitis. He was only 19 years old and a young man of much promise.

Edward C. Sterling, 70 years old, retired millionaire brick manufacturer, and a resident of St. Louis for more than 40 years, died recently at his home in Redlands, Cal. He founded the St. Louis Hydraulic Pressed Brick Company, of which he was president for 36 years. A widow and six children survive him.

The sewer pipe manufacturing plant of the National Fireproofing Company, at East Palestine, Ohio, was destroyed by fire February 27, with \$75,000 loss. The plant was shut down February 1 to install machinery. Bucket brigades were formed and the tippie leading to the clay mine was saved. The origin of the fire is unknown. The superintendent of the works had made a tour of the plant just a few minutes before the fire started.

Harrison E. Doty severed his connection with the Montowese Brick Company, New Haven, Conn., March 1. Mr. Doty was superintendent for them seven years. He has accepted a like position with the Fitchburg Brick Company, Fitchburg, Mass. We wish Mr. Doty success in his new field. The Fitchburg Brick Company is installing new machinery from the shops of the Eastern Machinery Company, New Haven, Conn.

The National Drain Tile Company, Terre Haute, Ind., reports a good business, with all their factories running full force. They operate plants at Summitville, Hillsdale, Montezuma, Terre Haute, Ind., and Streator, Ill., and have recently purchased the controlling interest in the American Clay Company at Terre Haute. At this latter plant they are burning with producer gas in a continuous kiln which, they state, is the largest of its kind in the world. It is 620 feet long and 48 feet wide, consisting of 30 chambers, each chamber holding approximately four car-loads of burned ware. The capacity of this one plant is 200 tons of burned ware per day, and is equipped for manufacturing a full line of clay products, in-

(Continued on Page 520.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

cluding hollow building block, fireproofing, partition tile, flue lining, etc.

The Brandon Pressed Brick and Tile Company has been incorporated at Milton, Ontario, Canada, with a capital stock of \$100,000.

Peter Stipp has purchased the plant of the Scranton Vitri-fied Brick and Tile Company, located at Dunmore, Pa., for a consideration of \$29,000.

H. H. Kirkpatrick, C. H. Sulzner, J. Austin Hall and others are interested in the establishment of a brick plant of 15,000 daily capacity at Miami, Fla.

The Jonesboro Brick Company's plant, at Jonesboro, N. C., was destroyed by fire the latter part of February. The loss is estimated to be \$20,000. The plant will be rebuilt at once.

George E. Snowden & Co., New Cumberland, W. Va., kiln builders, have recently booked an order to build 14 round down-draft kilns at Freeport, Pa., for the Freeport Clay Products Company.

The United States Tile Company, of Parkersburg, W. Va., will make improvements at their plant with the view of doubling the capacity of same. They will build a number of new kilns and install a dryer.

Lewis B. Minor and others of Birmingham, Ala., will establish a terra cotta and sewer pipe plant at Boyles, Ala. They will spend about \$200,000 on the plant, which will be fireproof throughout and be equipped with modern machinery and appliances.

Macklin & Stevenson will start a paving brick plant at Newton Hamilton, Pa. They have a large deposit of clay of a superior quality for the manufacture of paving brick and the plant will be equipped throughout with improved machinery and appliances.

W. S. Pack is president, W. M. Pack, vice-president, and W. N. Trowbridge, secretary-treasurer of the Pendleton Brick Company, recently incorporated at Pendleton, S. C., with \$10,000 capital stock. They will rebuild the old plant, bringing it up to a daily capacity of 50,000 brick.

The Dixie Clay Products Company is the name of the new concern recently incorporated by W. H. Fox and others, of Graysville, Tenn., where they will erect a plant for the manufacture of roofing tile, face brick, terra cotta, flower pots, etc. Forty-five thousand dollars will be expended on the new plant.

The Pasco Brick, Tile and Construction Company, of Pasco, Wash., is the name of the new concern which has established a brick plant at that point. J. E. Bennett, of Spokane, is president; F. R. Dethard, secretary, and E. A. Guerin is treasurer, and W. H. Flanders, manager of the company. They have purchased an immense tract of land, on which is located a body of clay of a superior quality.

The Illinois State Drainage Association at its first meeting at Springfield devoted most of its time to legislation toward securing the removal of the dams from the Illinois river, which has a tendency to overflow the adjoining lands. Officers were elected as follows: President, Jessie Lowe, Beardstown; first vice-president, H. J. Puterbaugh, Mackinaw; second vice-president, Lewis Lowenstein, Carrollton, and secretary-treasurer, H. V. Teel, Rushville.

Nicholas Merley, a pioneer brick manufacturer of Canton, Ohio, died at his home March 7. He has been identified with the clayworking interests of that vicinity since the early sixties, having been at the head of a number of important clayworking concerns, including the Merley Brick and Tile Company, the Canton Hollow Block Company, and more recently, together with his son, John Merley, and Doll Bros., organized the Canton-Osnaburg Brick and Tile Company, of Canton.

Directors of the White Hall Drain Tile Company, of White Hall, Ill., which recently was incorporated, expect to have their new plant built and ready for operation by July 1. Construction work will commence at once. Tilemaking machinery will be installed at first, but the announced intention is to add the manufacture of brick later. Officers have been elected as follows: President and general manager, H. C. Morrow, White Hall; first vice-president and treasurer, C. B. Stahl; second vice-president, J. T. Galloway, Greenfield; secretary, E. C. Pearce; assistant secretary, Carl Lowenstein. Directors elected were: H. E. Sieberns, Peoria; H. A. McHarry, Mason City; W. A. Grandy, Mason City; R. W. Green,

Kane; J. A. Kirby, Jerseyville; A. P. Grout, Winchester, and H. C. Tunison, White Hall.

The National Brick Company, of Laprairie, Quebec, Canada, has applied for a charter, giving its capital stock as \$2,000,000.

A certificate of incorporation has been filed by the Thomas Aldridge Brick and Sand Company at Dutchess Junction, N. Y. The capital stock of the company is \$125,000.

Mrs. Emma Anderson, wife of Samuel Anderson, a prominent brickmaker of Taylorsville, Ill., died at her home in that city, February 23, quite suddenly from heart trouble.

The Butler Brick and Tile Company has been organized with \$10,000 capital stock by J. N. Boyle, A. B. Countryman and H. Groscup, of Butler, Ind. They will manufacture brick and drain tile.

W. E. Tripp is at the head of a movement to organize a company at South Webster, Ohio, to be known as the South Webster Clay Products Company, for the purpose of establishing a brick plant at that point.

Frank Broering, of A. Meier & Co., of Covington, Ky., has purchased the plant of the Busse Brick Company, at that point, and will enlarge the capacity of same, preparing to run it full handed the coming summer.

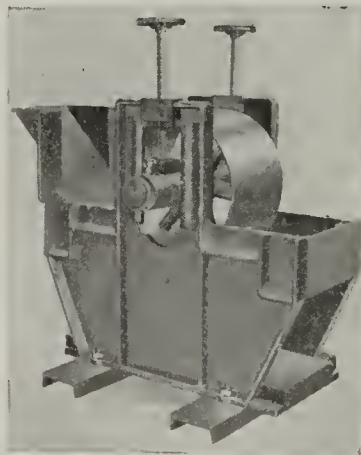
The Woodburn Brick and Tile Company, of Woodburn, Ind., will increase the capacity of its plant. They are now turning out a good grade of brick and tile and the proposed improvements will enable them to meet the increased demand.

The Lewiston Brick and Tile Plant, of Lewiston, Mont., has been organized with \$75,000 capital stock by J. Wiedeman, Frank E. Wright, John Gretencourt and others. Mr. Gretencourt has had many years of practical experience in the brick business and will have full charge of the erection and operation of the plant.

The Camden Brick and Tile Company, of Camden, Tenn., has been incorporated and has its plant all ready for operation. They will manufacture brick and tile. Granberry Greer is at the head of the enterprise. There is a demand in that vicinity for drain tile, which has to be shipped there, and this plant will take care of such a demand in the future.

The Bibb Brick Company will spend \$50,000 in an extension to its already large plant at Macon, Ga., within the next few weeks, so as to be able to make sewer pipe and terra cotta work as well as brick. This move was decided upon some time ago by Messrs. W. J. and O. J. Massee, the principal owners of the concern. The necessary machinery has already been ordered. This addition to the plant will mean the employment of several hundred more men.

The Commercial League of Webster City, Iowa, is said to be behind a project to establish a two-press sewer pipe and drain tile factory at Webster City, which will have a capital stock of \$200,000. The company has secured an option on a thirty-acre clay tract at Lehigh and a thirty-four-acre tract near Webster City, where the plant will be built. Clay can be shipped from Lehigh and unloaded at a cost of 54 cents a ton. P. W. Hearn, of the Tuscola Supply and Construction Company, of Webster City, is active in the movement.



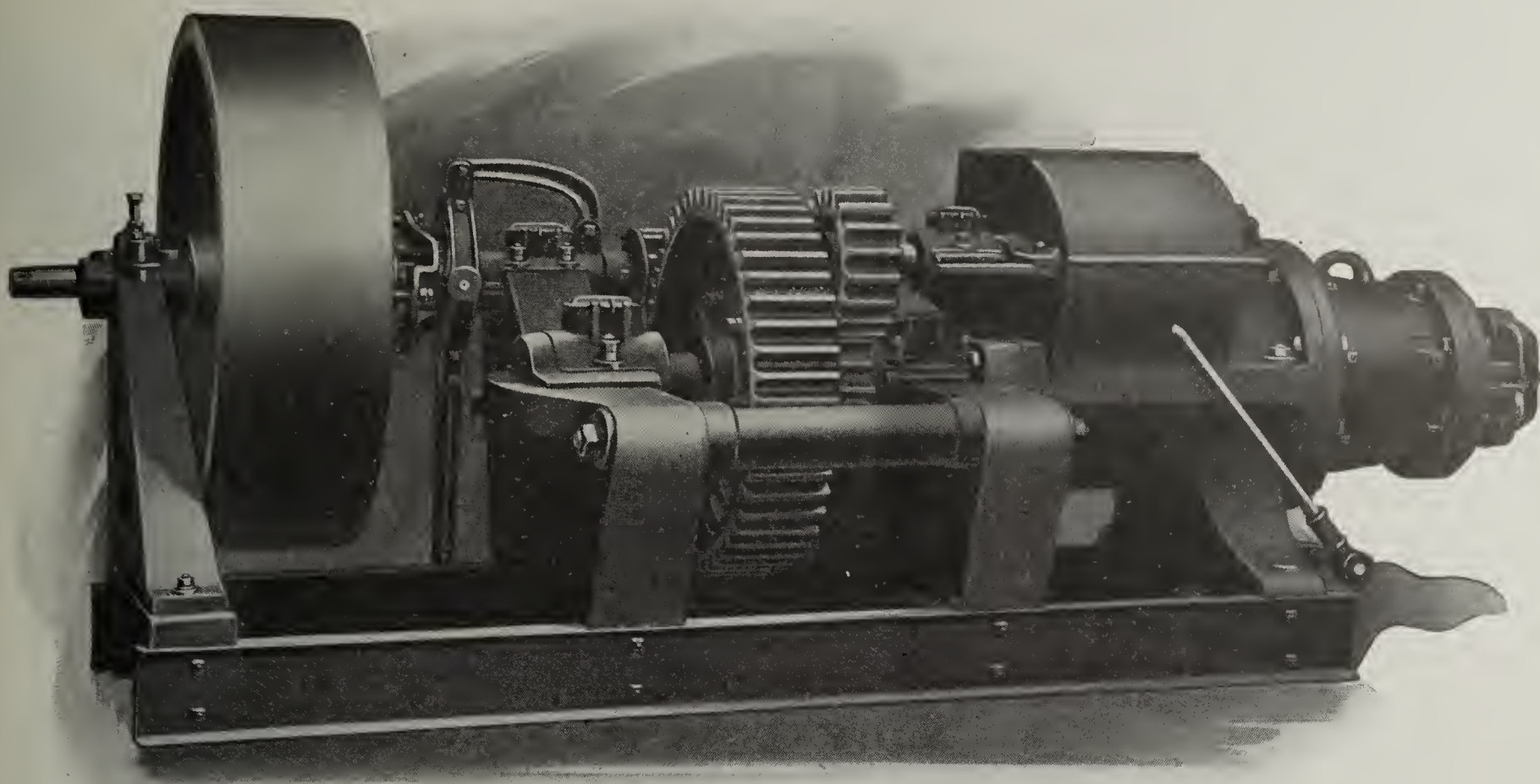
COLUMBUS Elevator Boot

Is the Best.

Has Special Features
Worth Investigating.

Send for Booklet and Prices on
Pulleys, Gears, Belting,
Buckets, Bolts, etc.

The Ceramic Supply and Construction Co.
Columbus, Ohio



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

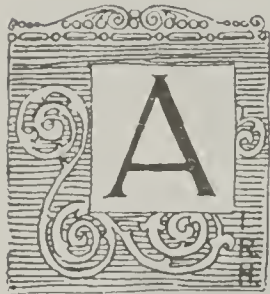
This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 568-571.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



ALTHOUGH THE active building season in Milwaukee was a little slow in opening up, things are moving briskly at the present time, and there is every indication that a record amount of building will be carried on. The month of February proved an unusually busy month in local building circles. During the month there were 221 building permits issued, totaling \$506,117, while during the same period of 1910 only 110 permits were issued, aggregating \$274,156. This is nearly double the amount of building in February, and March bids fair to exceed this record.

The fact that an unusually large number of large downtown structures are to be erected this spring is taken as a most hopeful sign by the building supply interests of Milwaukee. Stumpf & Langhoff, a Milwaukee clothing firm, with several branch stores, have completed plans for the erection of a fourteen-story building, to be erected at the corner of Grand avenue and Second street, costing \$300,000. The Marshall & Ilsley Bank will begin the erection of a handsome bank building on East Water street early in May. The First National Bank, which recently absorbed the Milwaukee Trust Company and the Fidelity Trust Company, will erect a new bank and office building at its recently purchased site at the corner of East Water and Mason streets.

Plans have been completed for many smaller structures, many of them to be erected of brick. Architect F. W. Andree has prepared plans for the North Avenue State Bank, at North avenue and Thirtieth street. The building will be 30x70 feet, two stories, and of solid brick, with a terra cotta front and tile floors. The Moose Realty Company has purchased the property at 197 Tenth street and will erect a \$25,000 clubhouse on the lot for the use of the Loyal Order of Moose. A seven-story fireproof building is to be erected by the Munkwitz Realty Company on the northwest corner of Broadway and Mason streets, which will be occupied by Blumenfeld, Locher & Brown for a period of fifteen years. Active work will begin in a couple of weeks.

Architects and builders say that it has been several seasons since plans have been made so early in the season for such a large number of flats and residences.

Practically all the brick plants about the State are now in busy operation in preparation for the spring trade. Many plants were remodeled and enlarged during the winter months and the output in many cases will be considerably larger. Notable among the concerns which have increased their capacity is the Fond du Lac Pressed Brick Company, of Fond du Lac, which has now begun the manufacture of wire-cut brick, and has installed new machinery for this purpose, which will enable the company to increase its output by 40,000 brick daily. Officials of the company write that they expect to bring this year's output up to the 5,000,000 mark. Indications are that the supply of brick on hand is generally below normal and if the demand for brick increases, as there is every promise that it will, it will be absolutely necessary for the output to be increased.

Extensive paving work will be done this spring at Appleton and at Kenosha, two of the enterprising cities of the State. Seven bids have been presented for the Kenosha work, the lowest being presented by Christ Peterson, of Kenosha, who offers to lay vitrified brick for \$1.84 per yard. Eleven bidders appeared for the Appleton work, the lowest bid on brick pavement being \$1.99 per yard.

South Main street at Fond du Lac is to be paved this spring and the indications are that brick will be used. At a recent mass-meeting a strong stand for brick was taken by Alderman Haentze, who owns 120 feet of frontage on the street in question. The supporters of brick pavement are confident that they will win out despite the fact that the city

has had rather an unfortunate experience in regard to the brick paving on Third and Fourth streets, where the work was improperly done.

Officers and directors of the Jefferson Brick and Tile Company, of Jefferson, were re-elected at the recent annual meeting of the stockholders, as follows: President, O. J. Kerschesteiner; vice-president, Ben Fischer; secretary and treasurer, Anton Stiel. The stockholders presented a handsome leather couch to Mr. Stiel as a token of their appreciation of his long and faithful services in their behalf. The day happened to be Mr. Stiel's seventieth birthday anniversary and congratulations were also added to the words of praise. The company expects a brisk business during 1911.

The Brillion Brick and Tile Company is in the process of organization at Brillion and will be incorporated with a capital stock of \$10,000. The brick plant of Albert Boettcher has been purchased and will be thoroughly remodeled for use. One of the main organizers of the new company is Joseph Fricke, of Manitowoc, an experienced brick manufacturer.

Ex-Senator Bird, of Wausaukee, a member of the Bird & Wells Lumber Company, who is developing the village of Glendale and the surrounding country, has discovered another bed of rich clay and is endeavoring to interest brick manufacturers in establishing a plant at Glendale. The Chicago, Milwaukee & St. Paul road is favorable to the project and has promised to lay spur tracks to the proposed plant. Tile will also be manufactured, according to present plans.

The Barron Red Pressed Brick Company, of Barron, will increase the capacity of its plant, according to plans completed at its recent annual meeting, and the output is expected to reach the 4,000,000 mark. The burning shed will be enlarged and three new drying sheds will be erected. Additional acreage has been secured, which insures ample raw material for the plant. The following officers were re-elected: President, G. A. Koerner; vice-president, Frank Hulbert; secretary and treasurer, K. E. Thompson; manager, W. J. Gillette.

A BADGER.

RAYMOND MACHINERY FOR TEXAS.

One of the largest orders of machinery ever given by a Texas firm was closed recently when the Texas Terra Cotta Tile and Pressed Brick Company closed a deal for a solid train-load of brickmaking machinery. In a special train of 16 cars and running on scheduled passenger time, the solid train-load of machinery will leave Dayton, on order, within the next 30 days, bound for New Waverly, a few miles from Houston, Tex., where the new company's plant will be located. Flaming banners and placards will announce the train to be "Houston bound." The Texas Terra Cotta Tile and Pressed Brick Company was recently organized and incorporated in Texas for \$100,000. The company will maintain its general offices in Houston.

The plant itself will cover 10 acres of the tract recently purchased by the company near New Waverly.

Bolivar Face Brick Co. Bolivar, Pa.

We Make Six Lines of Brick That Are Winners:

1. Matt Glaze, Impervious White, Blue Grey, French Grey.
2. "Velour Line" in rough effects, including White, Grey, Buff, Golden, Brown, Red and Gun Metal.
3. Terra Cotta finish in Spotted Creams, Grey, Buff and White.
4. Smooth or plain Buffs, Greys and Iron Spots.
5. Vitrified Paving Brick and Blocks in Fire Clay and Shale.
6. Fire Brick and Fire Clay for Kilns, Coke Ovens and Boiler Settings.

Associated Plants in Ohio and Kentucky. Best shipping facilities and Largest Line of Impervious Face Brick of Any Manufacturer in America.

Agencies Desired.

Correspondence solicited.



Barrett's PAVING PITCH



Centennial Avenue, Sewickley, Pa., Brick Pavement filled with Barrett's Paving Pitch.

Why Pitch Is Better Than Cement, Sand or Asphalt

Pitch is the best material for filling the joints of brick or block pavements for the following reasons:

It is inexpensive (asphalt is not).

It is easily used at any season without special care or skill (asphalt is not).

It makes a waterproof seal, protecting the foundation (sand does not).

It permits removal of the blocks without damage, for excavations (cement does not).

It permits expansion of the blocks in hot weather (cement does not).

It sticks tightly to the blocks without breaking away when they contract (asphalt does not).

It cushions street railway track vibration, preventing pulverizing of the blocks (cement does not).

All these qualities of Barrett's Paving Pitch are essential to a successful pavement filler, and no other material has yet been discovered which so combines all these essentials.

Booklet on request.

BARRETT MANUFACTURING COMPANY

New York
Pittsburg

Chicago
Cincinnati

Philadelphia
Kansas City

Boston
New Orleans

Minneapolis
Seattle

St. Louis
London, England

Cleveland

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Superintendent for face and fire brick factory in Pennsylvania. Must have A1 references. Address ALFRED, 3 1 d Care Clay-Worker.

FOR SALE.

Ten-foot American blower, 25 h.p. engine, oscillating cutting table. Bargains.

COLUMBUS TILE & BRICK CO., 3 1 c Columbus, Kas.

FOR SALE—Well-equipped open yard brick plant. Railroad sidetrack and also wagon trade. Supplying Athens, population 18,000. Excellent clay. Big bargain. S. C. UPSON, 1 3 d Athens, Ga.

WANTED—Position as manager of brick plant. Prefer location in Southwest. Can burn with either oil, wood, coal or lignite. References. Address BOX 3, J. B., 3 1 d Care Clay-Worker.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address, BOX 3, B. T. CO., 3 tf d Care Clay-Worker.

WANTED—A man (preferably with means) to take charge of a tile plant in exclusively new field. Splendid clay. Fine climate and place. Sure to boom very soon. Address BOX 360, 3 1 c Marshfield, Ore.

WANTED.

Cut-off table man for No. 83 American clay automatic table. One pug-mill man and a foreman for brickmaking room. Must be a mechanic, thoroughly understanding all brickmaking machinery. BURKE BRICK CO., 3 2 d Ft. Smith, Ark.

WANTED.

Position as superintendent by a thoroughly competent man, well versed in all details of the manufacture of front and face brick and high-grade building brick. Am now employed, but would consider a position with reliable Eastern firm. Address BOX 3, G. J. B., 3 1 d Care Clay-Worker.

FOR SALE.

One Potts disintegrator, good as new. Price \$45.00.

BROOKLYN BRICK COMPANY, 2 2 d Brooklyn, Ind.

WANTED.

Location for brick and tile plant. Must have high-grade raw material, excellent market and good shipping facilities.

OPERATOR, 3 1 L Care Clay-Worker.

FOR SALE.

Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new.

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WANTED—First-class man as superintendent. Must be experienced with colored labor, stiff mud open air sheds, up-draft kilns, coal and wood. Capacity 30,000. State age, experience and salary. BOSTON BRICK CO., 3 1 1p Houston, Va.

WANTED.

Position with manufacturer of fire brick. Competent to take charge of scientific, manufacturing and sales departments. Experienced in almost every line of refractories. Address "REFRATORIES," 3 1 1p Care Clay-Worker.

WANTED.

Position as foreman of either stiff-mud or dry press brick plant. Am first-class machinist and thoroughly understand most makes of brick machinery. Can burn up or down-draft kilns. Address W. G. P., 3 1 d Care Clay-Worker.

FOR SALE—Half interest in brick manufacturing business. One of the best equipped plants in the country. Capacity 30,000 daily. Ready sale for output. Have not been able to supply demand for two seasons. Need money to operate plant.

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FOR SALE.

One Model AA Marion steam shovel, shop No. 265; shovel has recently been equipped with new boiler, new dipper handle, new trucks and a complete set of sheaves, and in good working condition. This shovel is capable of digging clay for one machine making 100,000 seven-pound brick per day. Price, \$1,500, on C., B. & Q. tracks, Galesburg, Illinois.

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Galesburg, Ill.

FOR SALE—One American Blower Company 100-inch $\frac{3}{4}$ housed fan, used less than one week.

TUNA VALLEY PRESSED BRICK CO., 3 tf d Bradford, Pa.

WANTED.

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WANTED—Position as manager or superintendent by a capable man, who has given special attention to burning. Is thoroughly experienced in the manufacture of paving, face, building brick, conduit and tile. Prefers location in West or Southwest. Address MICH., 2 3 c Care Clay-Worker.

WANTED—Position with an Eastern concern. Have had 12 years' experience with large Corliss engines, 7 years with brick machinery and 3 years as superintendent. Can do all kinds of steam fitting and babbitt work. Best of references. Address E. H., 3 1 cm Care Clay-Worker.

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Modern brick plant complete. 40,000 daily capacity. Chambers Brick Machine, Automatic Cut-off, etc.; American Blower Drier, Atlas Cars. Entire plant practically new and in perfect running order.

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FOR SALE.

Two 80 h.p. boilers.
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One 12 by 12 Sinker-Davis engine.
One No. 2 Giant American Mach. Co. make auger machine.

The machinery is in good condition, but will be sold very cheap.

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One No. 23 Ideal soft mud brick machine, made by Horton Mfg. Co., Painesville, Ohio; capacity, 25,000 daily; original cost, \$600; will take \$250. Mold sander which cost \$100, will take \$40. Shafting, belts and pulleys, cost \$125; will sell for \$45. Revolving dump table, cost \$25; will take \$10. Engine and boiler costing \$800; will take \$300. About 30,000 yellow pine pallets, 10 by 34, cost 7½c apiece; will sell for 3c.

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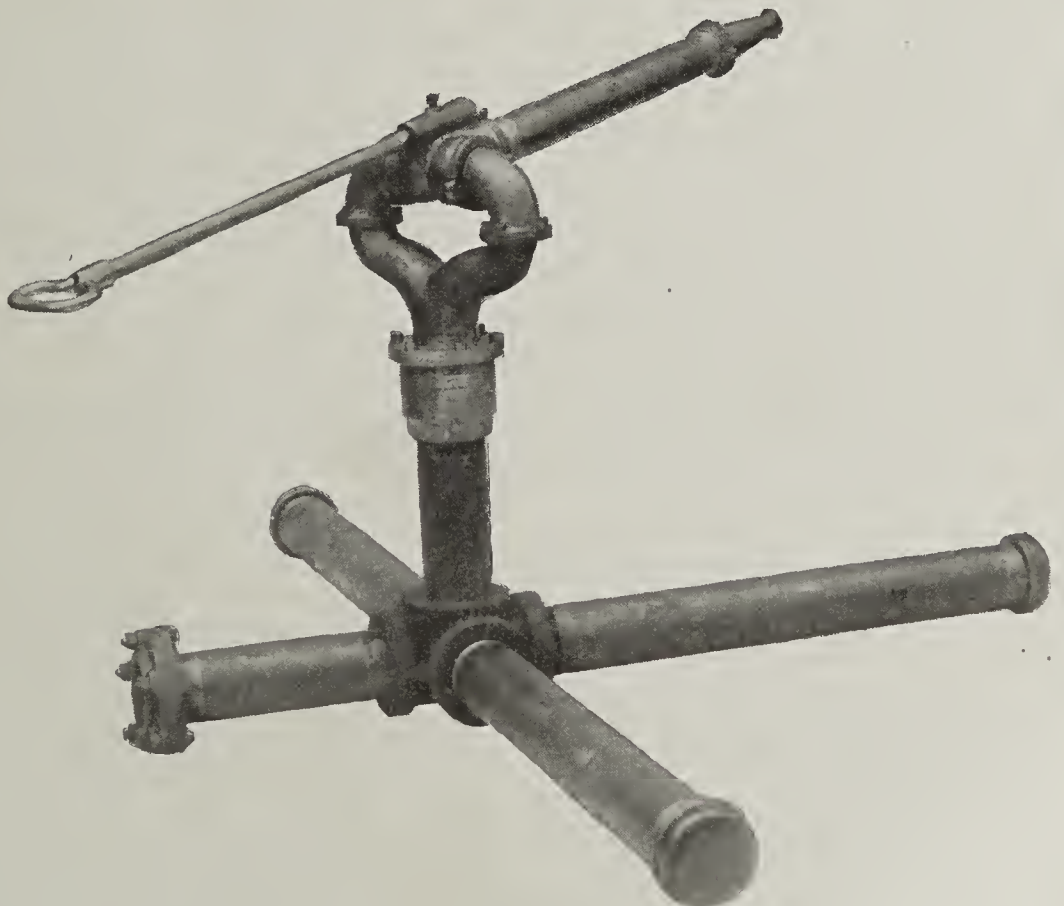
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the ground; best quality of clay. Big
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1 A Martin power brick machine.
Pug mill and belt sander.
1 Potts clay crusher.
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1 60 h.p. Atlas engine.
1 80 h.p. Atlas engine.
10,000 wooden pallets, 34x10x4½ inches.
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WANTED.

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always been a success. Good refer-
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Any length of wire made to order
from the Best Red Label Music
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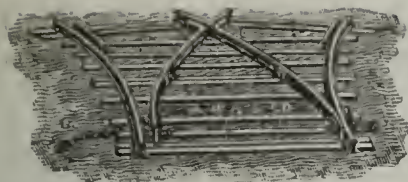
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of valuable information. "Brickmak-
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known clays of this and foreign coun-
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"Clays," \$5.00; their occurrences, prop-
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to those of the United States. Any or
all of these books mailed postage pre-
paid on receipt of price. Write for
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workers. Address,

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Indianapolis, Ind.

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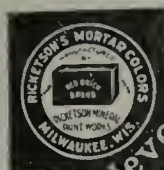
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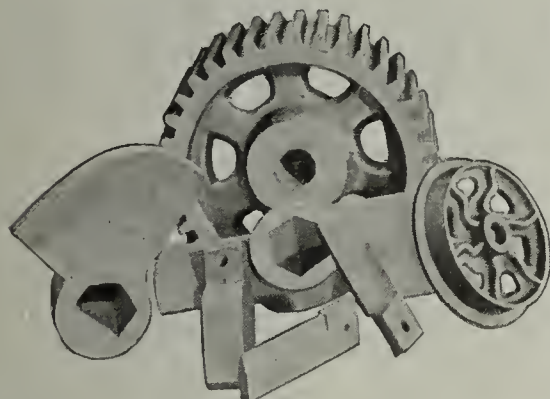
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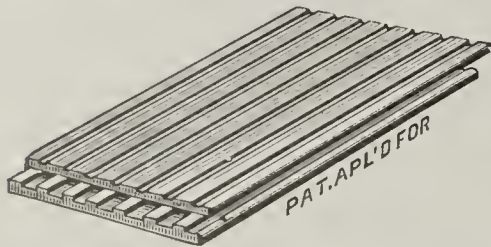
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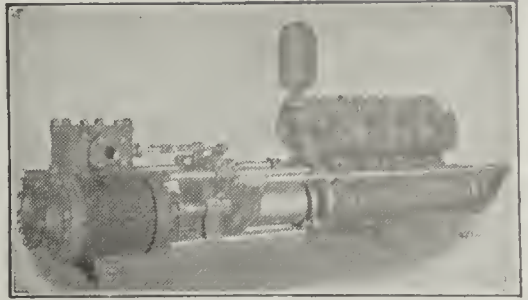
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Ada National Bank, Ada, Okla.; Cooper and Bones Brick and Tile
Co., Ada, Okla.; Alabama Brick and Tile Co., Hollywood, Ala.



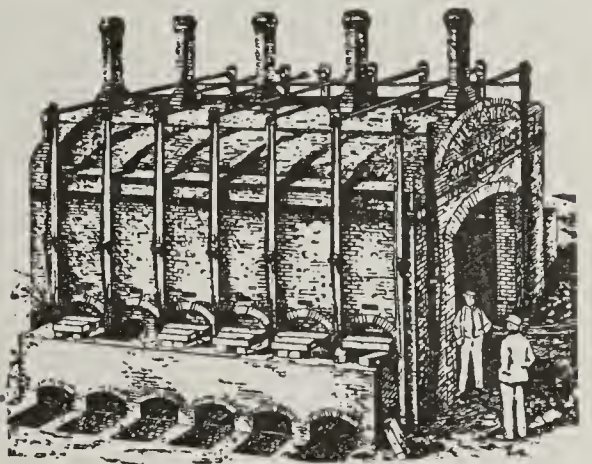
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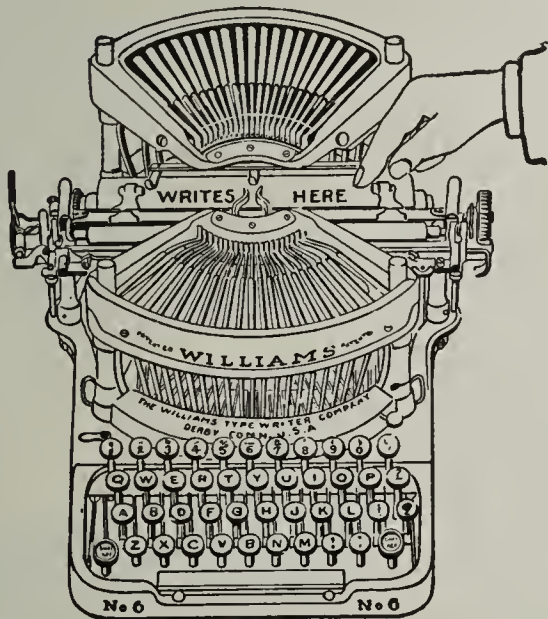
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ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00



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DESIGNS
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Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. HANDBOOK on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

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A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers.
MUNN & Co. 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712.

205 Pearl Street.

NEW YORK.

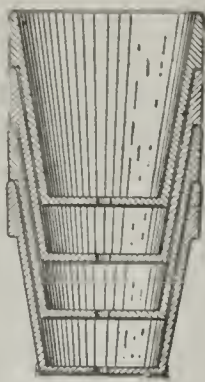
Sole Importers in the United States of the



The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

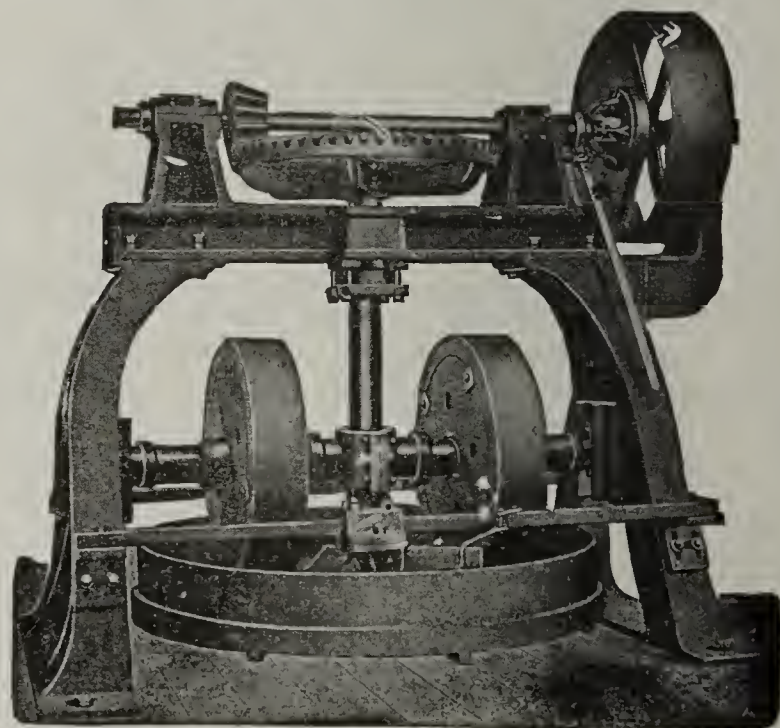
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

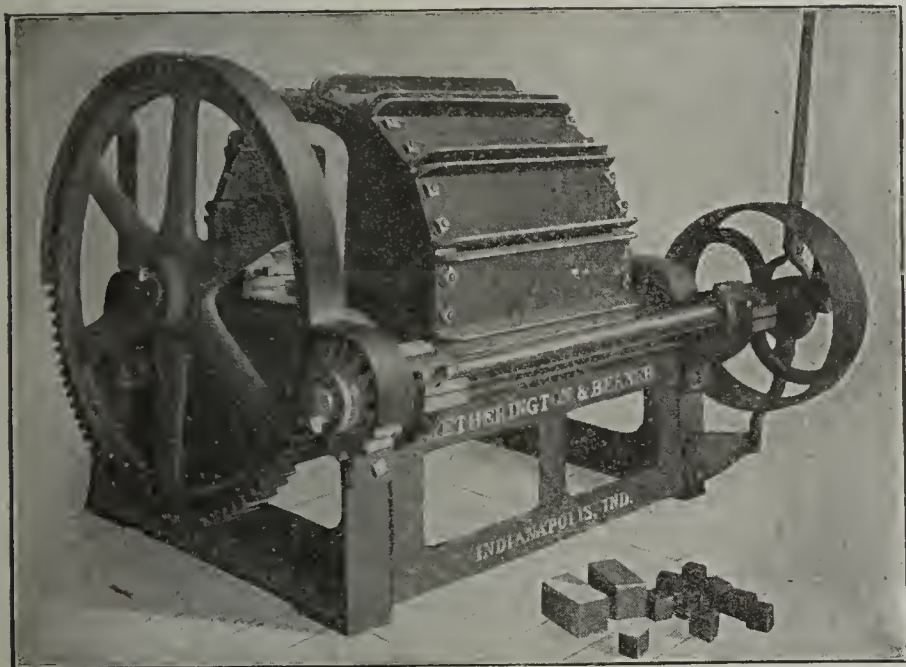
When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

Write for Catalog.

STATE COLLEGE of CERAMICS

Alfred University,

ALFRED, NEW YORK.

Charles F. Binns, Director.

Roofing Tiles

The greatest Money Makers in the clay industry.

Demand Exceeds the Supply.

16 years' experience enables us to design, build and operate plants successfully. We will Test Your Clay.

Investigate Stolp & Wiederhold,
CHICAGO HEIGHTS, ILL.
DENVER, COLO.

The —
**ROESSLER-HASSLACHER
CHEMICAL COMPANY,**
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.

Let Us Tell You About Our Labor and Power Saving Machinery

READ THE FOLLOWING CAREFULLY, AND YOU WILL READILY UNDERSTAND WHY YOU SHOULD NOT BE WITHOUT OUR MONEY-SAVING MACHINES.

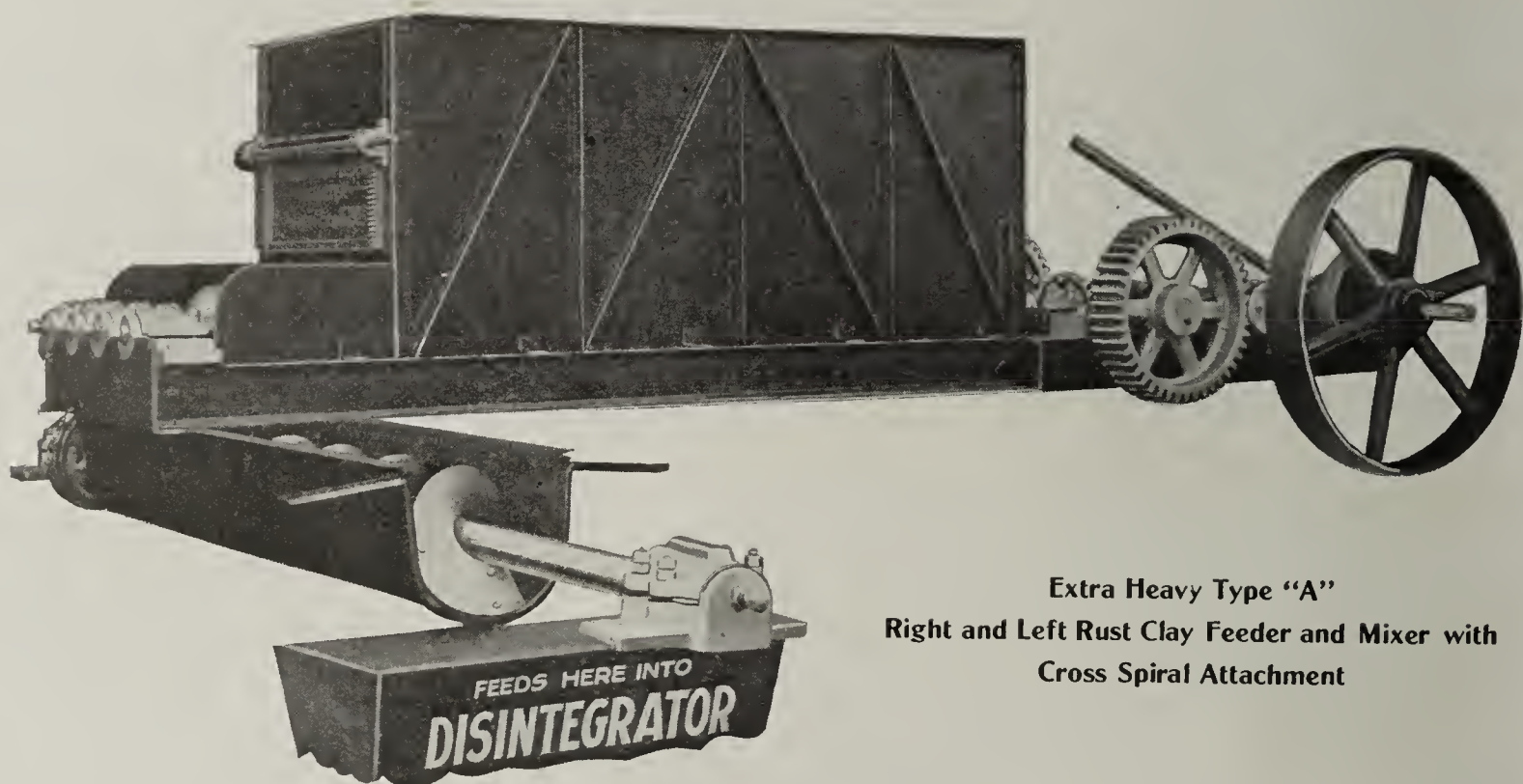
Operation and Construction

The operation of the machine is automatic. The construction of the hopper is such that the clay does not clog up, and feeds down on the spirals by its own weight. The machine requires no attention after the feed to the disintegrator has once been regulated. The spirals are nine inches in diameter. The diameter of the main driving pulley is forty inches. R. P. M. 70. The body is constructed of 6-inch channel irons, and the hopper of heavy sheet iron, reinforced with angle iron at top. The spirals are made in one solid piece, and rigidly fastened to the shaft by a patented process.

The Rust Clay Feeder dispenses with the men ordinarily used to feed the clay into the disintegrator.

This saves the time of from one to two men, who will draw from \$1.50 to \$4.00 per day according to the local rate and amount of work. The average saving will be about \$2.25 per day. Counting 250 working days in the year, this means a saving of \$562.50 where one of these machines is used, a return of over 100% on the investment, not bringing into account the great value in tempering clay and the regular feeds on the machinery, thereby saving repair bills and the costly delays.

This machine is constructed to feed directly into the disintegrator, but where it is desired to convey the clay off to one side, we manufacture a cross spiral attachment, which is attached to the end of machine, and is operated by means of pulleys and belt.



Extra Heavy Type "A"
Right and Left Rust Clay Feeder and Mixer with
Cross Spiral Attachment

Every feeder and mixer has a capacity ranging from 10,000 to 100,000 brick per day of ten hours. The feed is easily regulated at will by either raising or lowering the end feed gate, or by increasing or decreasing the speed of the drive pulley, and after the speed has once been regulated to feed any given amount of clay, it will mix and feed in an even and steady stream; not varying ten bricks an hour.

Each machine is fitted with a friction clutch pulley, and is thoroughly tested before being crated for shipment. By means of a cord attached to the clutch lever on feeder, the machine can be controlled at will, even though the operator be 100 feet or more from the feeder. The feeder is built so strong that you can dump several car loads of clay on top of it, and it will operate automatically, needing no attention whatever.

Marion Machine, Foundry and Supply Co.

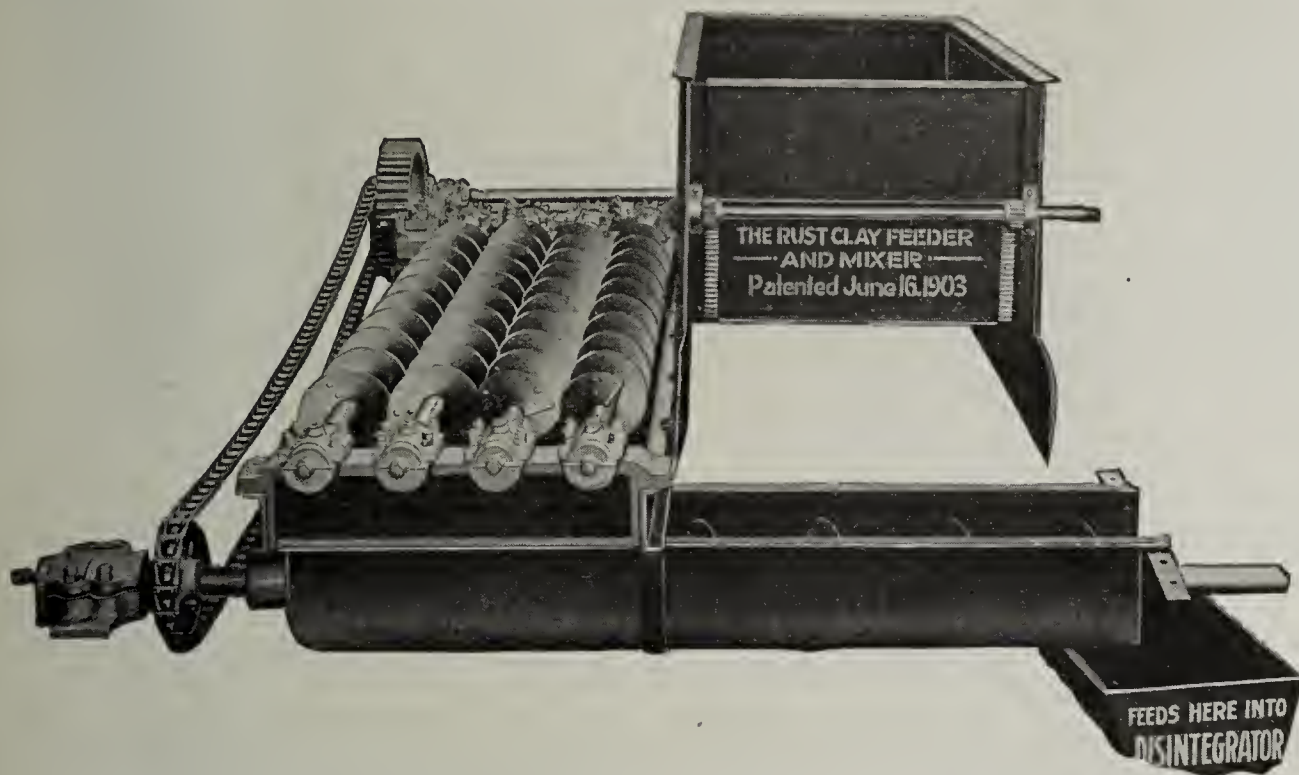
P. O. Box 156, MARION, INDIANA

All Canadian Orders will be shipped from our Canadian Branch

Mention the fact that you saw this advertisement in THE CLAY-WORKER.

Why Do Hundreds of Clayworkers Use The Rust Clay Feeder and Mixers?

There Are Many, Many Reasons. Here Are Some of Them



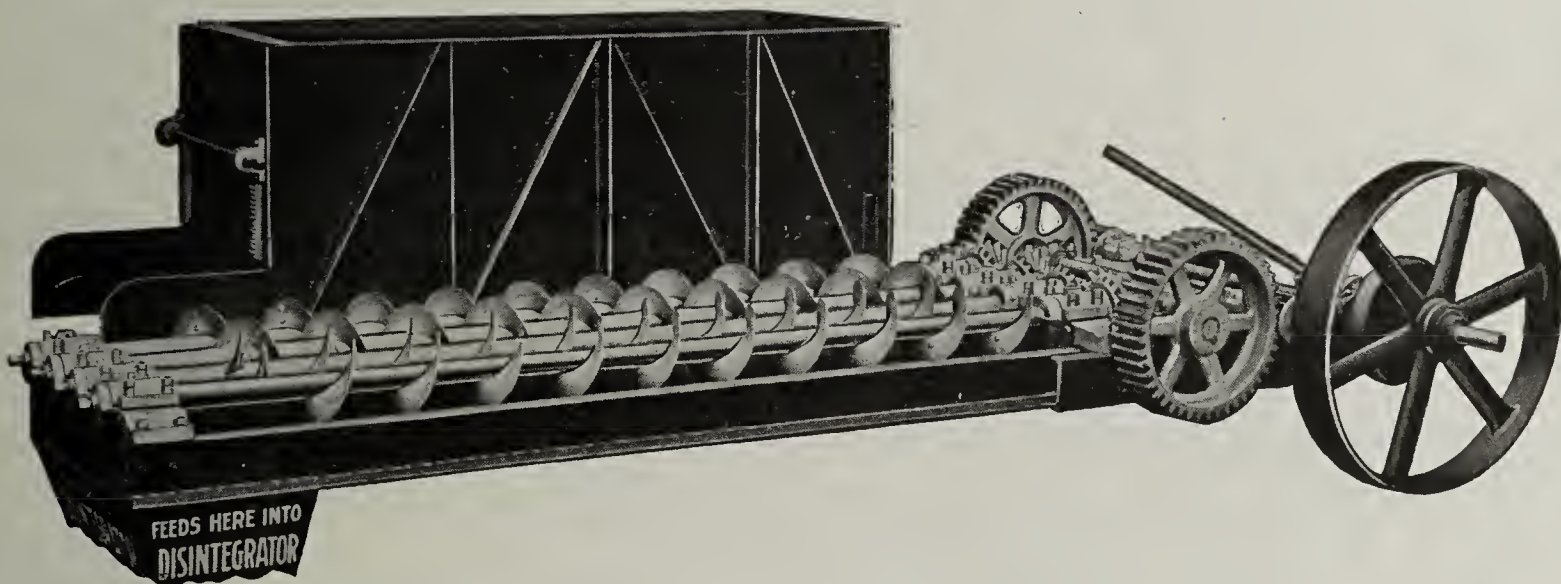
Type A, Extra Heavy Right and Left Side Delivery Rust Clay Feeder, Box Removed

The principal reason is because it will save them the labor of one to two men, and paid for itself the first year from the wages thus earned.

That is enough reason. But there are others.

The quality of the work is another reason. It mixes the clay perfectly and tempers it for further use to which it is put.

The feed is so regular that it does not vary ten bricks per hour, and the machine has a capacity of from 10,000 to 100,000 bricks per day, the quantity being regulated at will by raising or lowering the end feed gate, or by increasing or lessening the speed of the pulley. It requires only 2 H.P. to operate a full load, and this power is more than saved because of the steady and even feed.



Extra Heavy Right and Left Type A, Rust Clay Feeder and Mixer, Box Removed

The Rust Clay Feeder has been brought out in response to the demand for a better method of mixing and feeding clay in brick and tile factories and all clayworking plants. It has been in successful operation for seven years. The saving in labor, increase of production and improvement in product which it effects, makes it a necessity to the up-to-date clayworker.

WRITE FOR OUR LATEST CATALOGUE

Marion Machine, Foundry and Supply Co.

P. O. Box 156, MARION, INDIANA

All Canadian Orders will be shipped from our Canadian Branch

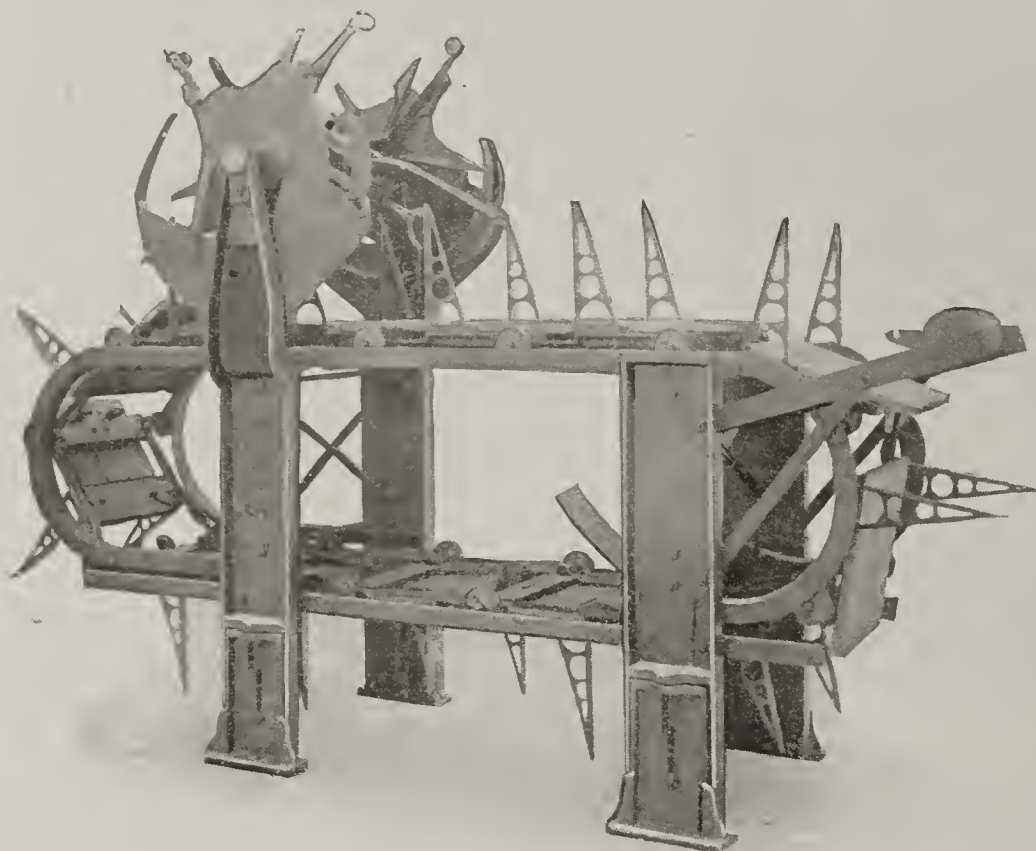
Mention the fact that you saw this advertisement in THE CLAY-WORKER.

Our CUTTING TABLES are RIGHT

Hundreds of Successful Clayworkers are Using Them

HERE ARE A FEW FACTS WORTH THINKING OVER

No. 35 MARION AUTOMATIC TILE CUTTER



No. 35 Marion Automatic Tile Cutter

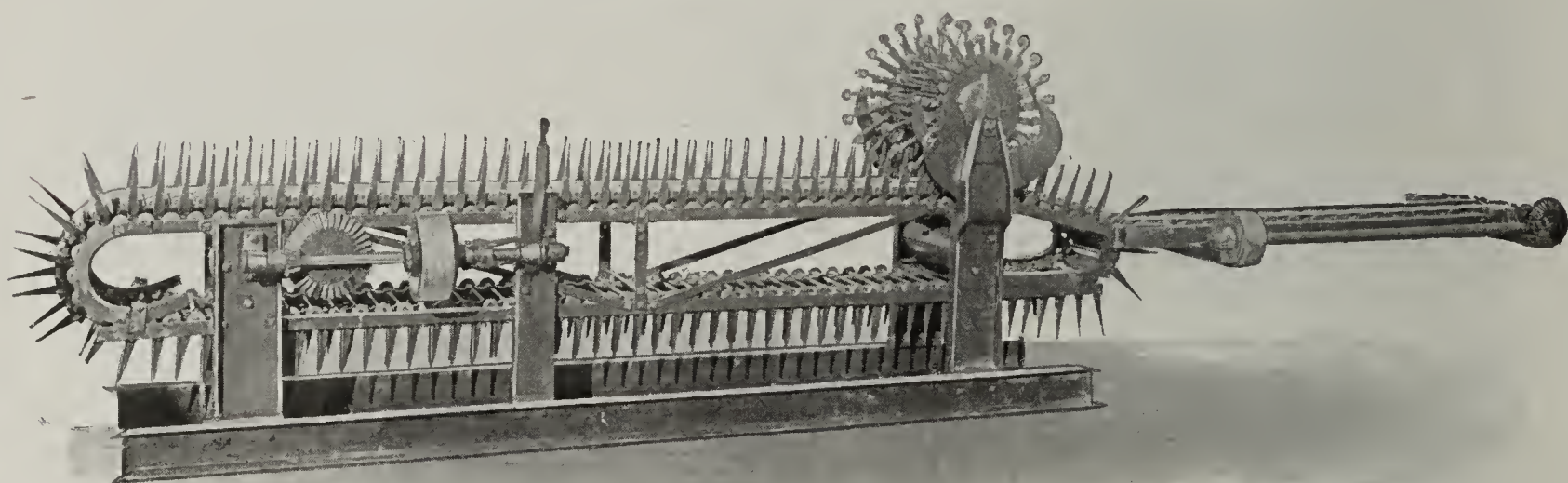
This machine is a triumph in the art of tile cutting. A great deal of clay and power has been wasted in the past on account of the necessity of cutting off stub ends if a good article was desired. This machine cuts off no stub, the whole bar being continuously cut into the desired lengths. It also makes it possible to get the complete capacity of your tile machine when making small tile. The machine cuts blocks as well as tile, and cuts them absolutely square. Its range in tile is from 2½ inches to 7 inches (inclusive) in diameter.

Capacity, 2,000 3-in. tile per hour.

Weight, 900 lbs.

Wire carrying frames are adjustable, and the broken wires can be easily replaced while machine is in operation.

Working parts of machine work on roller bearings.



Above is a cut of our NO. 25 MARION AUTOMATIC SIDE CUTTER, which is, without doubt, the simplest automatic side brick cutter on the market. Note the simple friction device, any degree of friction can be had by simply moving the lever back and forth. Note the strong angle steel frame, which keeps the weight of the machine down so that it can be easily handled. Note the wire holding the device, which is built on the piano principle, allowing the wire to be stretched to high tension without danger of breaking.

The machine can be directly connected, or can be fitted as per cut to run from a pulley. Capacity can be adjusted to conform to the output of your brick machine.

Note that the wire carrying frames being adjustable, the broken wires can be replaced without stopping the machine. This is a very important feature, and the feature alone places this cutter far in the lead.

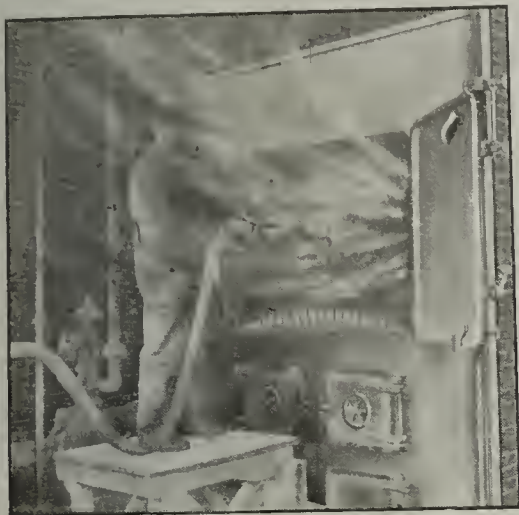
Another important feature is that the length of cut on this machine can be changed to suit requirements.

Marion Machine, Foundry and Supply Co.

All Canadian orders will be shipped from our Canadian Branch

P. O. Box 156, Marion, Indiana

Don't Blame the Coal-Man



THE OLD WAY

The coal man is responsible only for price and quality of the coal you buy. In order to deliver every ounce of heat energy to the boiler you must *clean the flues*. And cleaning flues does not mean in the old way, the ineffective dirty way, at the expense of temper, time and labor. It means the right way, the simple, safe and economical way, which is the Marion Way.



THE MARION WAY

What We Say:

The MARION FLUE BLOWER will remove every particle of soot from your boiler tubes without fuss or labor and do it at a guaranteed saving of 10 per cent.

You do not have to take anyone's word but your own, because we agree to send it to you on

30 Days' Free Trial

and if it fails to make good, simply send it back and we pay freight charges both ways.

What Users Say:

We have just installed the flue blower we recently purchased of you, and we herewith enclose our check in payment of same. We feel that we will save the price of the blower each month in the saving of fuel.

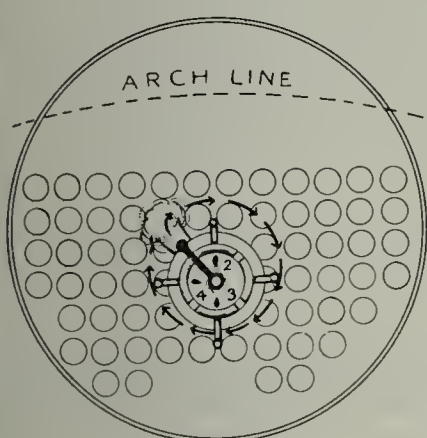
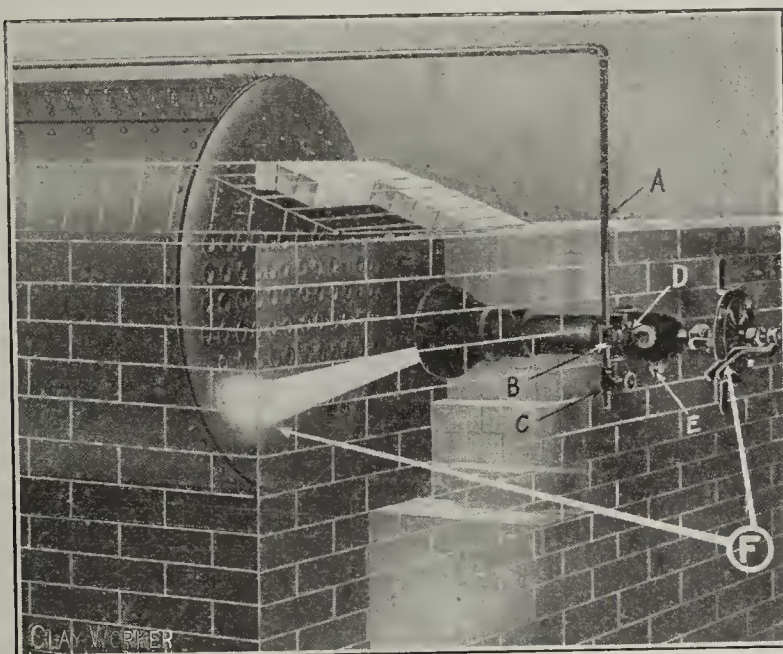
H. Crocker, Mgr., Virginia Brick Co.

We are enclosing herewith order for a flue blower on your regular blank, left here by your agent some time ago. Two of our boilers are equipped with your blowers. The one we now wish to equip has had a blower of another make, and it has given us so much trouble that we are taking it out. We also enclose pencil sketch showing material used at back of boiler.

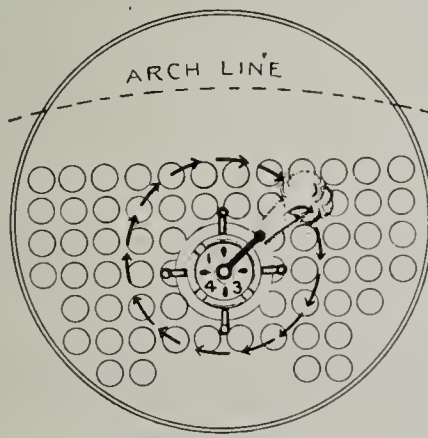
F. C. Amsbery, Mgr.
Champaign and Urbana Water Co.

Our superintendent reports that the flue blower works very satisfactorily. Wish you would have your agent call when in our neighborhood and see if he can arrange to have a flue blower equipped for our other boiler and take the proper measurements.

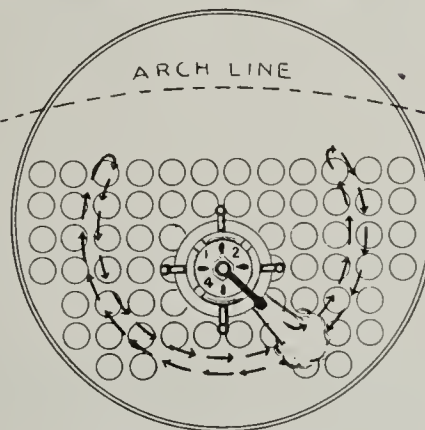
Chicago Rubber Clothing Co.



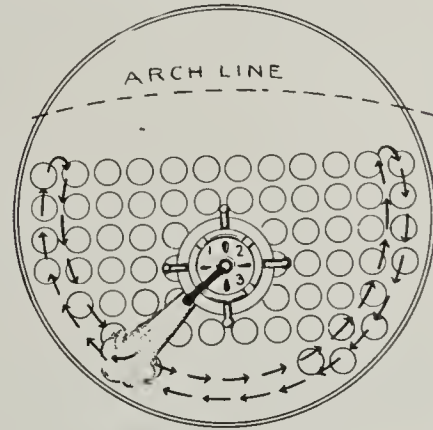
Center Section
Figure 1



Inside Intermediate
Figure 2



Outside Intermediate
Figure 3



Outside Section
Figure 4

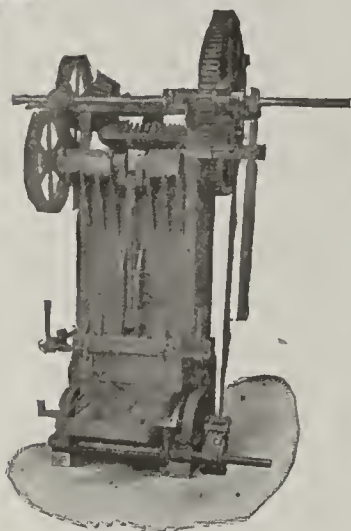
KEY TO LARGE DRAWING—A. represents 1 1-2 in. Steam Line leading from top of boiler to blower; B. 1 1-2 in. Tee; C. 1-2 in. or 3-4 in. Glove Valve to draw away condensation that will collect in 1 1-2 in. steam line A when blower is not in use; D. 1 1-2 in. Glove Valve to control steam at blower; E. 1-4 in. Pet Cock to draw away condensation in blower before starting to operate same.

ALL CANADIAN ORDERS SHIPPED FROM OUR CANADIAN FACTORY

Marion Machine, Foundry and Supply Co.

P. O. Box 156, MARION, INDIANA

MODERN CLAY- WORKING ENGINEERS



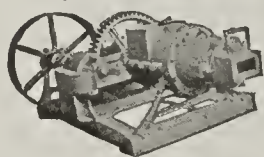
And Builders
of Complete

BRICK MAK- ING PLANTS

For Either
Soft or Stiff-Mud
Processes.

Steam Power
50 Thousand
Animal Power
20 Thousand

We Build the
Most Complete
Line of Yard
Supplies and
CRUSHERS



THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PA., U. S. A.

Get Our Big Catalog.

The Portsmouth Pans, Screens, Presses, Dies, Wheelbarrows, etc.

Mine Cars. Brick Rattlers.
Municipal Castings.

The Portsmouth Machine & Casting Co.

Let us figure with you. PORTSMOUTH, OHIO.

If you have a dryer that is not giving
you complete satisfaction, and
wish it remodeled to pro-
duce the required
results address

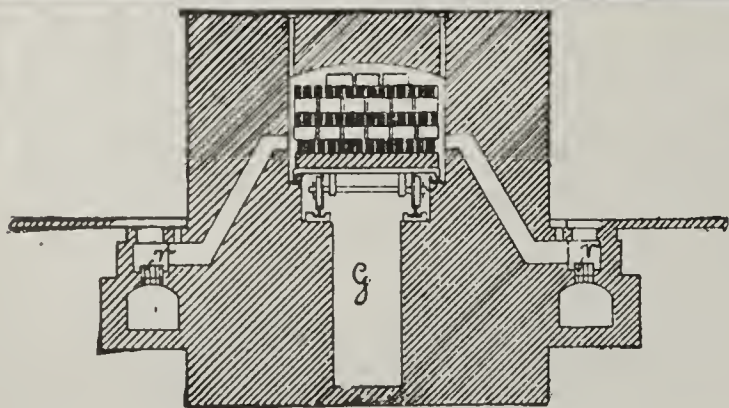
EDWIN A. KING,
Dryer and Kiln Specialist,
KEYPORT, N. J.

Books for Brickmakers

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T. A. RANDALL & CO., Publishers, Indianapolis, Ind.



HOFFMANN Construction
Company

91 Sumner Street, Southwark
LONDON, S. E. ENGLAND

TUNNEL & CAR KILN

SAVES $\frac{2}{3}$ of COAL BILL
 $\frac{1}{2}$ of LABOUR BILL

Burns 1,000 Facing Bricks with 1 to 1½ Cwt. of
Small Coal. Burns also,

TILES, TERRA COTTA, FIRE BRICKS,
EARTHENWARE AND CHINA.

A Fair Number in Operation. Sixty Years' Experience.

License Sold and Kilns Contracted for.

IT DOES NOT PAY

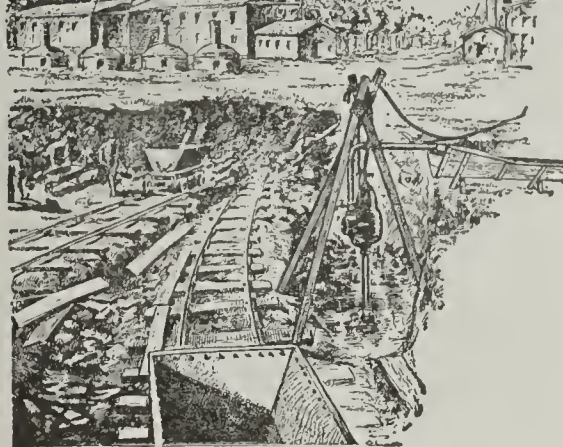
To operate kilns that are designed in a slipshod, old-fashioned manner when the plans and specifications of a money-maker—

The Improved Flue System Kiln

can be had at a very reasonable figure.
Particulars cheerfully furnished.

GEO. E. SNOWDEN & CO.,
New Cumberland, W. Va.

Pulsometer Steam Pump



THE IDEAL

means of removing water from **Clay Pits**, Excavations, Foundations, etc., and any other place where the liquid to be handled contains much

Grit, Mud or Sediment.

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all Operates as well suspended as stationary.

Simple. Handy. Durable. Effective.

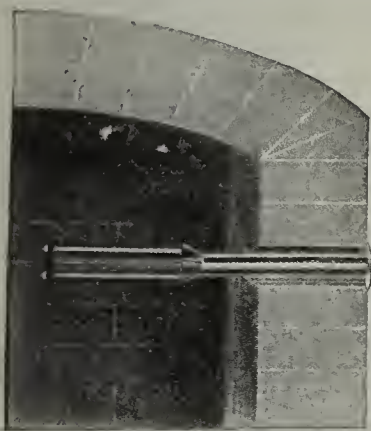
Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.

Chicago Office, 223-231 No. Jefferson St.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

**The Brown
Instrument
Company,**

311 Walnut St.,
Philadelphia, Pa.

Pittsburg. Chicago.

Automatic Improved DRYERS

Economical, Efficient,
Great Capacity.

FOR CLAY, COAL, SAND, MARL, ETC.
Send for Catalog "C. B."

AMERICAN PROCESS CO. 68 William Street, New York.



Built for the Chicago Retort & Fire Brick Co.

DAVENPORT LOCOMOTIVES

For CLAY HAULAGE

Small Size

Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Write for particulars

Davenport Locomotive Works

Davenport, Iowa

Chicago, 12 and 14 So. Canal St.

Minneapolis, 107 Third Ave. N.

Seattle, 1215 First Ave. So.

F. H. Hopkins & Co., Montreal, Que., Canadian Representative.

The Richardson=Lovejoy Engineering Company

Columbus, Ohio

CERAMIC ENGINEERS FACTORY ARCHITECTS.

Geological Examinations of Properties.
Clay Testing.
Investigations of Manufacturing Propositions.
Plants designed.
Construction superintended.
Operations directed.
Plans for Dryers, Furnaces, Kilns.
Especial attention given to problems in Fuel Economy.
Old plants remodeled and put on an Economic Basis.
New Lines of Products developed.

Pamphlet "CERAMIC ENGINEERING" Free.

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CLAY-WORKER	\$2.00
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Value	\$9.00
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CLAY-WORKER	\$2.00
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CLAY-WORKER	\$2.00
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Value	\$8.75
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T. A. Randall & Co., Indianapolis, Ind.



The Latest Fountain Pen. Guaranteed by Makers. No Filler. No Lost Time. No Soiled Fingers. Perfect. Simple.

REMARKABLE OFFER.



The Old Way

We will send this famous gold-pointed pen, post paid, and THE CLAY-WORKER, for one year, to any address in the United States and Canada for **\$3.00**

"POST" SELF FILLING CLEANING FOUNTAIN PEN.

Gen. Lew Wallace, the author of "Ben Hur," wrote: "I have tried every kind in the market, and unhesitatingly give the preference to the "Post."

ADDRESS THE CLAY-WORKER, INDIANAPOLIS, IND.



The New Way



DRYING



BURNING



Burns
Common
Building Brick,
Fire Brick,
Paving Brick,
Hollow Block.

Boss System of Burning Brick

We are the originators of the modern idea of applying air under pressure to brick kilns.

Write for Catalogue.

JOHN C. BOSS COMPANY

Elkhart, Indiana

Infringers will be prosecuted.

Burns
Coal Slack,
Screenings,
Lignite,
40 per cent less
fuel cost.



NO DRYING SCREENING or "RAINY DAYS"

For the man that owns

A DIESENER.

The Diesener Clay Cleanser and Homogenizer is the only machine in existence which removes objectionable matter from clay in its original wet condition through 1-16 in. slot.

**You Have to See It.
It's Too Marvelous to Believe.**

RICHARD G. HOFFMANN,
La Grange, Ill.

Send samples of clay prepaid to W. A. JONES
FOUNDRY AND MACHINE CO., Chicago, Ill.

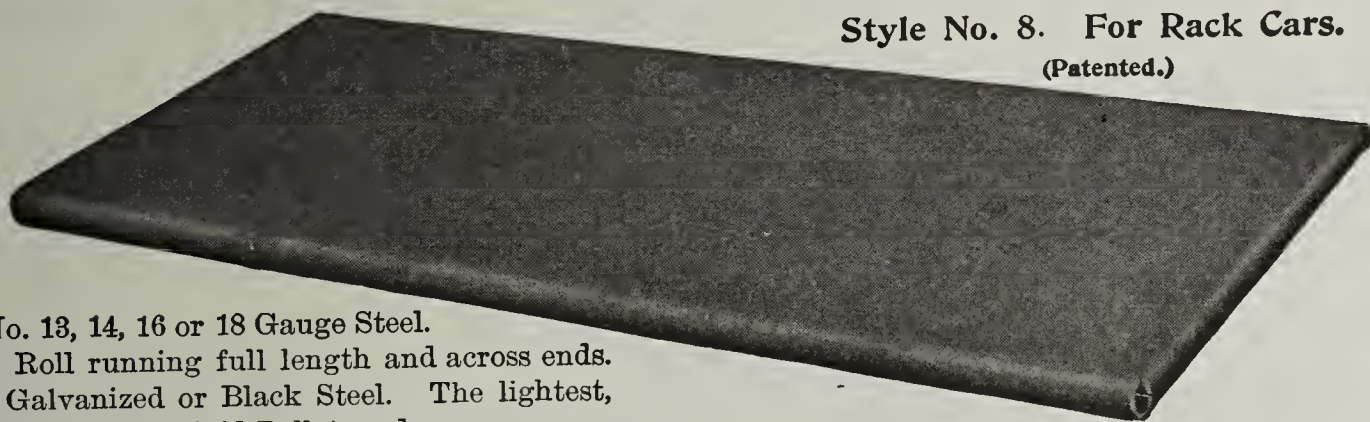
JUST THINK!

A continuous kiln that will save one-half your fuel and cheaper in construction than round or rectangular down draft kilns. Can be handled to produce the same results as round down draft kilns and use coal, wood, gas or oil for fuel. This kiln is in compartments, and the chambers can be made to hold from Fifteen to Fifty Thousand each of common brick. Is especially suited for burning paving brick and can be built any capacity, to suit any location. Say a plant that wants to make Fifty Thousand brick per day, the kiln will cost Eleven to Thirteen Thousand Dollars. Let me figure on your work.

GEORGE W. OGAN,
108 Logan Ave., DANVILLE, ILL.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



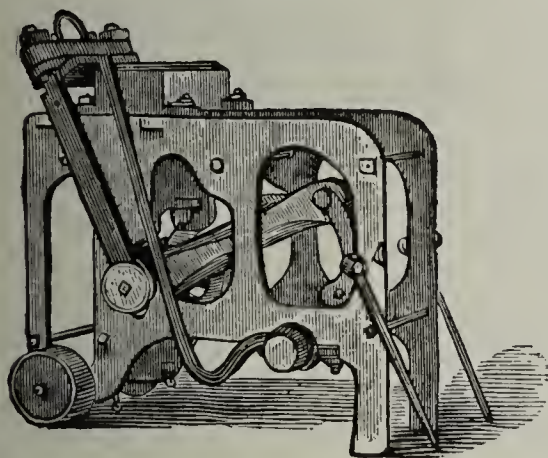
Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

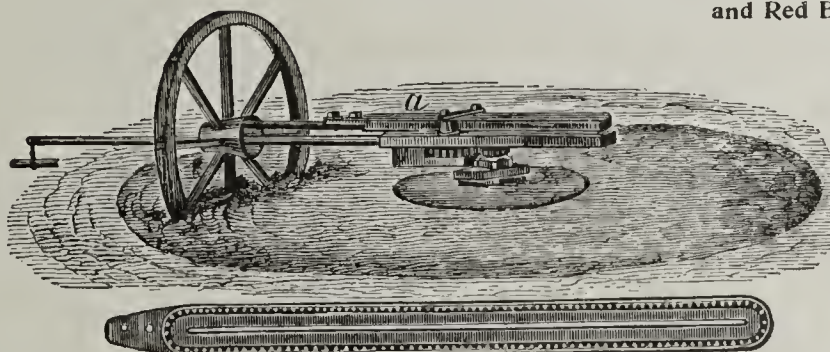
Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



RED BRICK PRESS.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.



If you want to stop your belting troubles and devote the time thus saved to increasing your business, use Leviathan belts for power transmission, off-bearing, conveying and elevating.

Our responsibility for the best and most economical service with each Leviathan belt extends beyond payment until it has made good to the full. We expect your confidence on this alone.

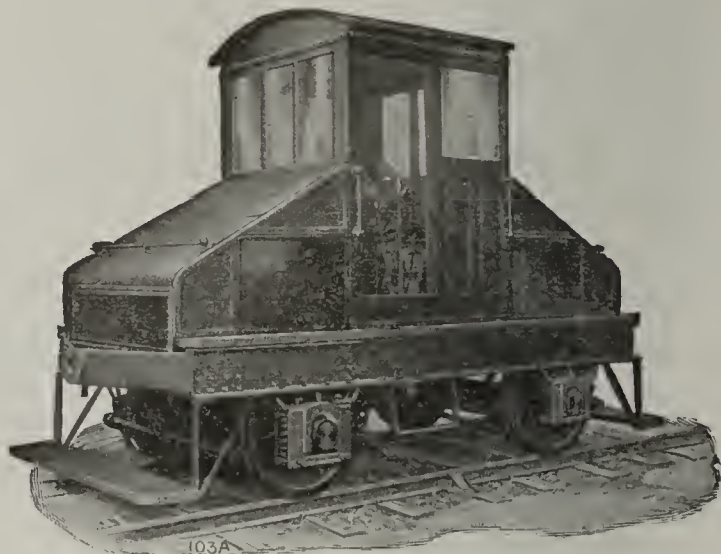
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Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

Gilbreth's "Bricklaying System" is a book whose 330 pages are filled with rules and hints for his foremen and bricklayers, designed to increase the output of the workmen and to enable men of moderate skill to do difficult work in the best manner. There are 73 charts showing different bonds, ornamental and plain, some of which would be exceedingly hard to execute were it not for the methods explained in the text. To the architect, 73 ornamental charts alone will prove of great value, for practically none of them can be found in any other book, and no other book has more than 8 different bonds.

Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

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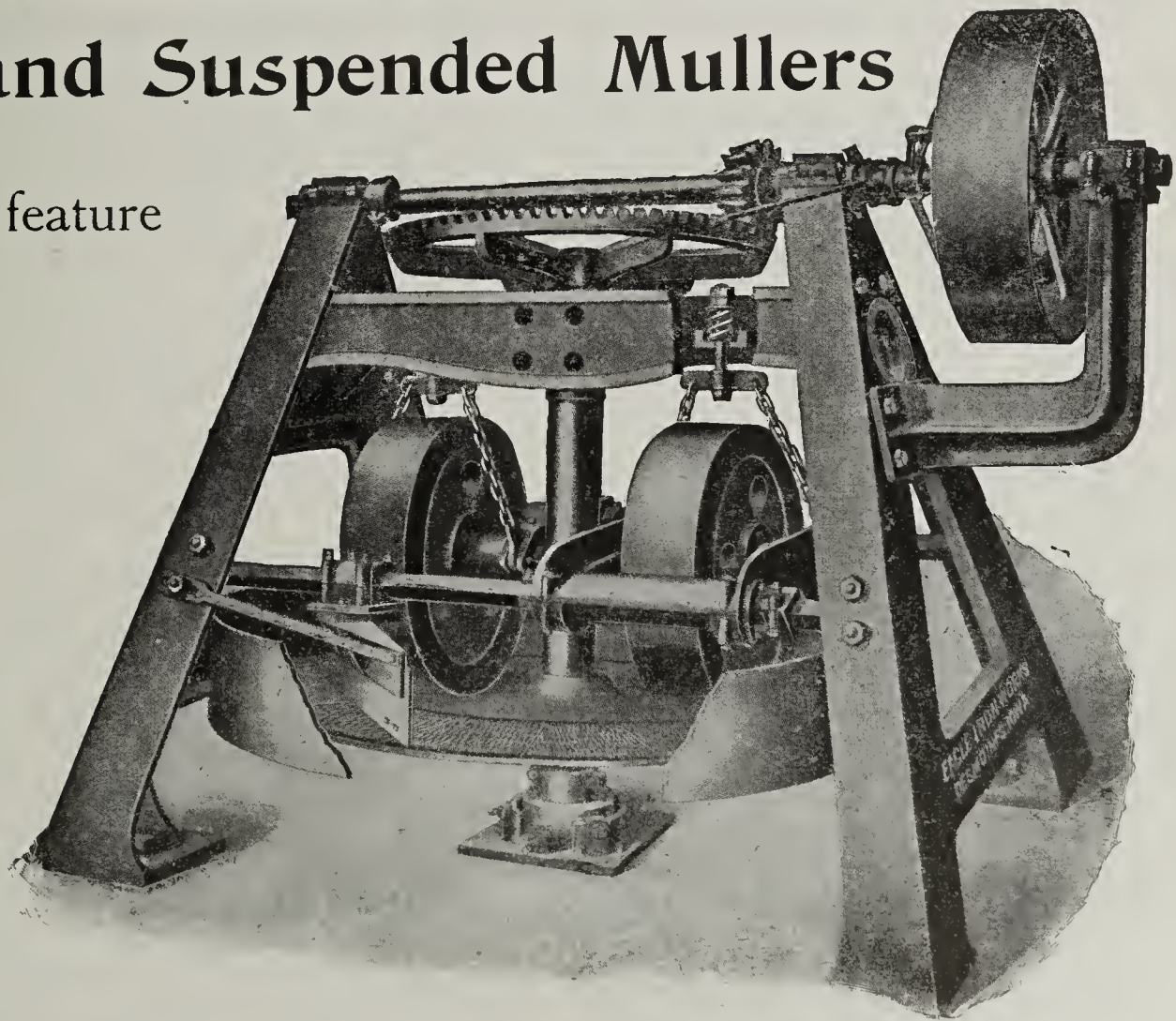
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Other valuable
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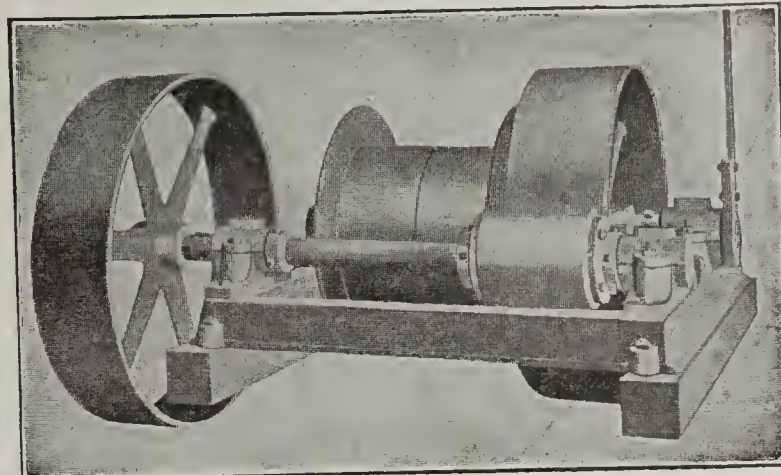
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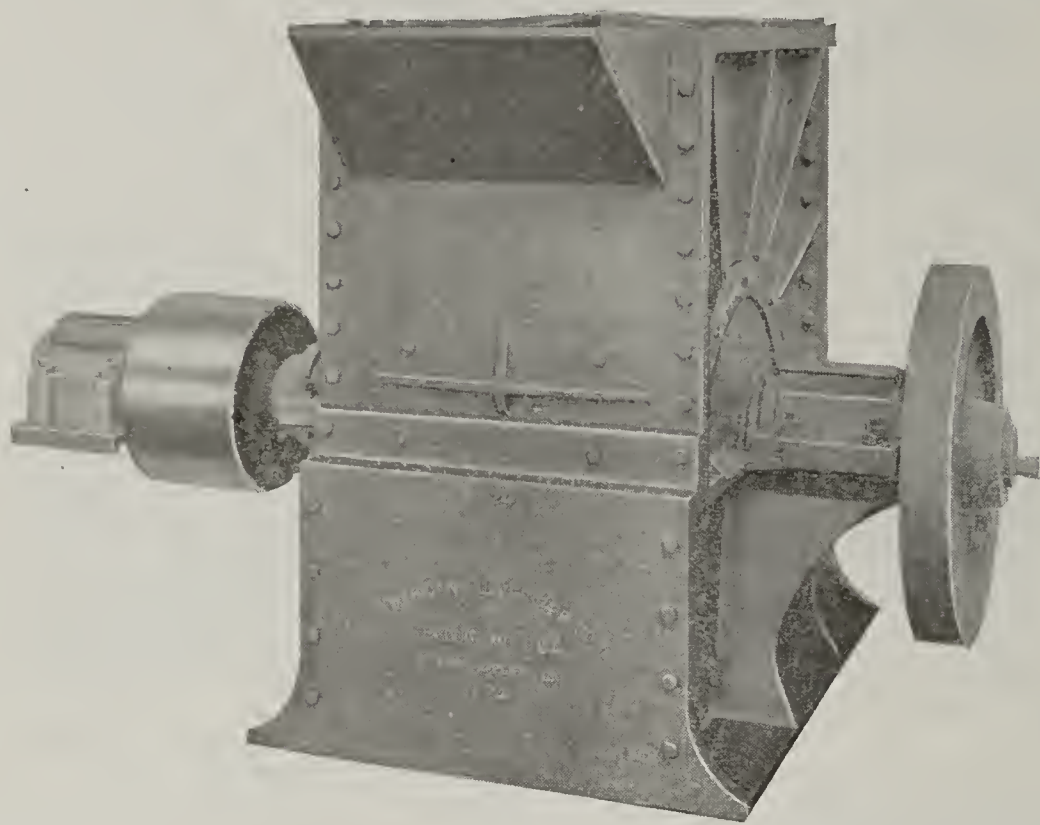
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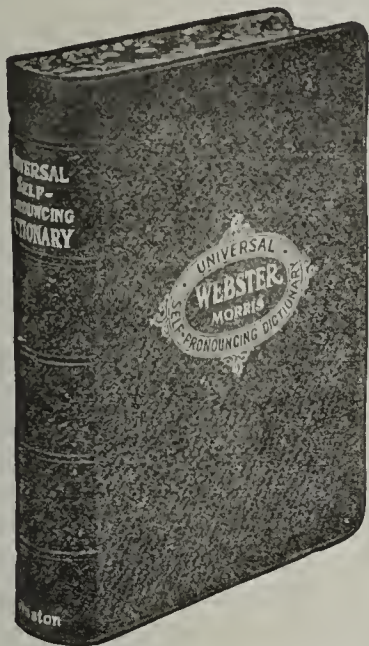
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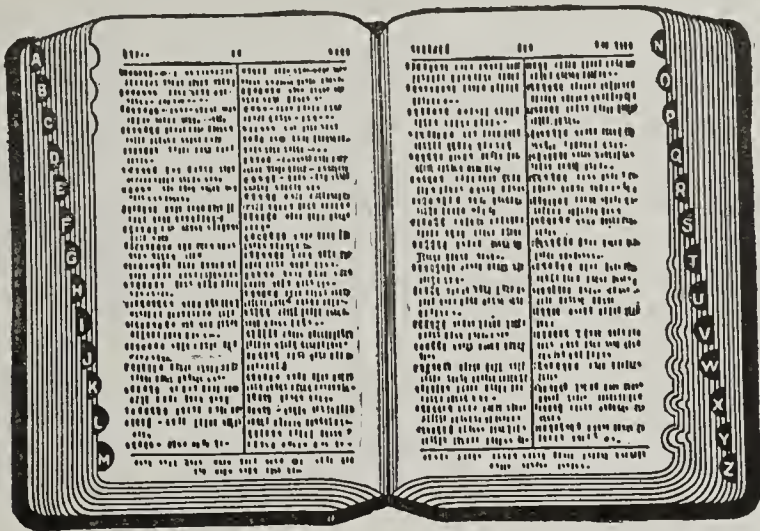
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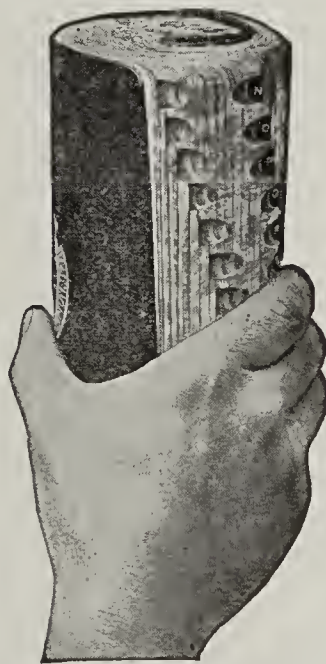
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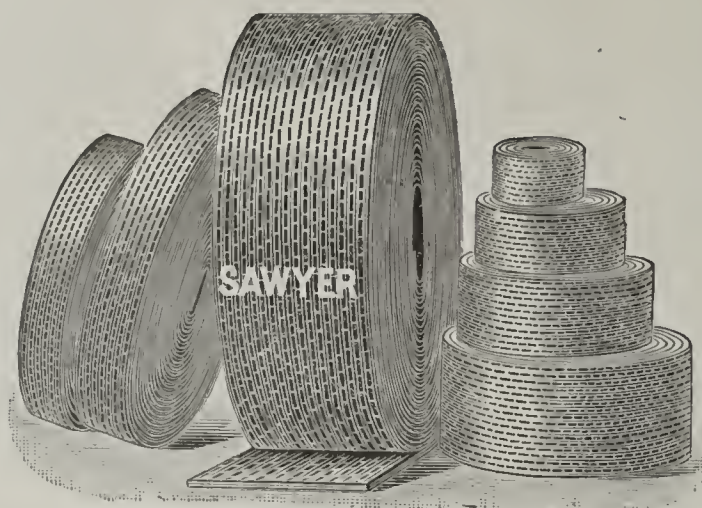
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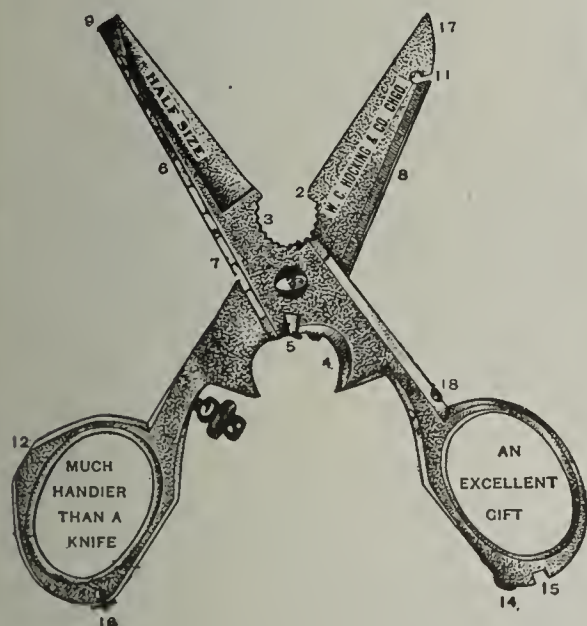
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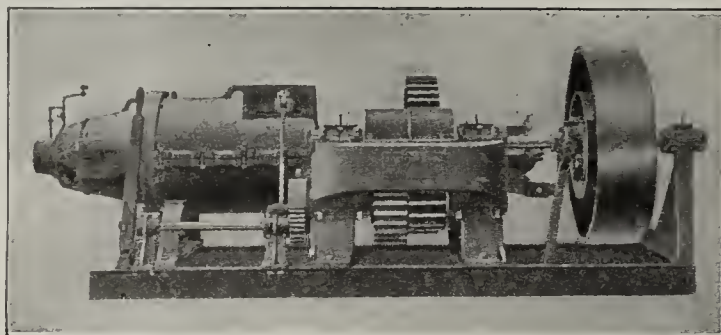
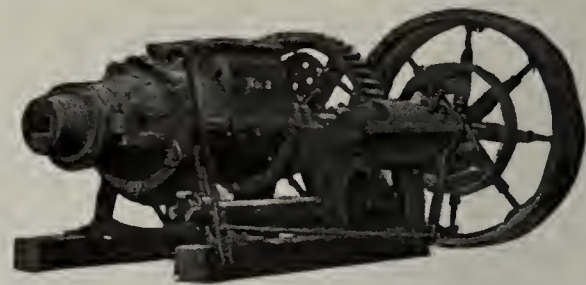
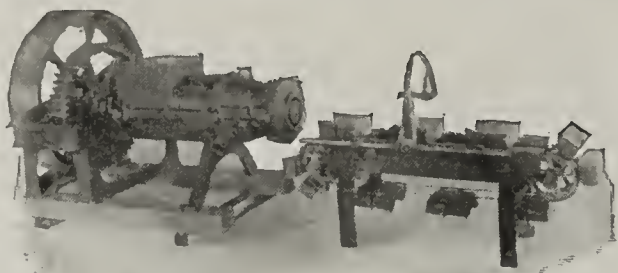
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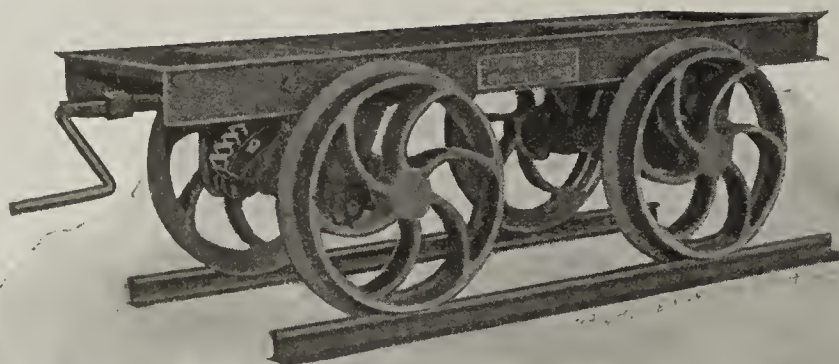
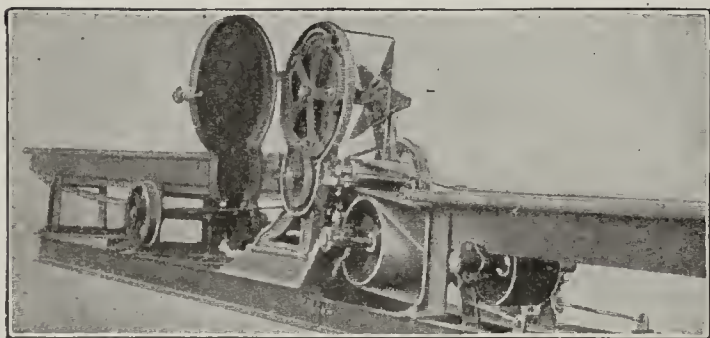
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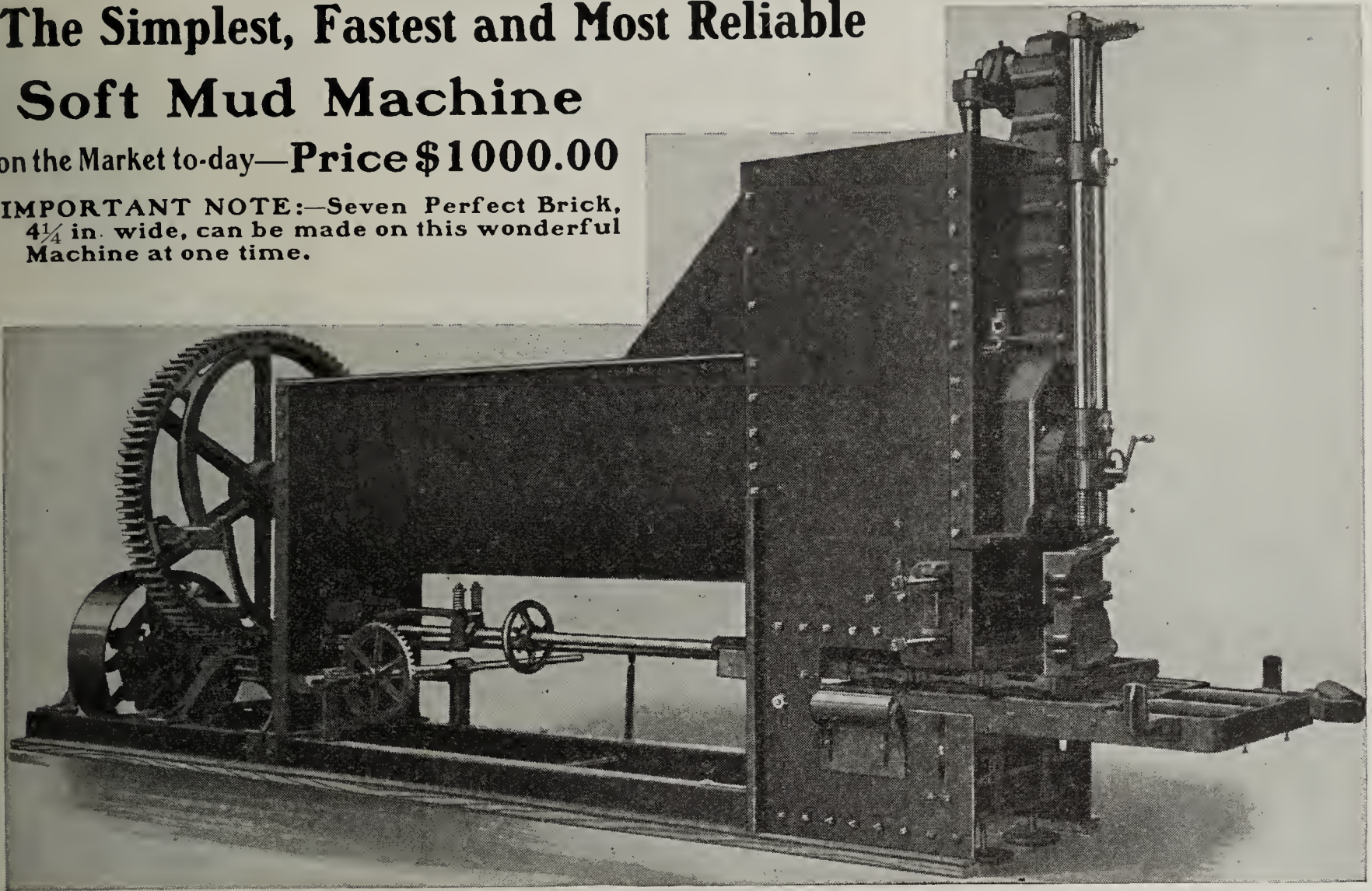
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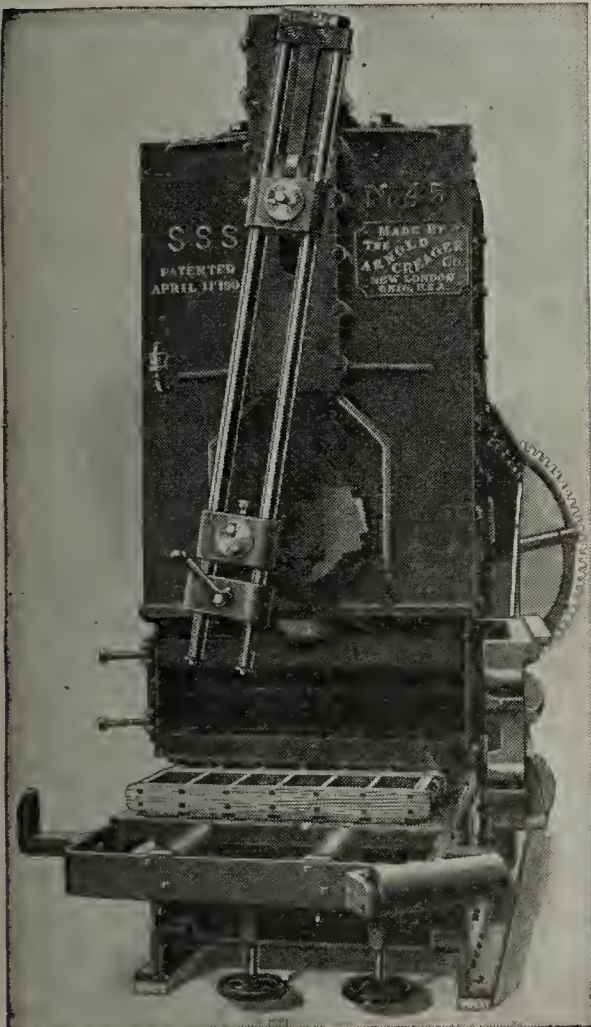
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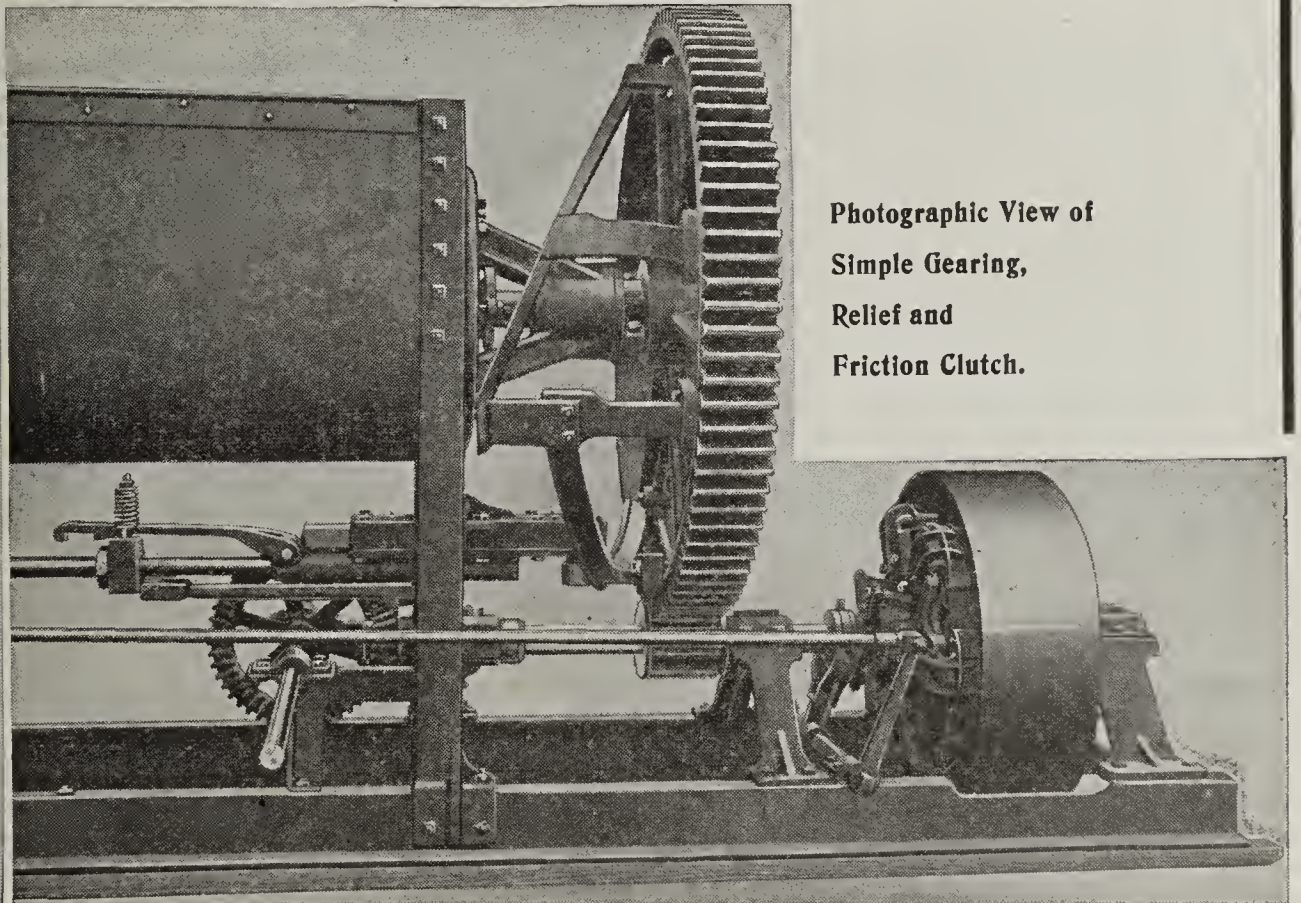
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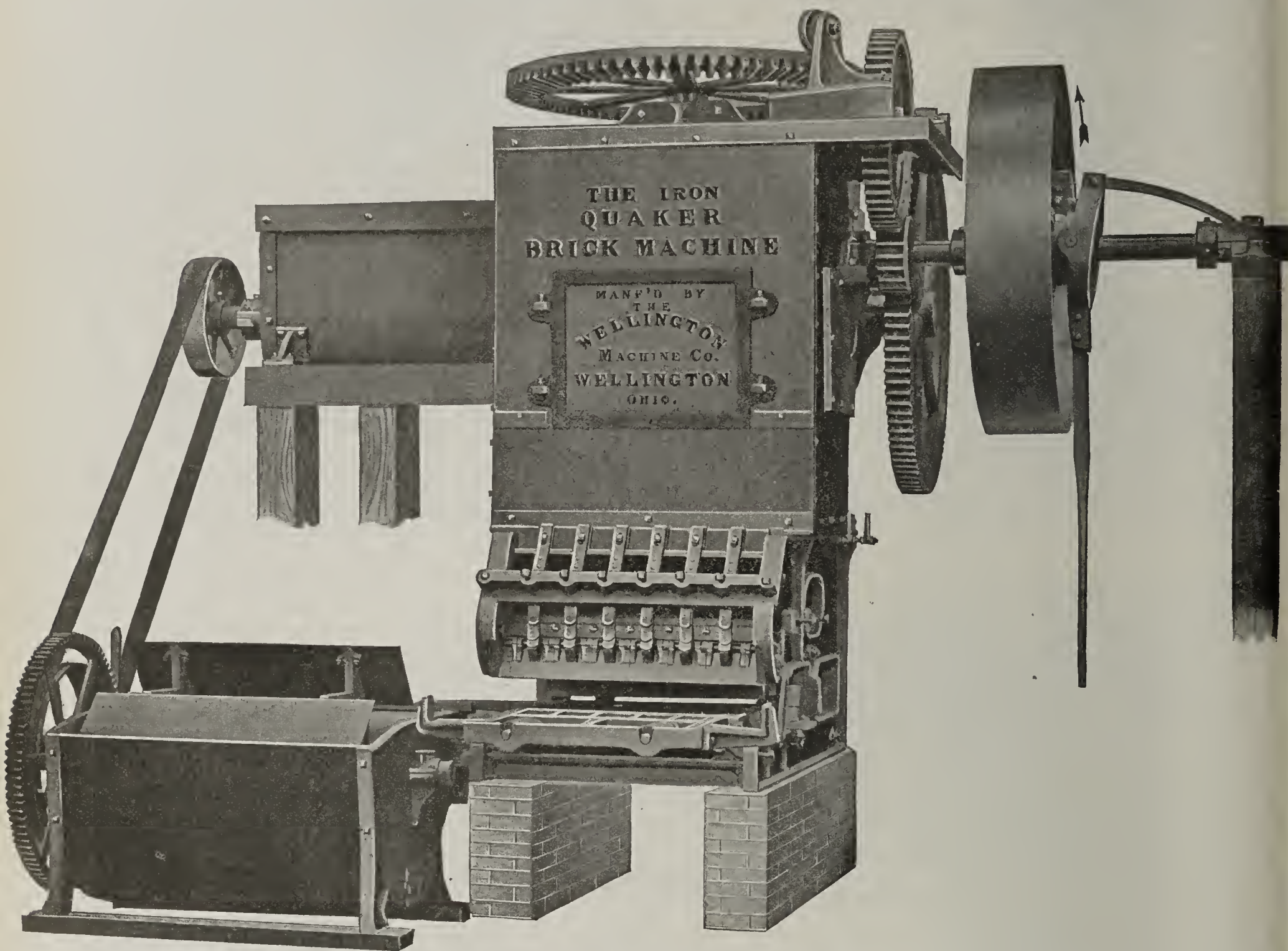
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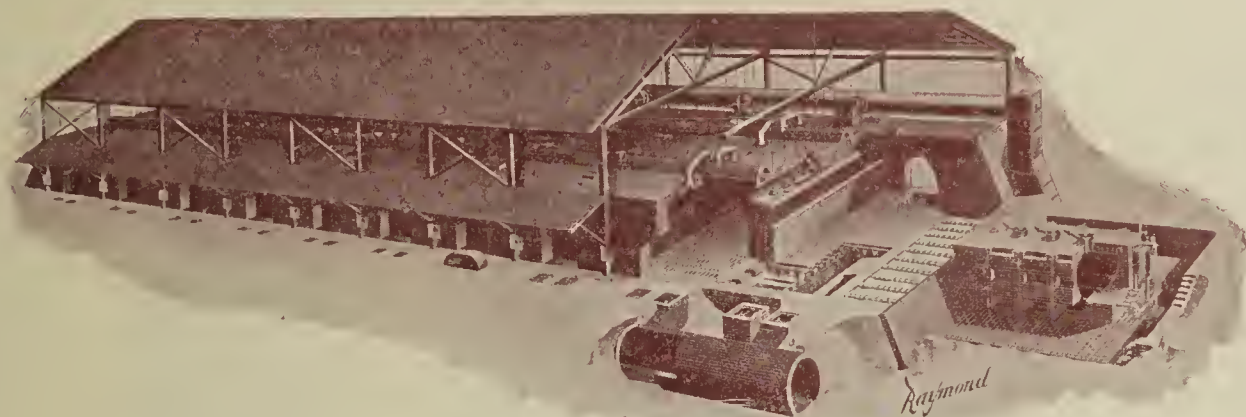
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WELLINGTON, OHIO

The Youngren Continuous Kiln Producer Gas Fired



OUR NUMEROUS installations of the YOUNGREN KILN are giving splendid results. On the strength of the proven results, we are now constructing these kilns in all parts of the United States. A saving of 60% of the cost of burning, combined with absolute uniformity of burn and minimum kiln losses makes this Kiln an absolute necessity to the up-to-date clayworker.

It is built in two types—COMPARTMENT or TUNNEL, and is successfully burning all classes of clay and all the principal products.

Literature fully covering the Youngren Kiln will be mailed on receipt of your request.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

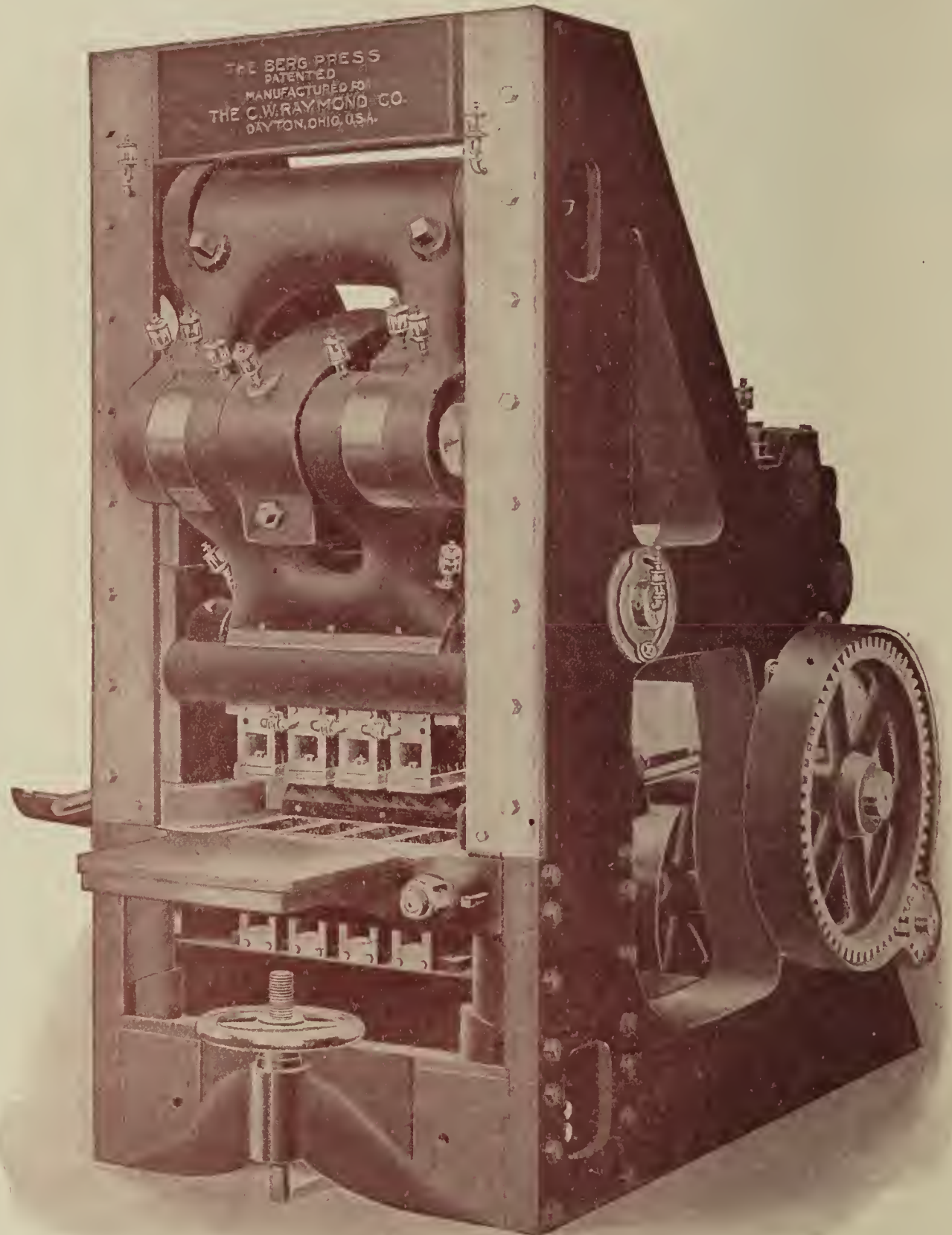
The Berg Dry Press

The New Model Berg Press is the acme of dry press construction. Stronger than ever, yet simple in its massiveness, it stands farther in advance of all other machines of this type than ever before.

Consider These Points:

- (1) Greater pressure and fewer working and wearing points than any other machine.
- (2) Brick with granulated surfaces absolutely impossible.
- (3) Self-contained—No out-board bearing.
- (4) All working parts above clay line.
- (5) Instantaneous adjustment, to take up wear of plungers, close to operator's hand.
- (6) Each press shipped complete in one piece.

Our Exhibit No. 2111
gives complete
details.



THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery
Dayton, Ohio, U. S. A.

THE RAYMOND "777" BRICK MACHINE

AND

THE RAYMOND No. 2 AUTOMATIC CUTTING TABLE

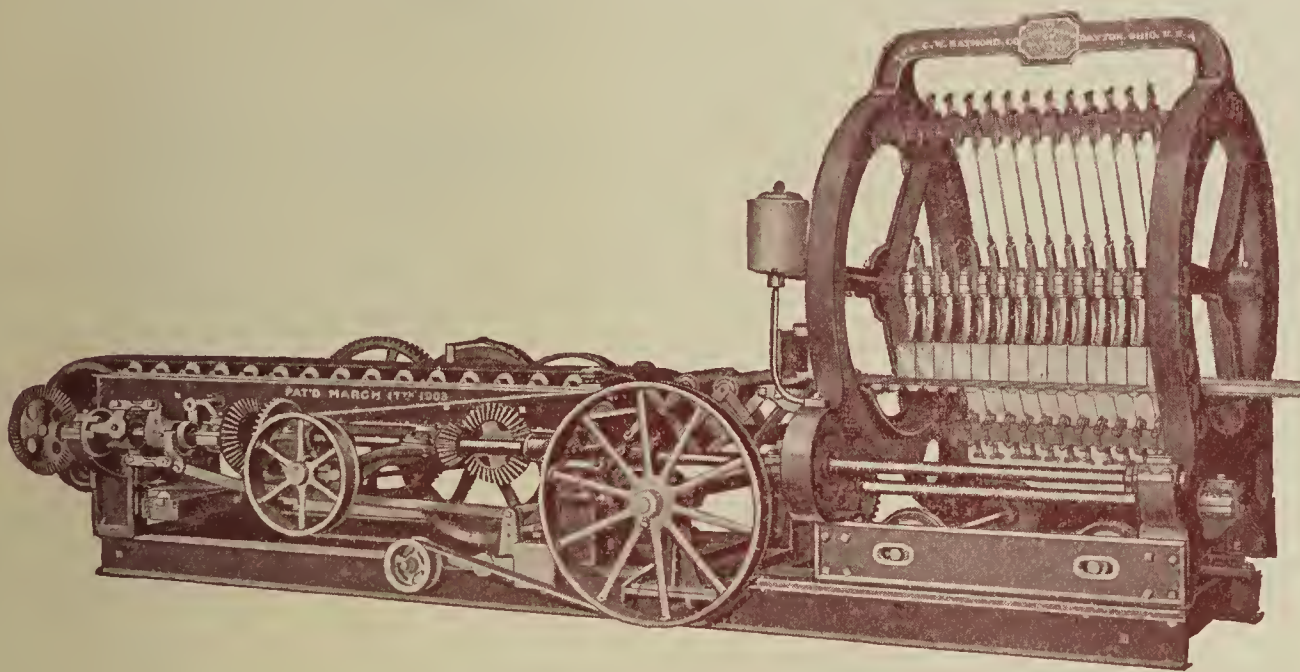
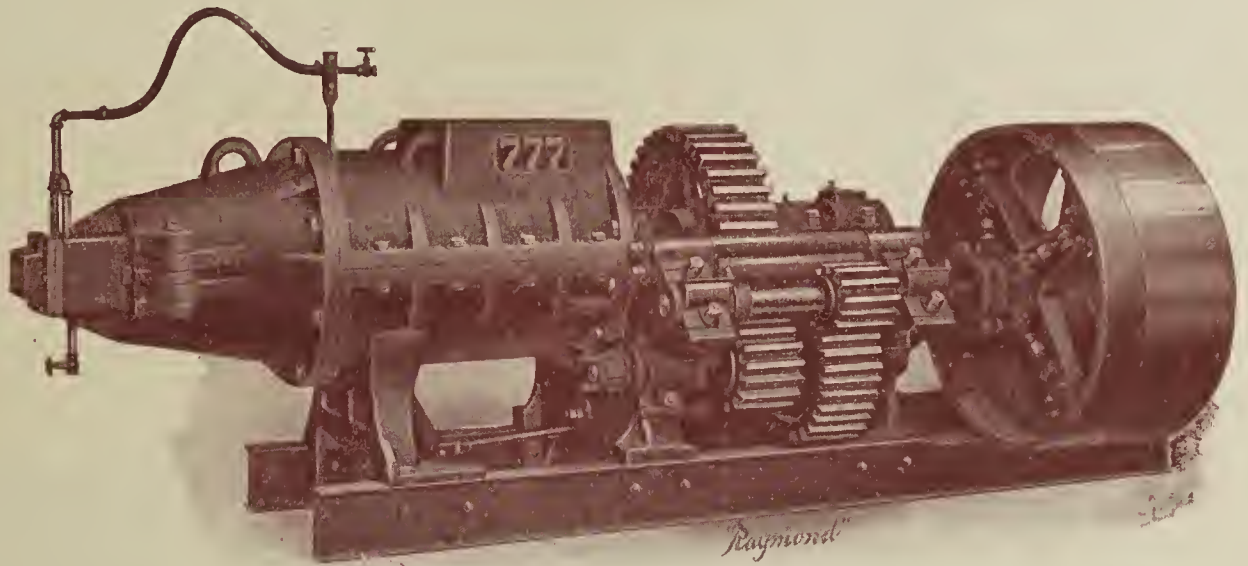
Our "777" is a brick machine of unapproached record. It will make more brick and better brick than any other machine of equal rated capacity.

Entirely self-contained and every part "Get-at-able."

A product of the best Engineering skill, it contains every desirable feature known to the modern clayworking machinery builder. Its capacity is 40,000 to 60,000 standard size brick per ten hours.

Our No. 2 Automatic Cutting Table is a step in advance of all other

machines on the market to-day. Working parts reduced to a minimum. The continuous motion of the reel makes it free from rack and jar. Its capacity is limited only by the brick machine.



Our Exhibits explain these machines fully.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The Raymond Radiated Heat Dryer



Are You Having Drying Troubles?

The Raymond Systems of drying clay products have been a boon to the clayworker with drying troubles.

Our Raymond Radiated Heat Dryer is simplicity itself—no fan or engine troubles—temperature and air circulation in each tunnel under absolute and separate control. Ware only in contact with pure air. Cars never in contact with gases or acids. Fuel cost per ton of dried ware less than in any other dryer.

The tenderest clays can be dried without injury, and the same successful results are obtained with every description of clay ware.

Exhibit sheets covering our Drying Systems sent upon request.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

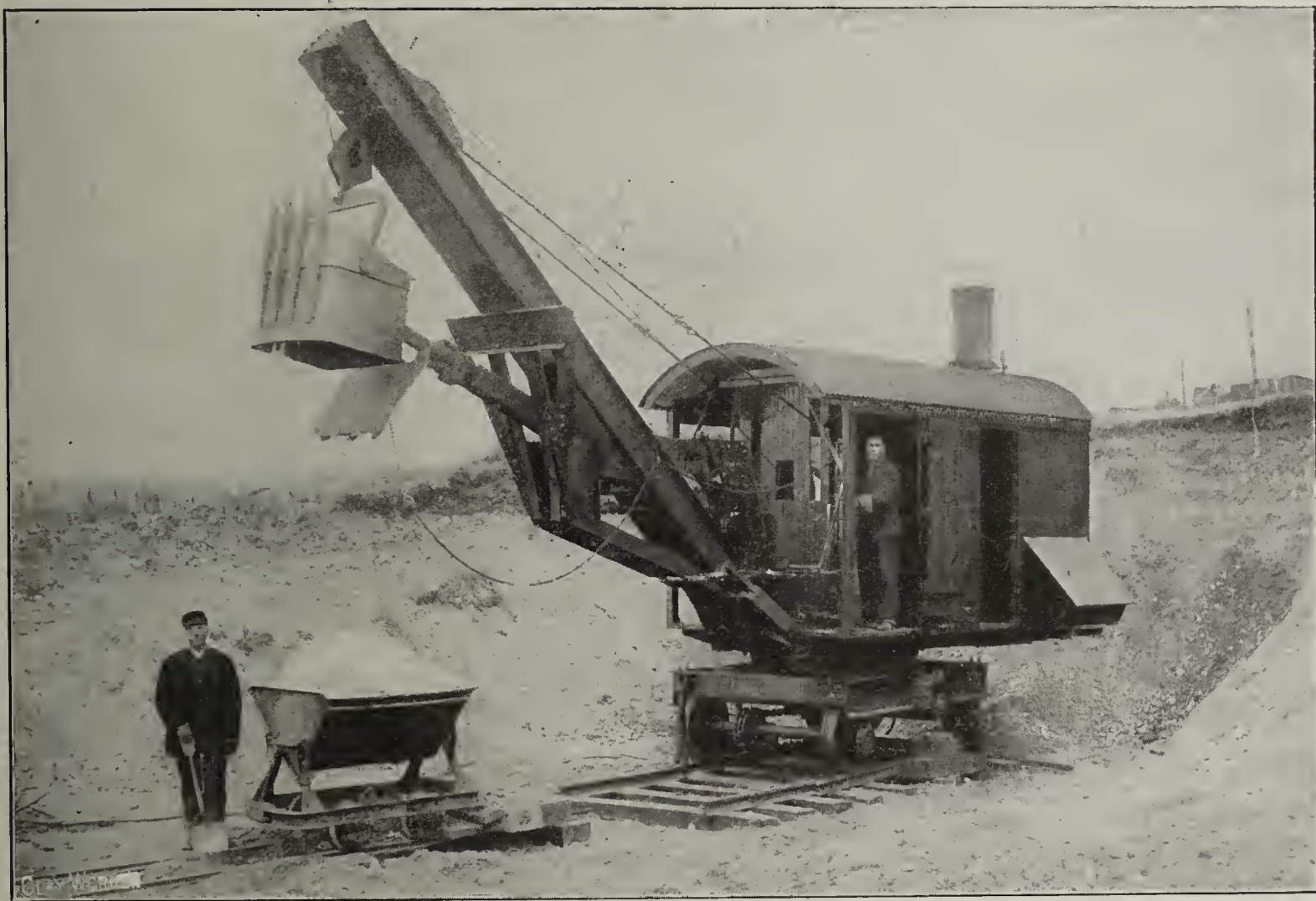
Dayton, Ohio, U. S. A.

Handle Your Clay With One Man and a THEW SHOVEL

For ten years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



A Typical Thew Shovel

ONE MAN OUTPUTS

Our 13 Ton Shovel with $\frac{5}{8}$ yard dipper will handle any ordinary clay for outputs up to 100 M brick.

Our 20 Ton Shovel with $\frac{7}{8}$ yard dipper will handle any ordinary clay for outputs up to 150 M brick.

Our 30 Ton Shovel with 1 yard or $1\frac{1}{4}$ yard dipper will handle any clay for outputs up to 200 M brick.

Our 40 Ton Shovel with $1\frac{1}{4}$ yard or $1\frac{1}{2}$ yard dipper will handle any clay for outputs up to 250 M brick.

Any of the above machines will handle double the output specified with a full working crew of engineer, fireman and two laborers on the ground.

WE BUILD

SPECIAL SHOVELS FOR SHALE

Our 35 Ton Shovel with $\frac{3}{4}$ yard dipper is suitable for all ordinary shales up to 125 M brick per day.

Our 50 Ton Shovel with $1\frac{1}{4}$ yard dipper will handle any shale you may encounter.

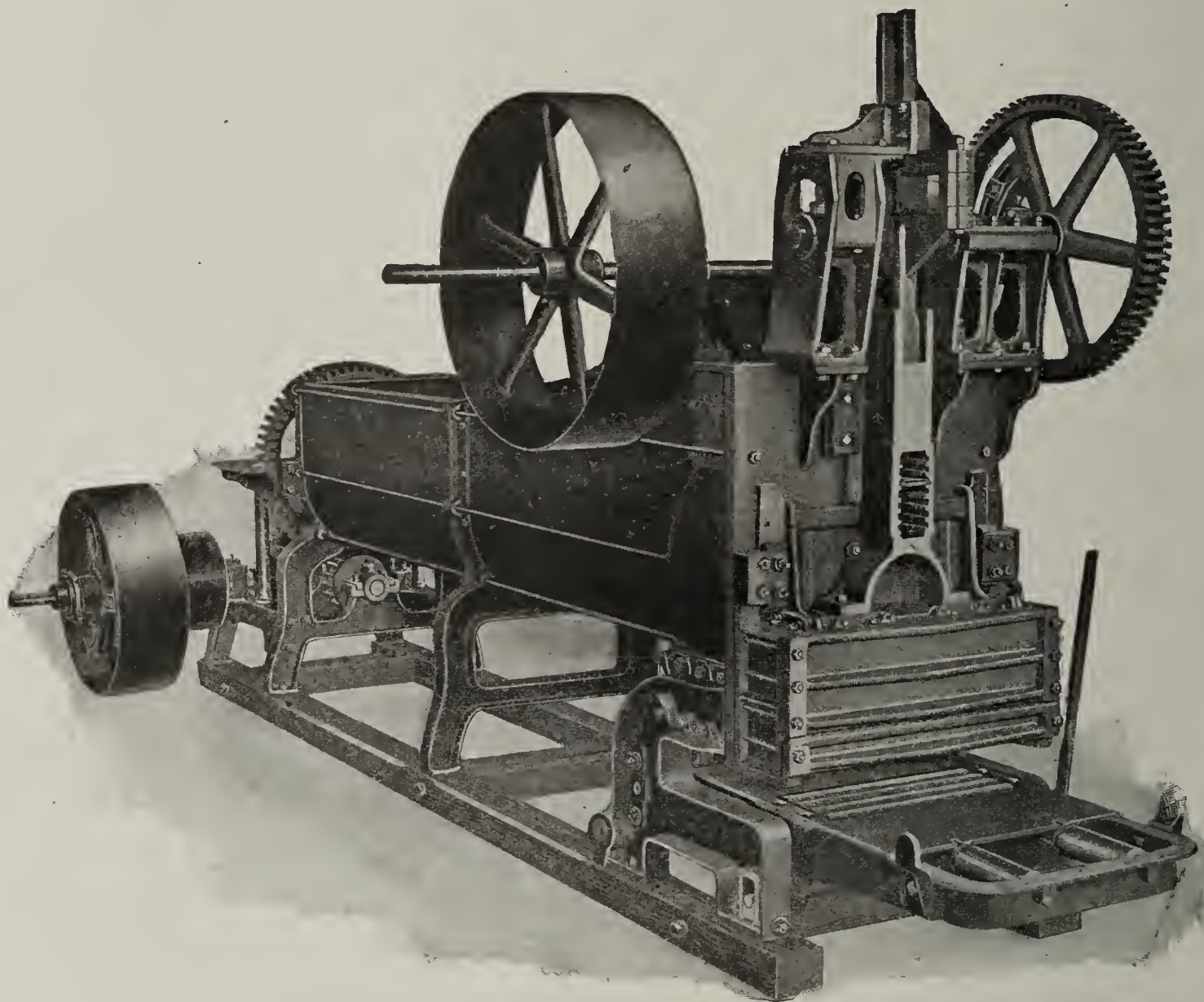
We can give you high lift booms if desired.

We equip with electric motors if you wish.

Write for information.

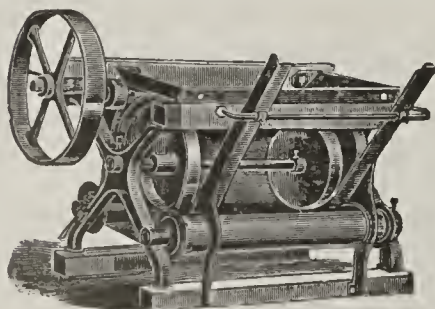
THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

The Potts Sand Mold Horizontal Machine



THE ONLY MACHINE HAVING CAST STEEL GEAR
THE BEST CONSTRUCTED MACHINE MADE

A machine well built, of the best material, by skilled workmen. You cannot make a mistake in purchasing this machine. It cannot be equaled for quality and quantity of brick made. It will run steadily every day, making a given number of brick with little or no cost of maintenance.



POTTS MOLD SANDER

We manufacture the most complete line of SAND MOLD machinery, and are prepared to erect modern and up-to-date plants of any desired capacity, guaranteeing results.

WRITE FOR PRICES

C. & A. Potts & Co.

INDIANAPOLIS, IND.

Brickyard Accessories

DISINTEGRATORS having
Chilled Rolls, Steel Cutting Bars,
Steel Shafts, Ring-Oil Journals,
up-to-date in every way.

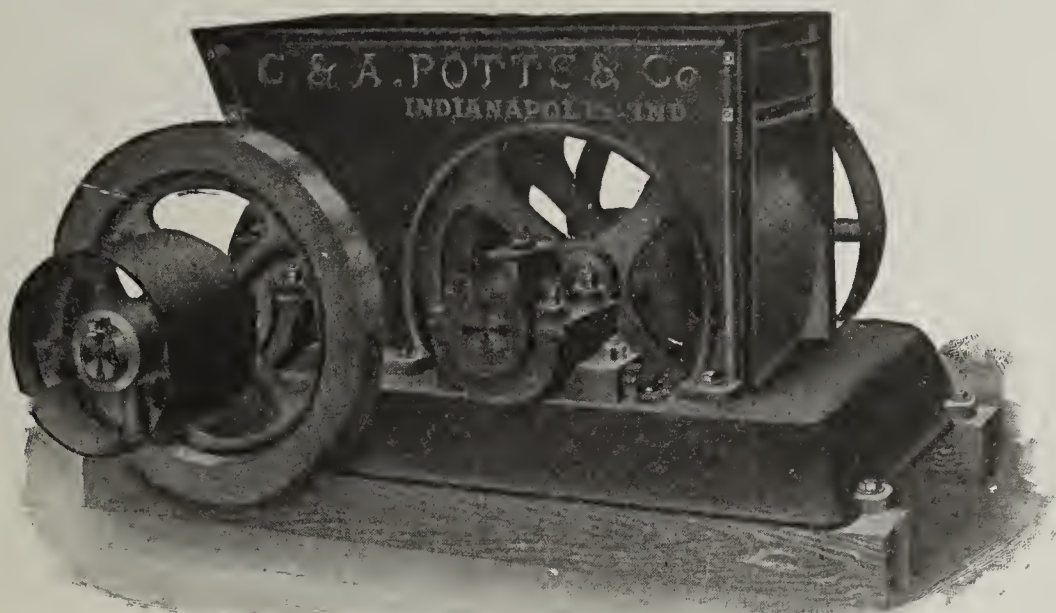
GRANULATORS or Feeders,
two styles.

PUG MILLS, any size or capacity
desired.

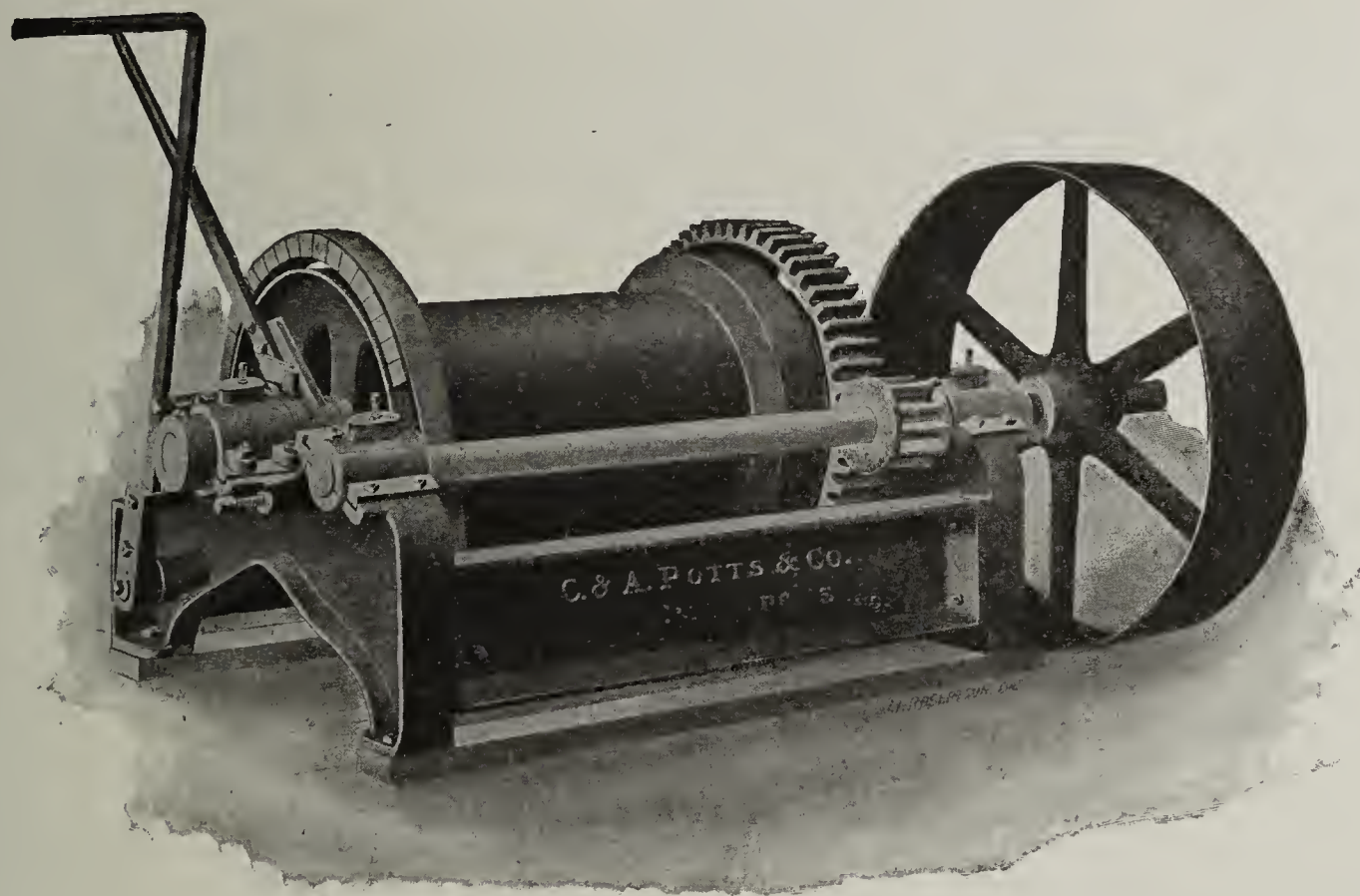
CLAY CARS, side or bottom
dump.

ELEVATORS, any width or
length desired. ✓ Sand Dryer,
Trucks, Barrows, Molds, Mule
Trucks.

WIRE ROPE CONVEYORS for Dryer or Rack and Pallet Yards.



A Money-Maker: *The Best Winding Drum, all iron and steel, has powerful friction.
Self-contained, either spur or bevel gear, to suit any location. Try one.*



For accessories you will get your money's worth from us every time.
Write for Catalog and prices.

C. & A. Potts & Co.

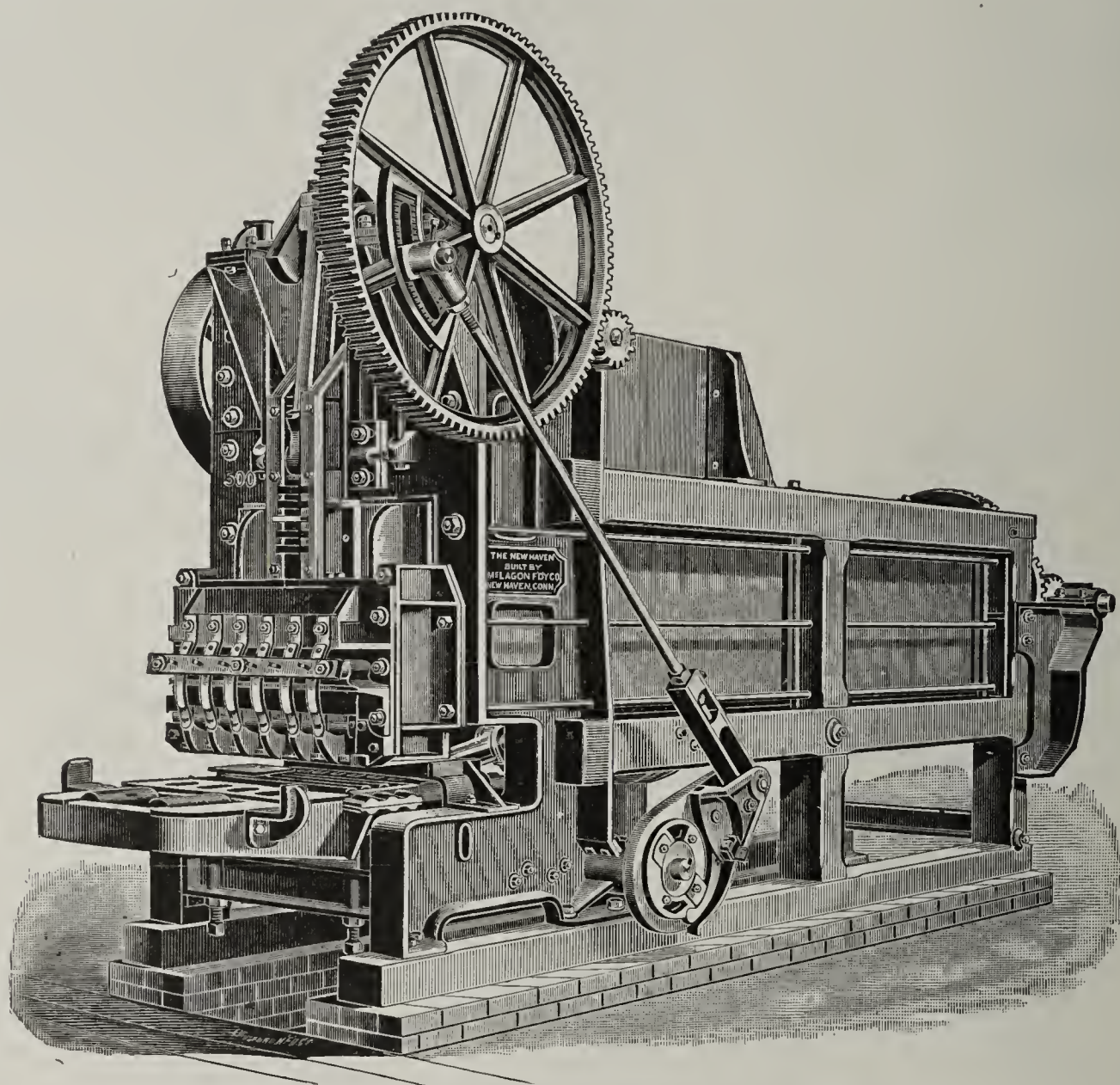
INDIANAPOLIS, IND.

Mention THE CLAY-WORKER.

Endurance the Crowning Quality.

The "New Haven" Horizontal Brick Machine is the Strongest Soft Clay Brick Machine in the World.

It is adapted to work any clay and is suitable for any yard, large or small, that uses steam for motive power. The brick made on it are solid and square, having smooth surfaces and sharp corners. For **Quantity** and **Quality** of production we challenge comparison with any machine built. The capacity of the machine is really limited only to the facilities for handling the brick as they are made.



"NEW HAVEN" HORIZONTAL BRICK MACHINE.

We will be pleased to submit estimates for a complete plant or any portion of one. We can furnish machinery of the most modern and approved construction for soft mud plants of any capacity at reasonable prices. Shafting, hangers, bearings, pulleys, gearing and machine work of all description.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terracotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of Vitrified Paving Brick.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport,

Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen, and enable them to do difficult work in the best manner.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

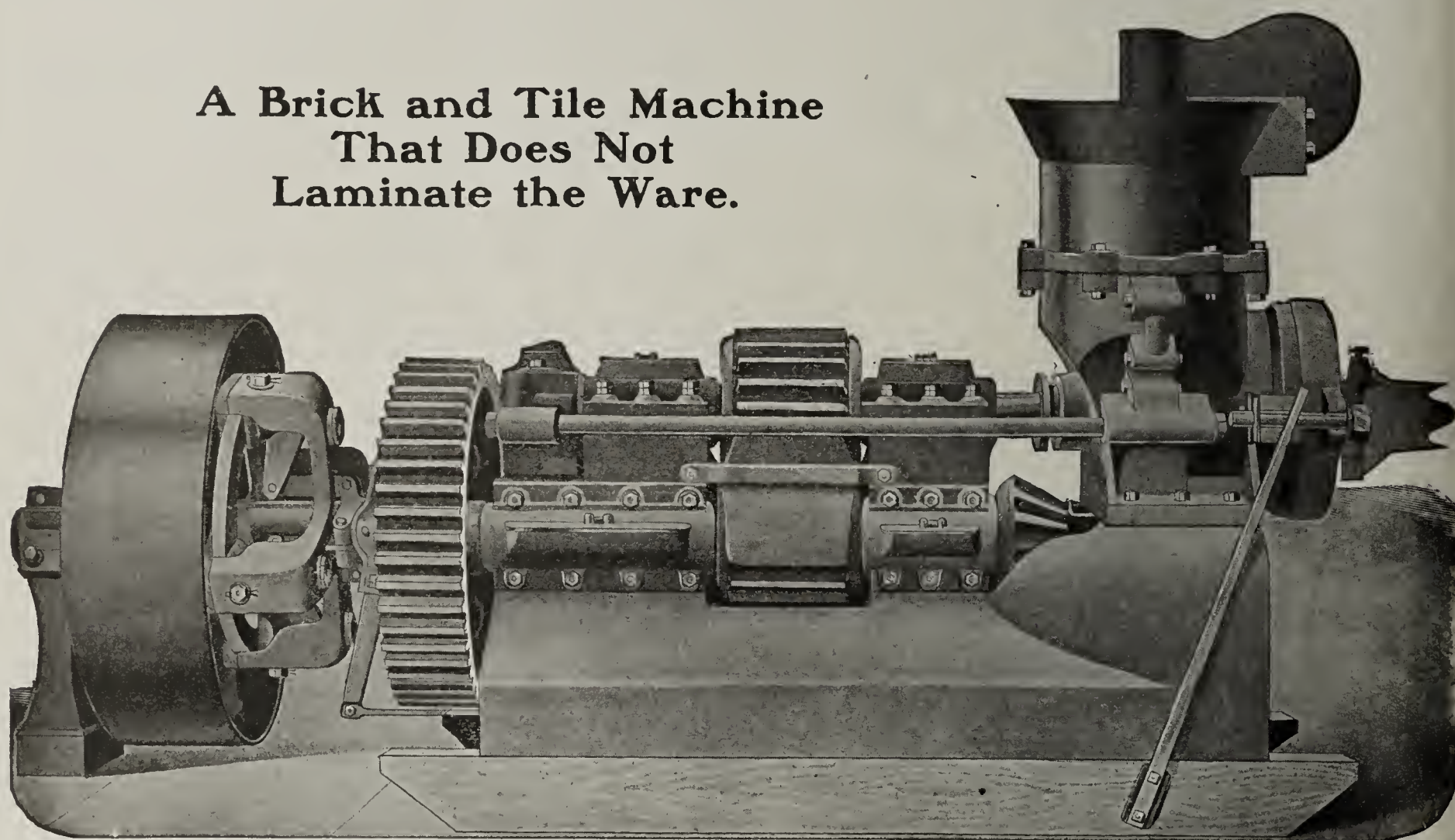
T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

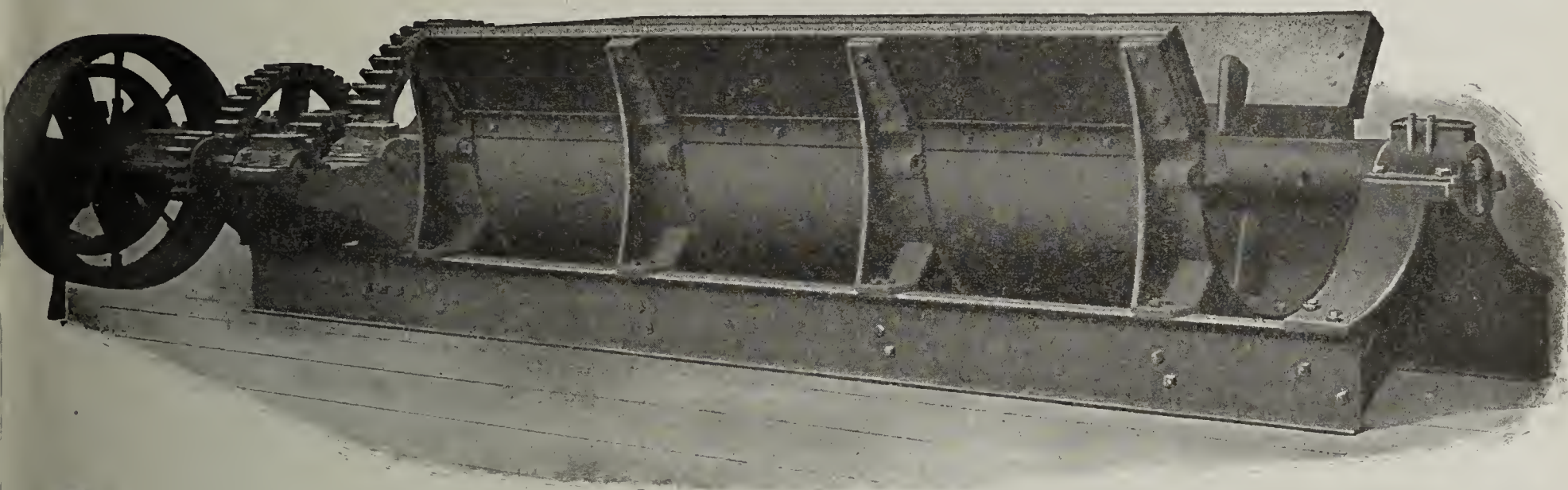
Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.



GRANULATORS

Too many plants are running without Granulators, but it isn't our fault. We have them in large, small and medium sizes, spur and bevel geared drives, pushing and pulling patterns. A Granulator to suit every plant. Something into which you may dump a carload of clay, and from which you may get a uniform delivery with large lumps reduced to a size which the machine ahead can handle.



THE BREWER NO. 17

is a spur-gearred pushing granulator of the large size. It weighs 18,000 pounds. The tub is 12 feet long. The granulating shaft is 10 in. diameter. The knives (48 of them) are forged from hard, high-carbon steel, and each one is independently adjustable for pitch. The back thrust bearing is of the grooved marine pattern. The main gears are 8-in. face, semi-steel. It is big and strong enough for anybody.

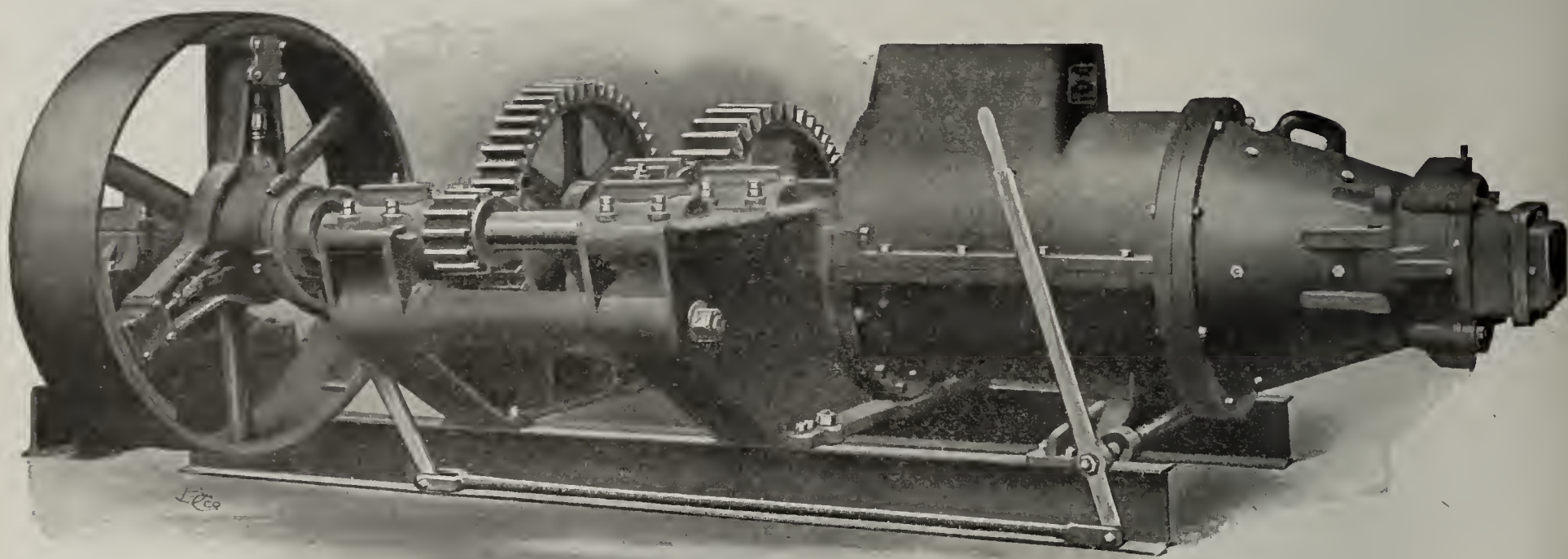
The smaller sizes range down in weight to 5,000 pounds.

See our catalog for details and specifications.

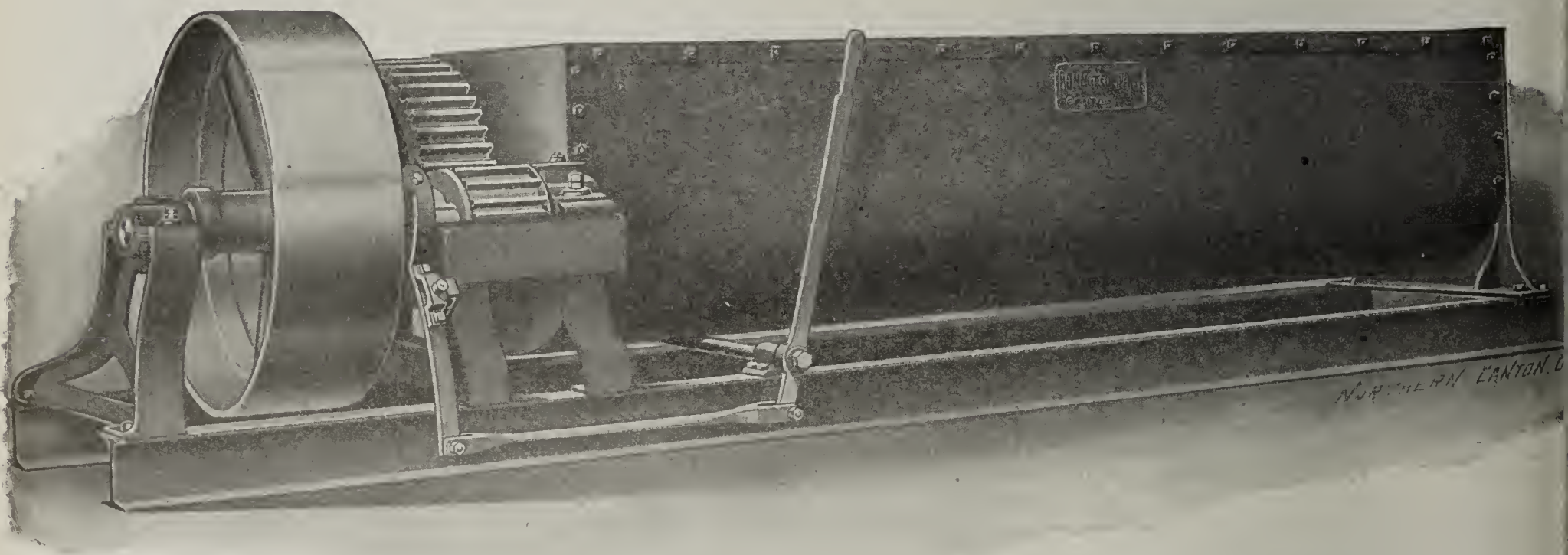
It will be mailed upon receipt of your request.

H. BREWER & COMPANY, Tecumseh, Mich.

Bonnot Machinery for Satisfactory Service



Auger Brick Machines for 20,000 to 125,000 daily Capacity.



Pug Mills, all iron and steel, in various sizes and lengths. Constructed for heavy service.

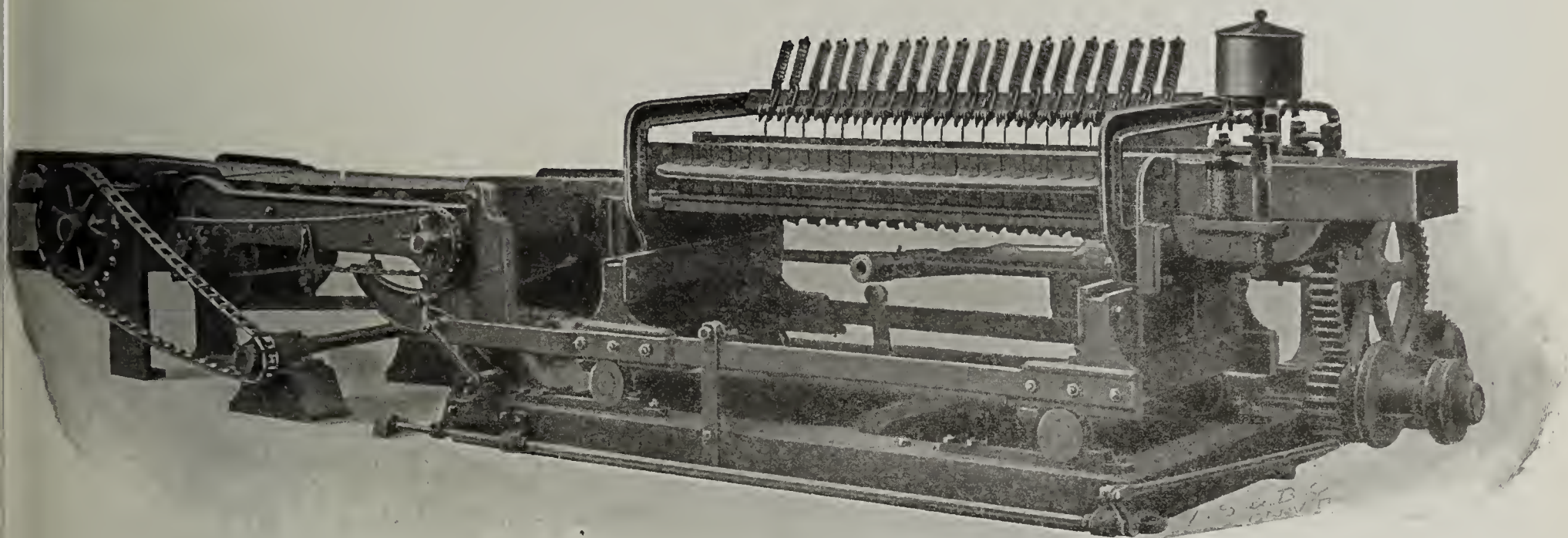
THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

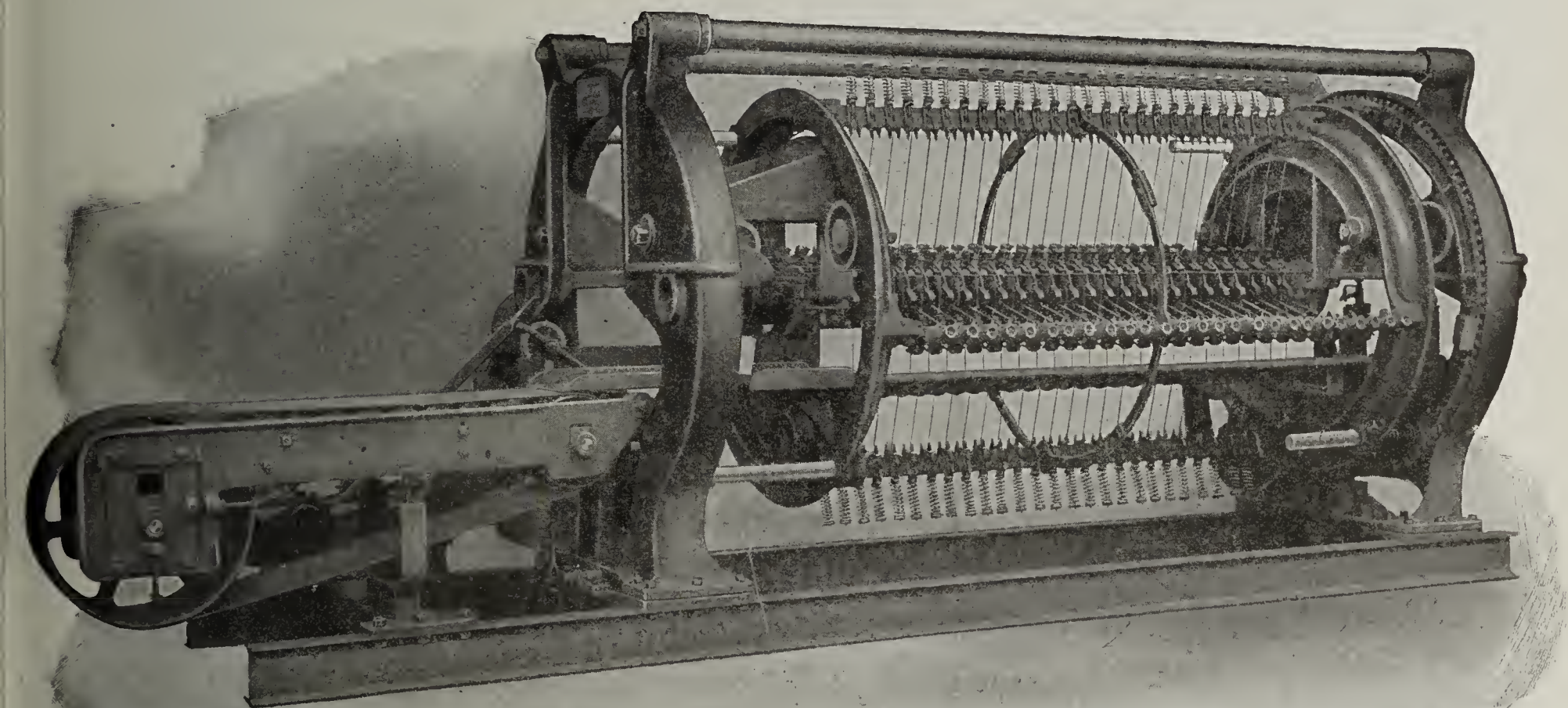
CANTON, OHIO

Mention THE CLAY-WORKER.

Cutting Tables=A Variety of Styles and Sizes



The simplest in construction of side-cut automatic tables. Used by some of the largest brick manufacturers in this country.



A Rotary Automatic which cuts brick 30 inches from the die. No long column of clay to make trouble. No wearing parts underneath to clog with dirt. No friction or other troublesome devices.

THE BONNOT COMPANY

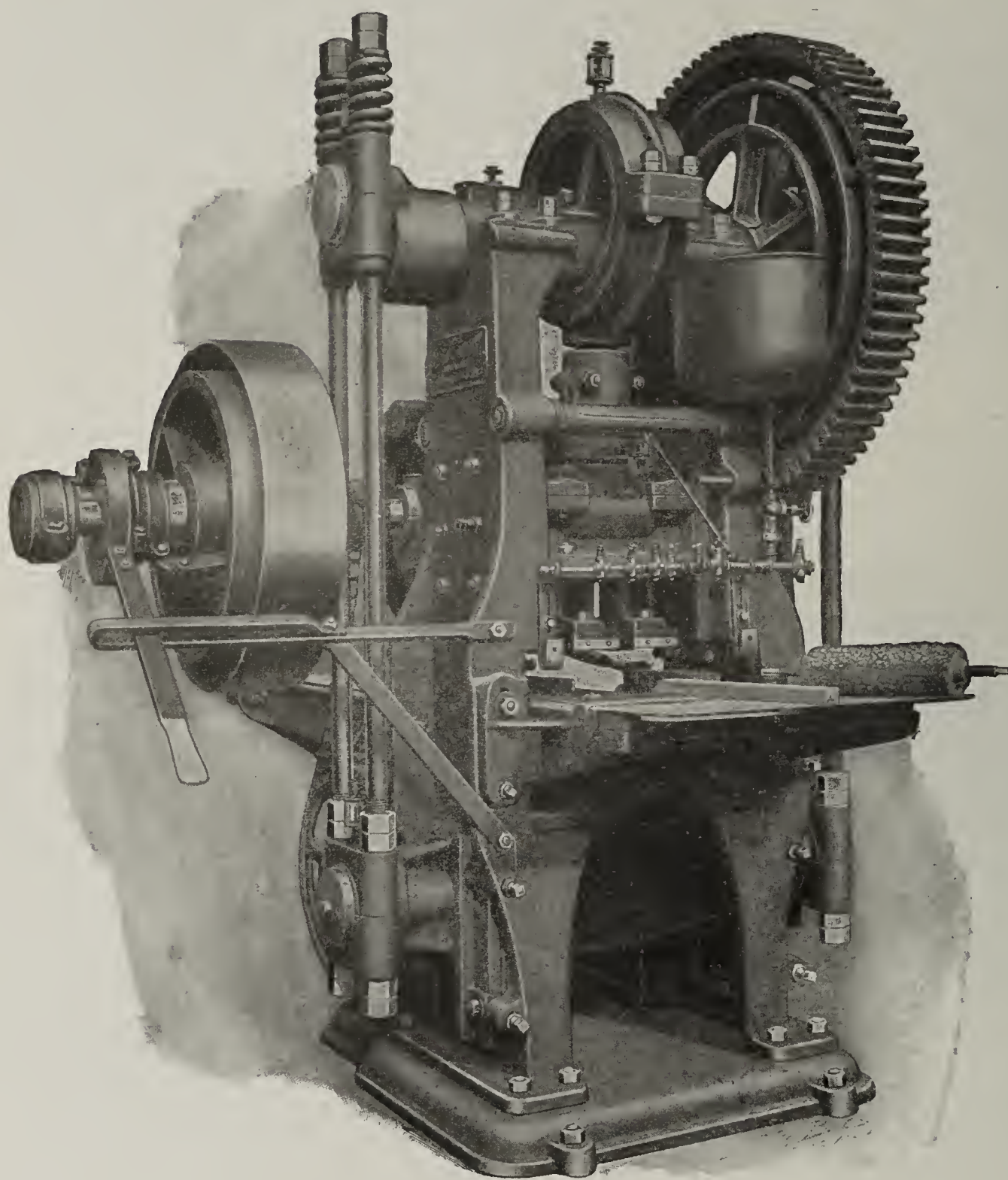
909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.

Canton Repress=Ask Those Who Use It

Follow the experienced manufacturers of clay products,—
They use "Bonnot" Equipment.



Capacity 20,000
to 25,000 brick
in 10 hours.

Generally
conceded by
clayworkers
to be the best
repress built.

Continuous
motion.

No links
or toggles.

Wearing parts
out of the dirt.

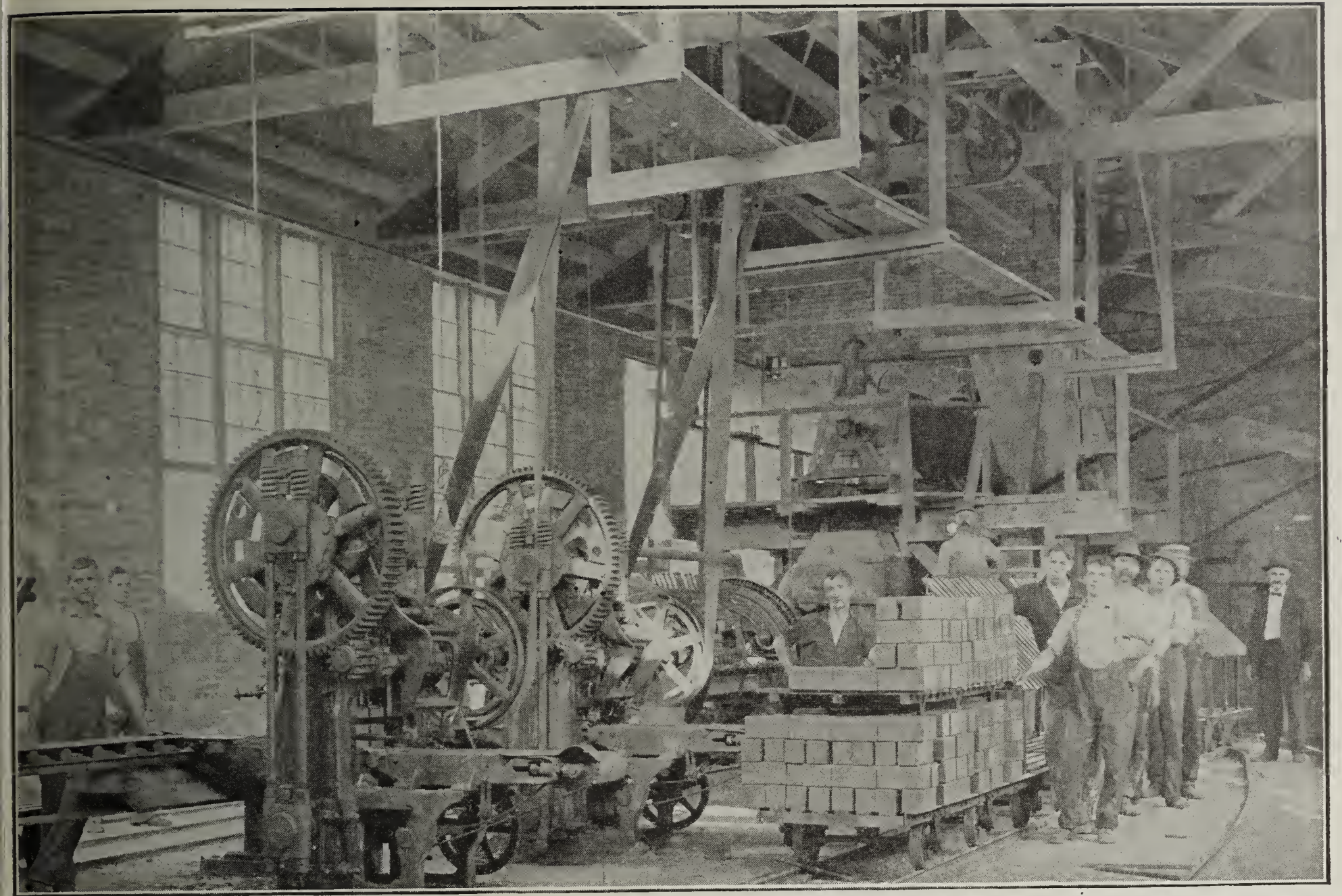
The "Canton" Repress.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



View of Machine Room—The Harris Brick Company, Zanesville, Ohio, Containing No. 12 Machine with Cut Steel Gearing, Rotary Automatic Cutter, "C" Open Pug Mill and two Canton Represses.

HARRIS BRICK COMPANY

Manufacturers of

VITRIFIED SHALE BRICK

CINCINNATI, OHIO, Feb. 1, 1911.

The Bonnot Company, Canton, Ohio:

Gentlemen—About a year ago at the Convention at Pittsburg, after full investigation, we placed our order with you for machinery for our new plant at Zanesville, and after operating for the past season, we want to assure you that we are well pleased with our selection, and the treatment we have received from your Company has been absolutely satisfactory.

Yours very truly,

HARRIS BRICK COMPANY,

F. Lawson Moores (Signed),

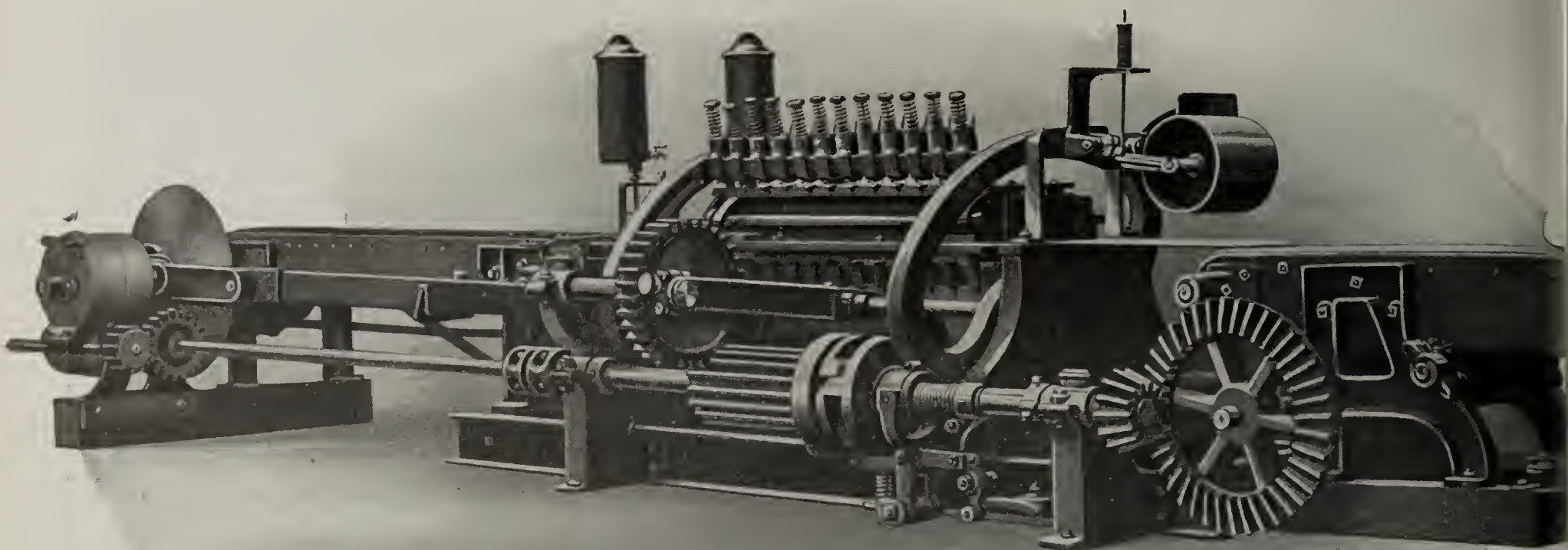
President.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

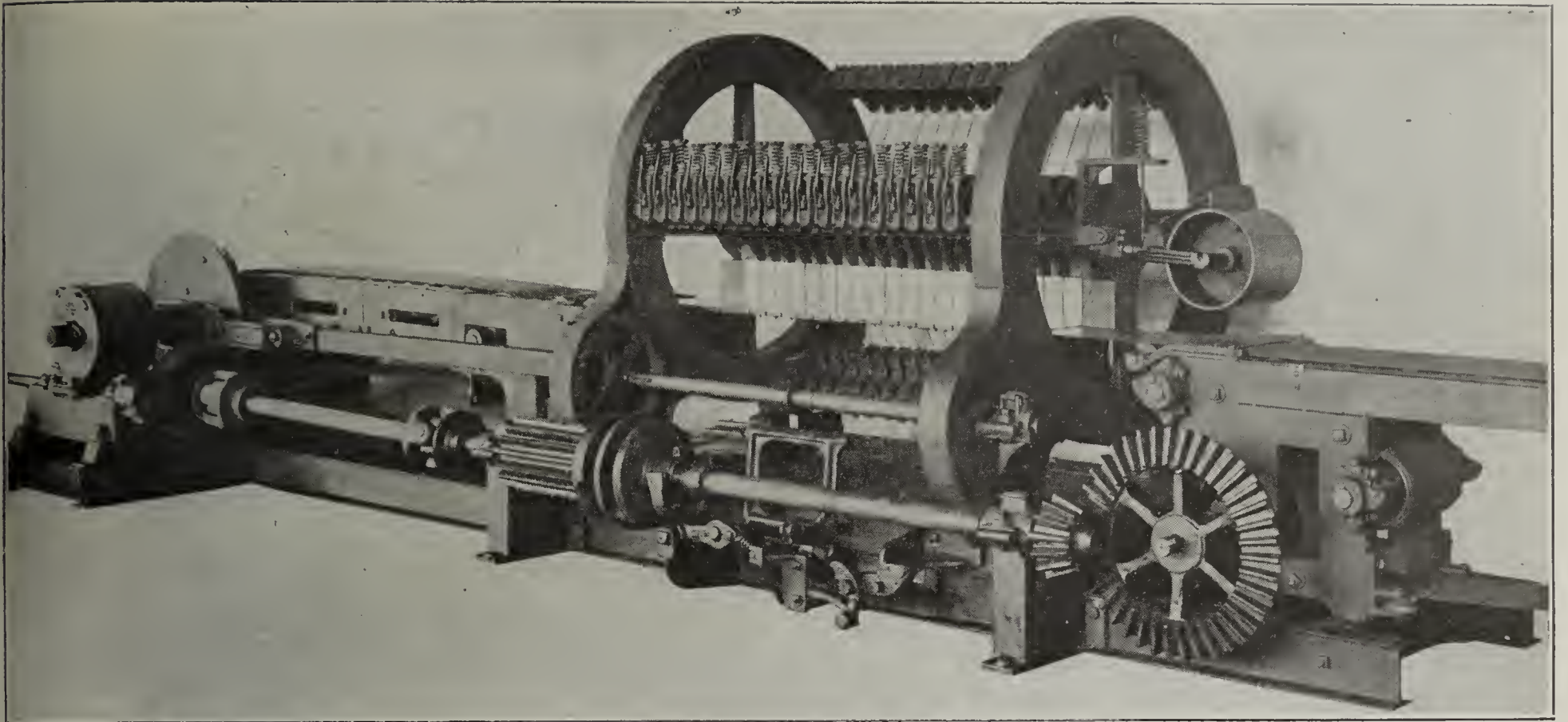
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

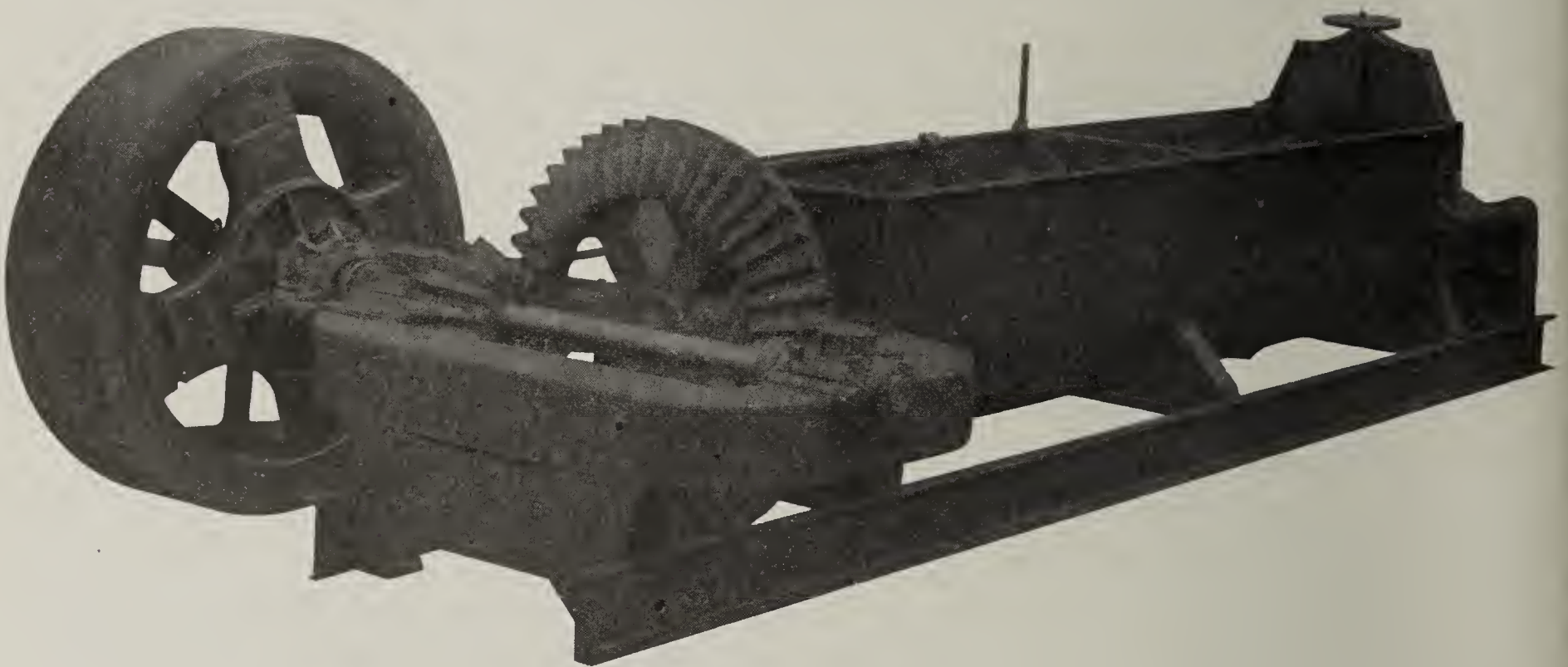
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

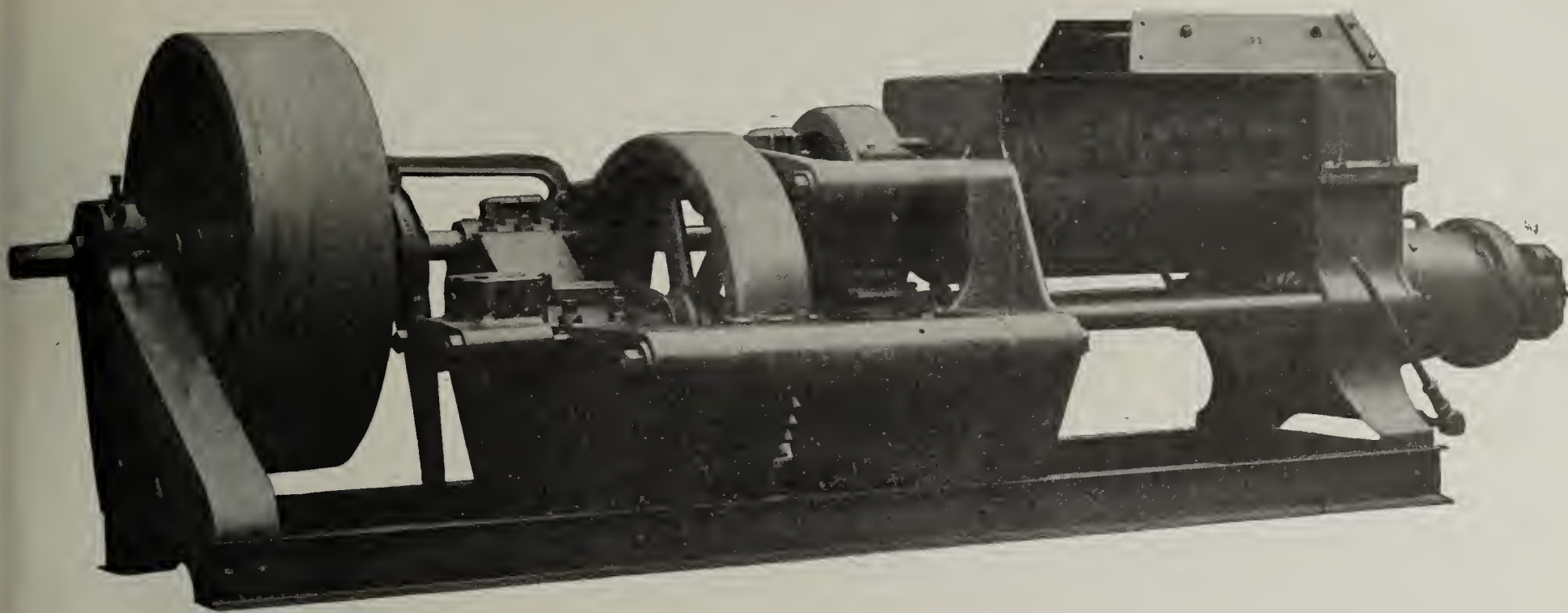


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



YOU WOULDN'T SPEND
\$2000 on an AUTOMOBILE

till you had inquired into the
merits of the various machines

NOW WOULD YOU?

Then don't rob the stockholders
of your Company by spending
from

\$10,000 to \$200,000

of their money on a Brick, Sewer Pipe,
Tile or Sand Plant without first in-
vestigating the merits of the various
makes of machines needed for your
plant.

Secure the judgment of these acknowl-
edged old experts ranged alongside
here among others; or better, visit
their plants.

THEY USE STEVENSONS
BUILT AT WELLSVILLE, OHIO

Dominion S. P. Co.
1 Press and 3 Pans in 1904.
1 Press in 1907.
1 Pan in 1908.
2 Pans in 1910.

Am. Fire Brick Co.
1 Pan in 1903.
1 Pan in 1905.
1 Pan in 1909.
1 Pan and 1 Press in 1910.

McLain Fire Brick Co.
Pans after Pans and other
machinery galore for all their
works.

Kittanning Brick & F. C. Co.
1 Pan in 1894.
2 Pans in 1906.
2 Pans in 1910.

Washington Brick, Lime & S. P.
Mfg. Co.
1 Pan and Elevator in 1905.
1 Pan and Flaking Rolls, 1908.
3 Pans, 3 Elevators, 1 Press and
Dies in 1910.

UP TO DATE.
A dozen or more valuable im-
provements on Pan and Press—
money-saving and money-mak-
ing—in the past year or two.

ENDURING.
Pan Record:—Sixteen years
on hard shale and good for
many years more.
Press Record:—Thirty years
and still running.

SPEEDY.
Pan's Record:—108,000 brick
in a single day for one pan.
Press Record:—720 24-inch
in 5 hours; 9,400 4-inch in 10
hours.

BEST EVER.
Users say: "Best machinery
on the market."
"Gives little or no trouble."
"Your Press is a dandy."
"Best Press in Canada."
"Your Pans are first-class."

H. A. Robinson Co.
4 Rock Crushers.
10 Dry Pans.
10 Wet Pans.
5 Presses and complete
outfit with it in 1910.

E. Ohio S. Pipe Co.
1 Press, 4 Pans, etc.,
etc., in 1902.
2 Pans in 1904.
1 Rock Breaker and 1
Pan in 1910.

Am. Sewer Pipe Co.
Pans and wholesale re-
newals galore from organ-
ization to date

Stratton Fire Clay Co.
2 Presses and 6 Pans, etc.,
in 1903.
4 Pans and 2 Presses in
1905.

Robinson Clay Prod. Co.
4 Pans in 1903.
14 Pans, 5 Presses, 2 set Dies,
etc., in 1906.
16 Pans, 1 Press and a train-
load of other stuff in 1910.

Streator Fire Clay Co.
2 Pans and 1 Press in
1908.
6 Pans, 2 Presses, 6
Elevators, etc., in 1909.

For Sixty
Years
The Name

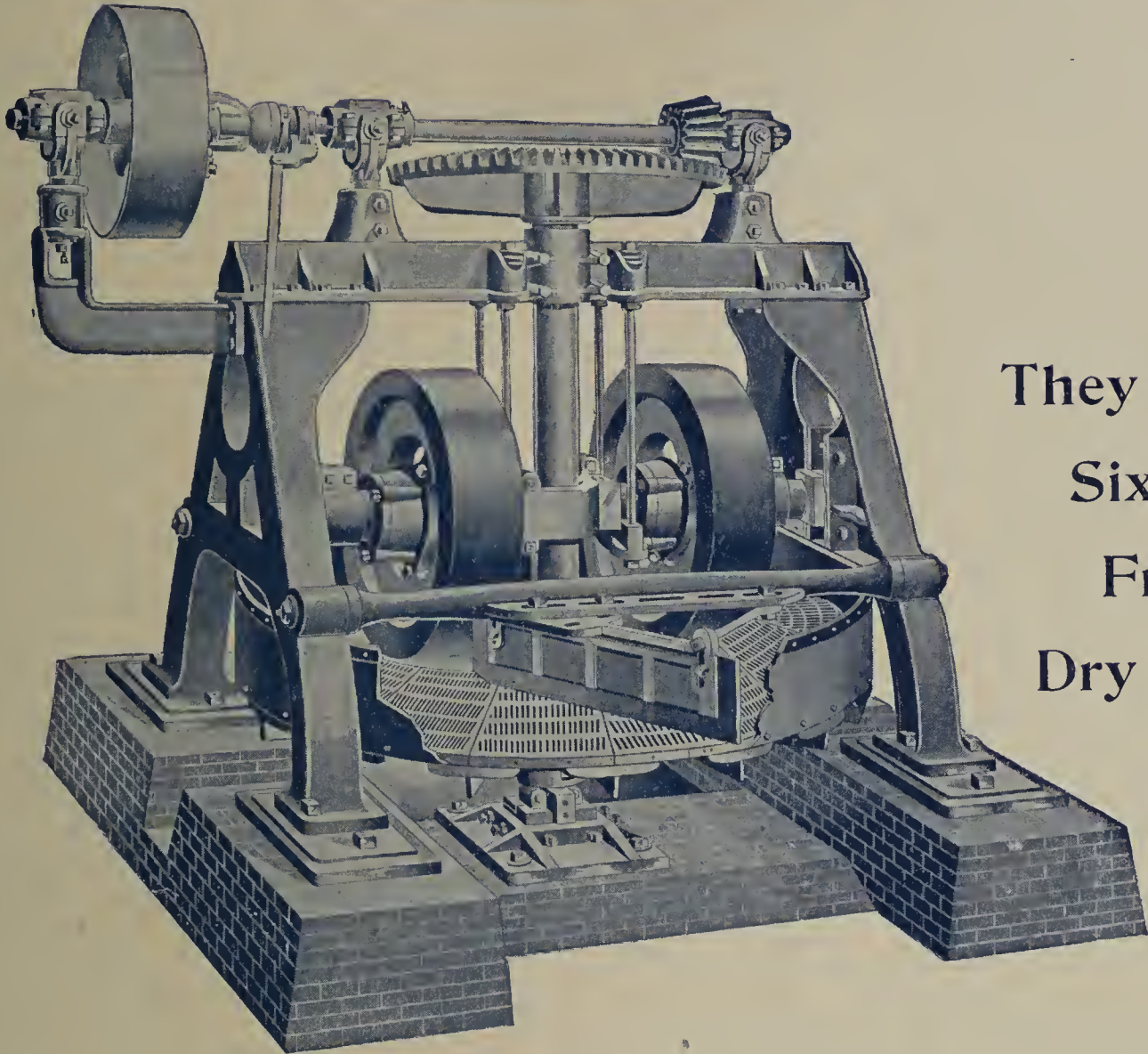
Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

Read
What
Purington
Says—



They Have
Sixteen
Frost
Dry Pans



D. V. Purington, Chr. of Board.
F. G. Matteson, President.
Geo. C. Prussing, Vice-President.
C. B. D. Howell, Vice-President.

THE PURINGTON PAVING BRICK COMPANY
Annual Capacity, 100,000,000.

W. H. Terwilliger, Secretary.
C. H. Chamberlain, Treasurer.
W. G. D. Orr, General Manager.

Galesburg, Ill., February 23, 1911.

Frost Mfg. Co., Galesburg, Ill.

Gentlemen—Replying to your inquiry as to the service we have obtained from our Frost Dry Pans, would say that our experience with them has always been satisfactory. Our shale is harder than that from which most brick are made, and in spite of this fact we only have two Dry Pans to each brick machine, and the brick machines are never waiting on the crushers for clay.

Yesterday we made 305,000 ten-pound paving blocks on four brick machines. All of this material went through eight pans. The cost of keeping up Frost Crushers is so much less than on others we have seen, that it is not our intention to make any experiments.

Yours truly,

THE PURINGTON PAVING BRICK CO.

By Wm. Geo. D. Orr, General Manager.

Don't Forget We Manufacture Engines and Boilers.

Write for Special Bulletins and Specifications.

The Frost Manufacturing Co.

Works:
GALESBURG, ILL.

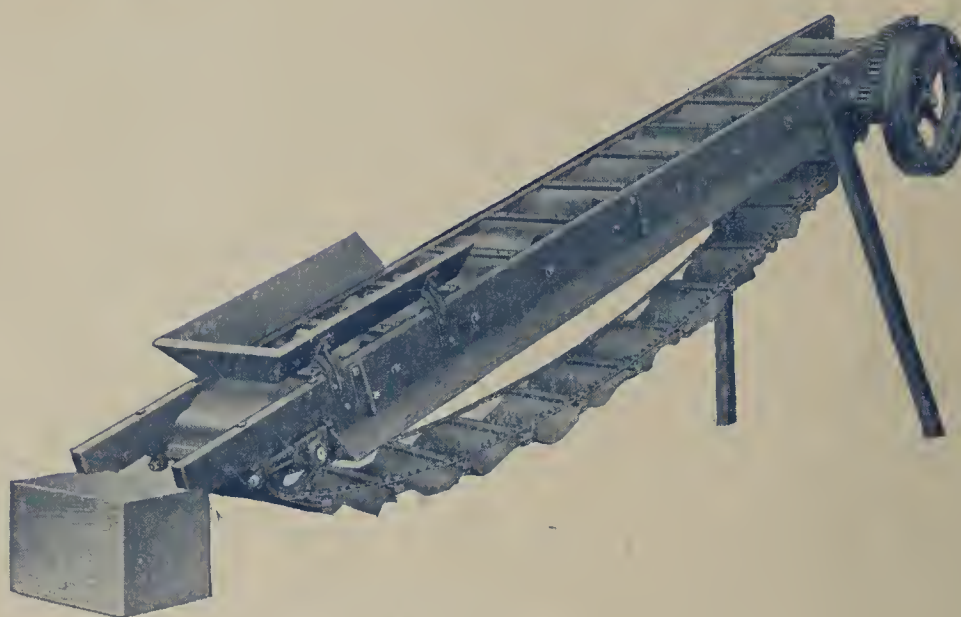
CHICAGO OFFICE:
135 Adams St., CHICAGO, ILL.

Cable Address, "FROSTMANCO," Chicago.

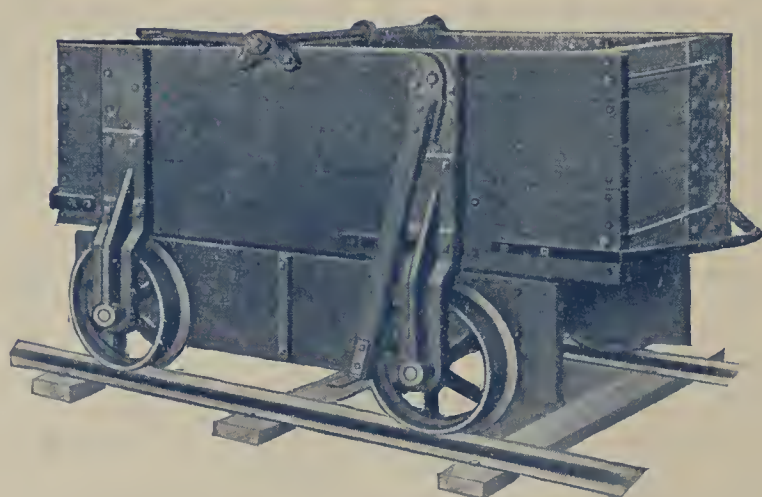
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Drag Belt Clay Conveyor.



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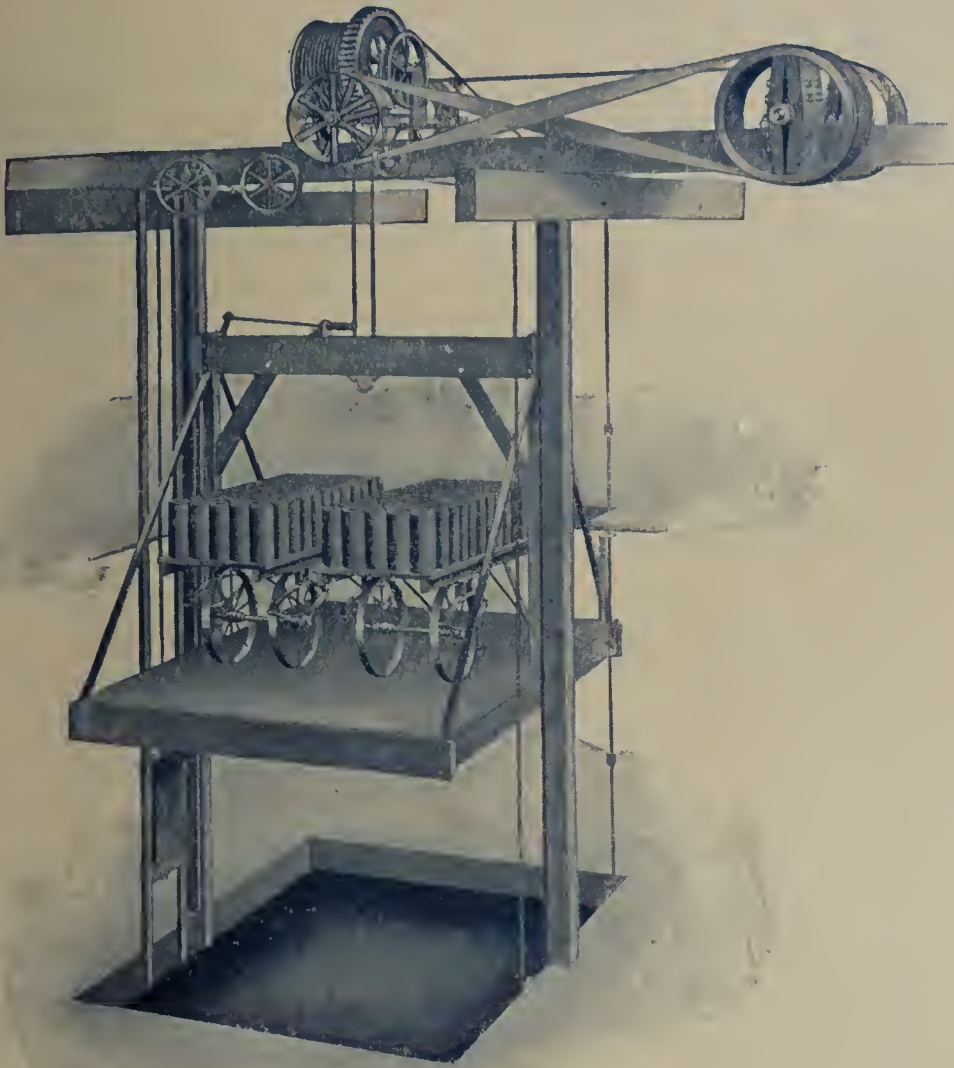
Side Dump Clay Car.

The J. D. FATE CO., Plymouth, Richland Co., Ohio

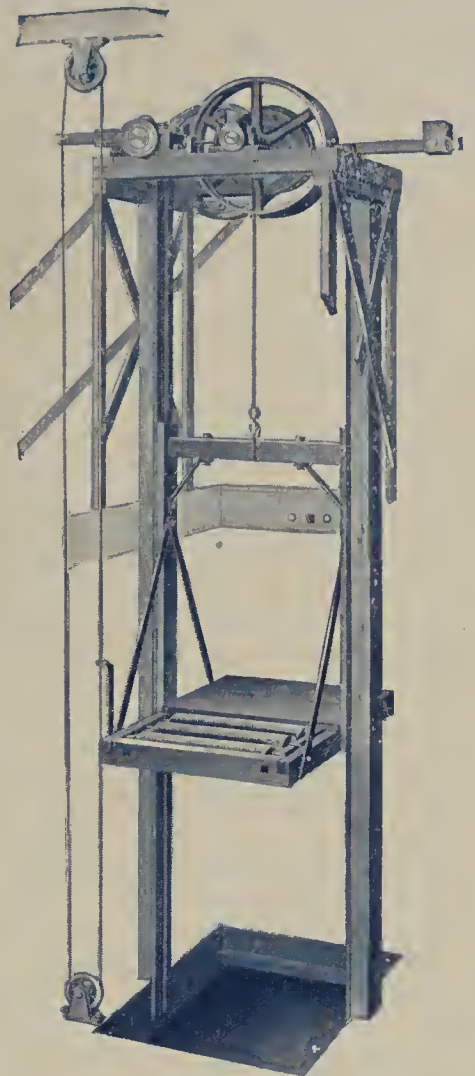
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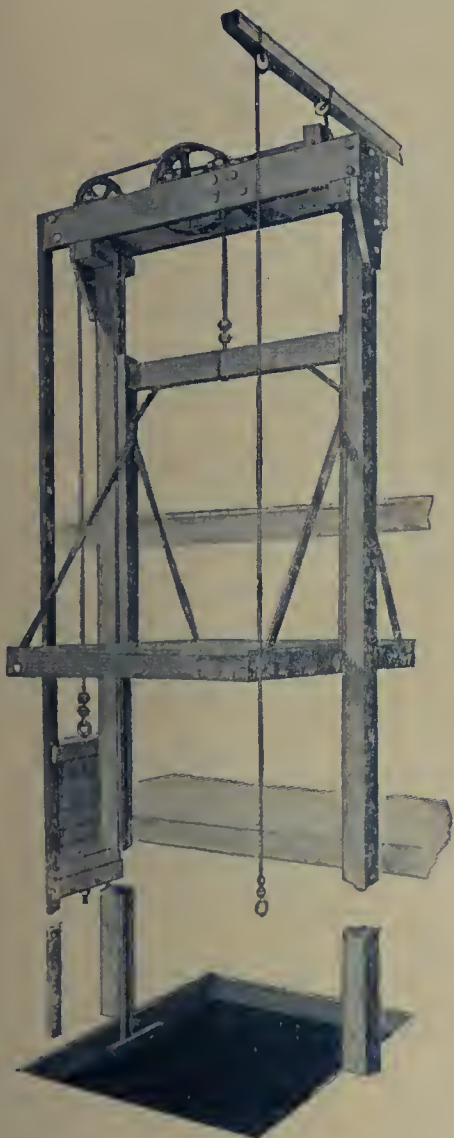


Friction Drive Elevator.

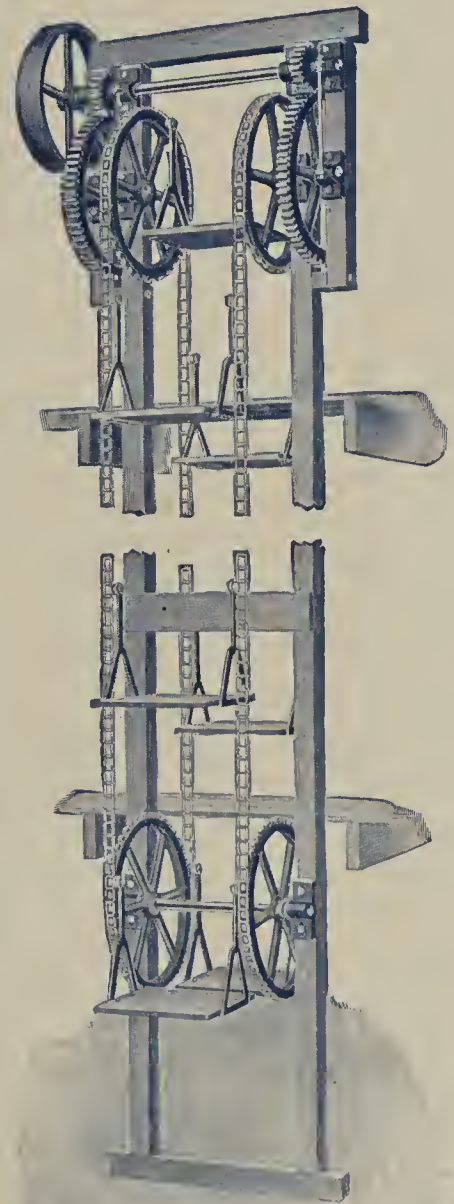
The J. D. Fate Co.

Plymouth,
Richland Co., Ohio.

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The Peerless Car for Soft Mud Brick

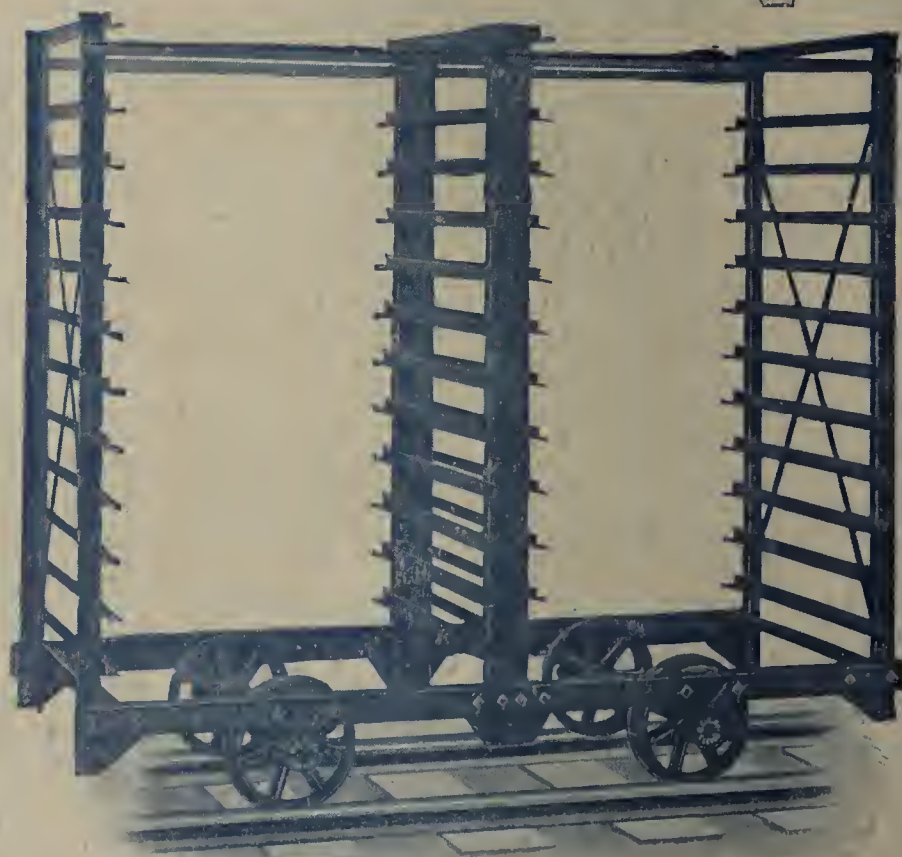
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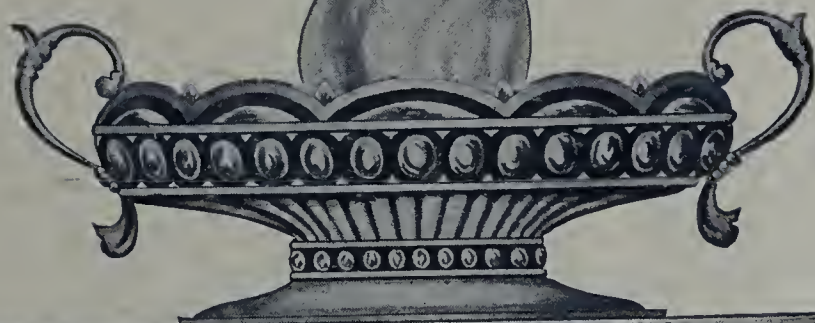
THE CLAY-WORKER

PUBLISHED
MONTHLY
BY

T. A. RANDALL & CO.

INDIANAPOLIS

APRIL, 1911



OFFICIAL
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OF THE

NBMA

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drain every drop of condensation from steam coils and return it to boilers without pumping. Condensation ought to reach the boilers at practically the same temperature at which it is condensed.

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Actually have paid for themselves in one year in savings of oil and fuel.

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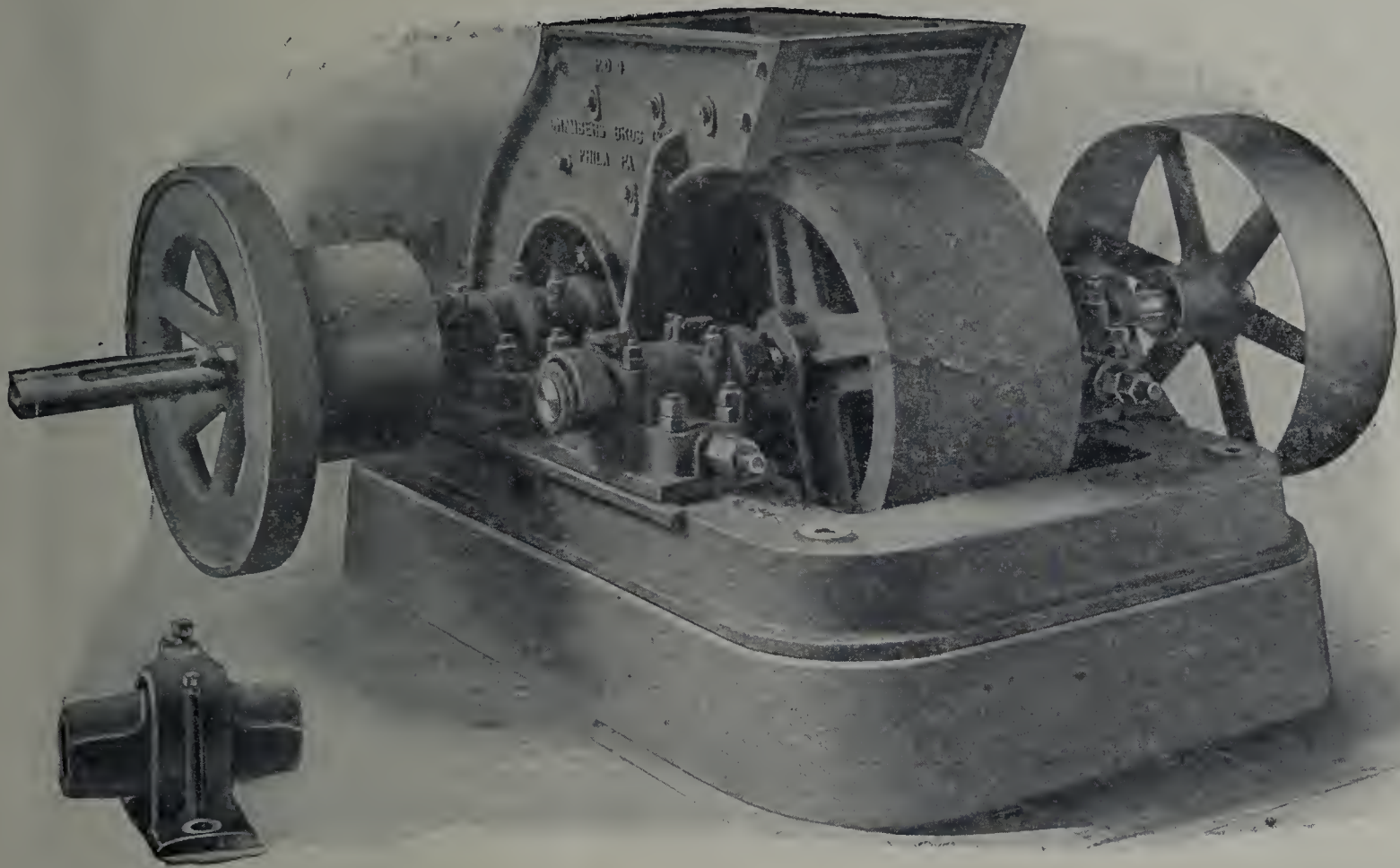
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Clay Disintegrators or Grinders



The Chambers No. 2 Special Clay Disintegrator.

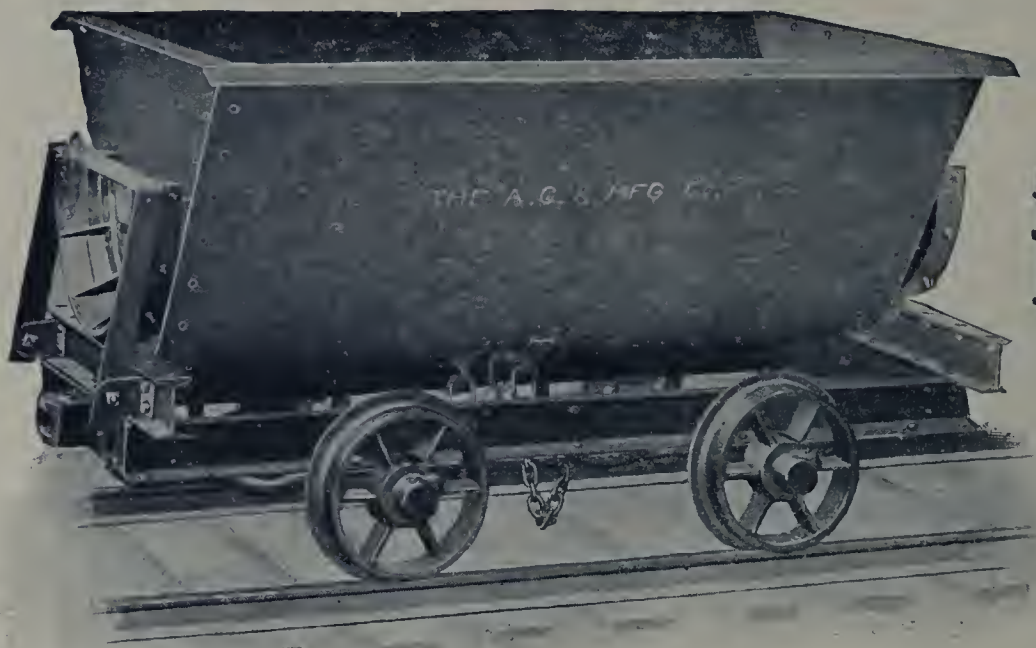
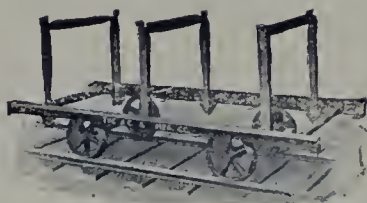
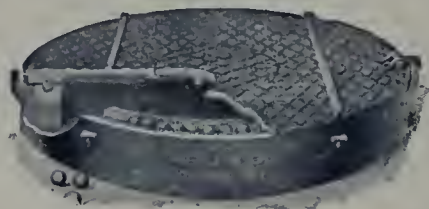
For all around work on surface dug plastic clays used either for stiff tempered or soft molded brick-making, this machine has an enviable record. Receives clay in either dry or moist condition, throws out the larger stones and crushes the smaller ones. A very reasonable attention to maintenance keeps our Disintegrators in condition for good work and insures continued satisfaction. One brickmaker claims to have put clay for 27 millions of brick through one of our No. 2 Special Disintegrators without any repairs! This is an unusual record. Conditions must have been exceptionally favorable. The next customer may have a mixture of flint rock and gummed sand that would cause him to divide that record by ten at least, but the No. 2 Special grunts a little and then goes on. We don't sell many stiff mud brick machines to the New England Brick Manufacturers but we sell them our Disintegrators.

We build several sizes and have one machine designed for the man who feeds horse shoes and steel wedges along with other things sent up by the steam shoveler.

Chambers Brothers Company

Brickmaking Machinery

Philadelphia, Pa., and Chicago, Ill.



RAIL,
SWITCHES,
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TURNTABLES,
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CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

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¶ You may never have obtained them from us. It would pay you to do so.

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¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

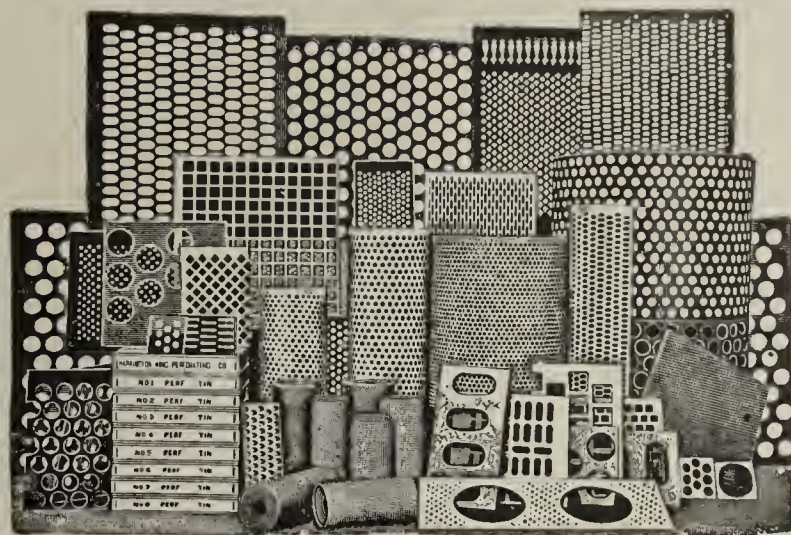
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¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

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¶ The work is made entirely to order.



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Waste Heat Dryer Specialists,
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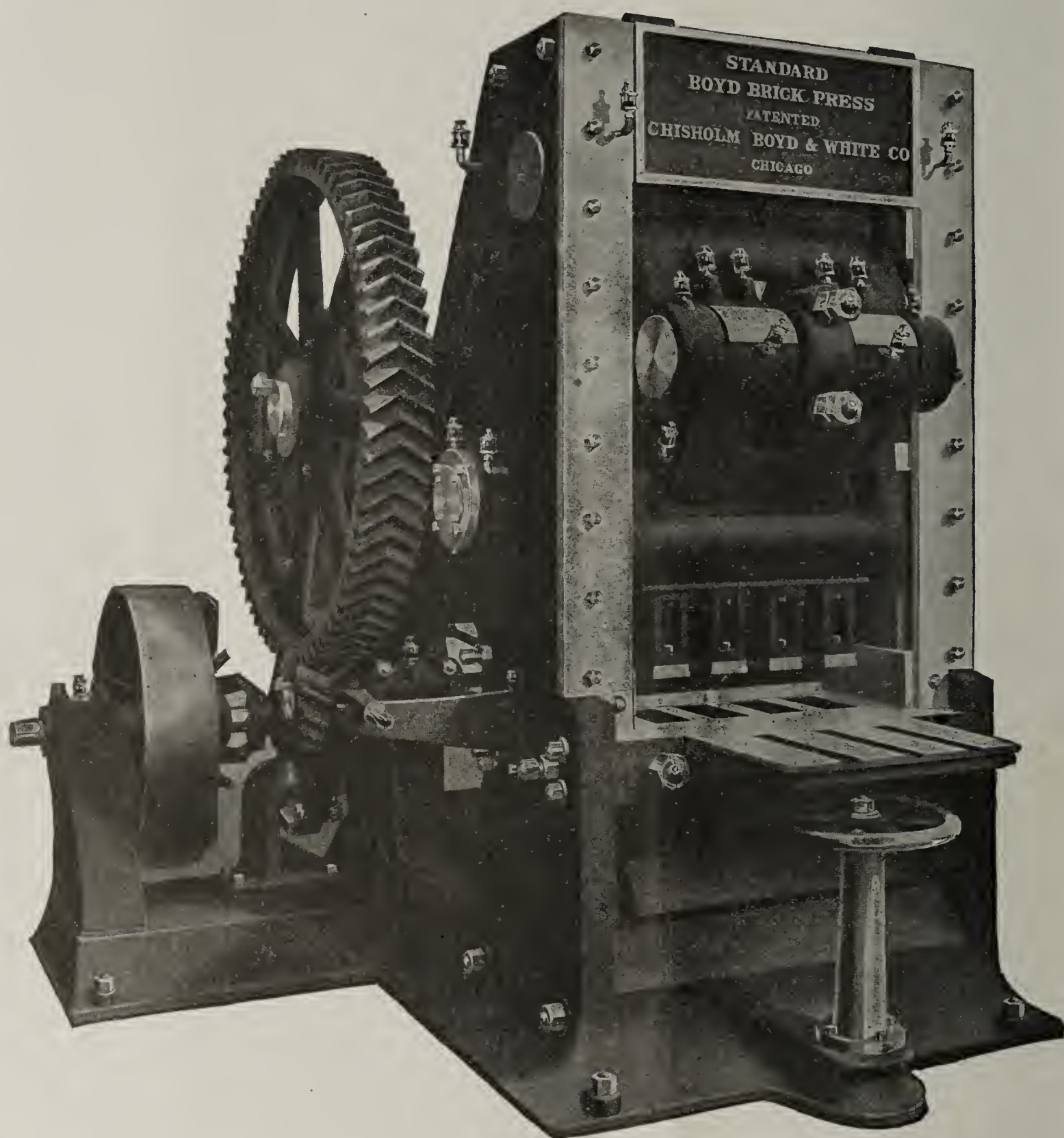
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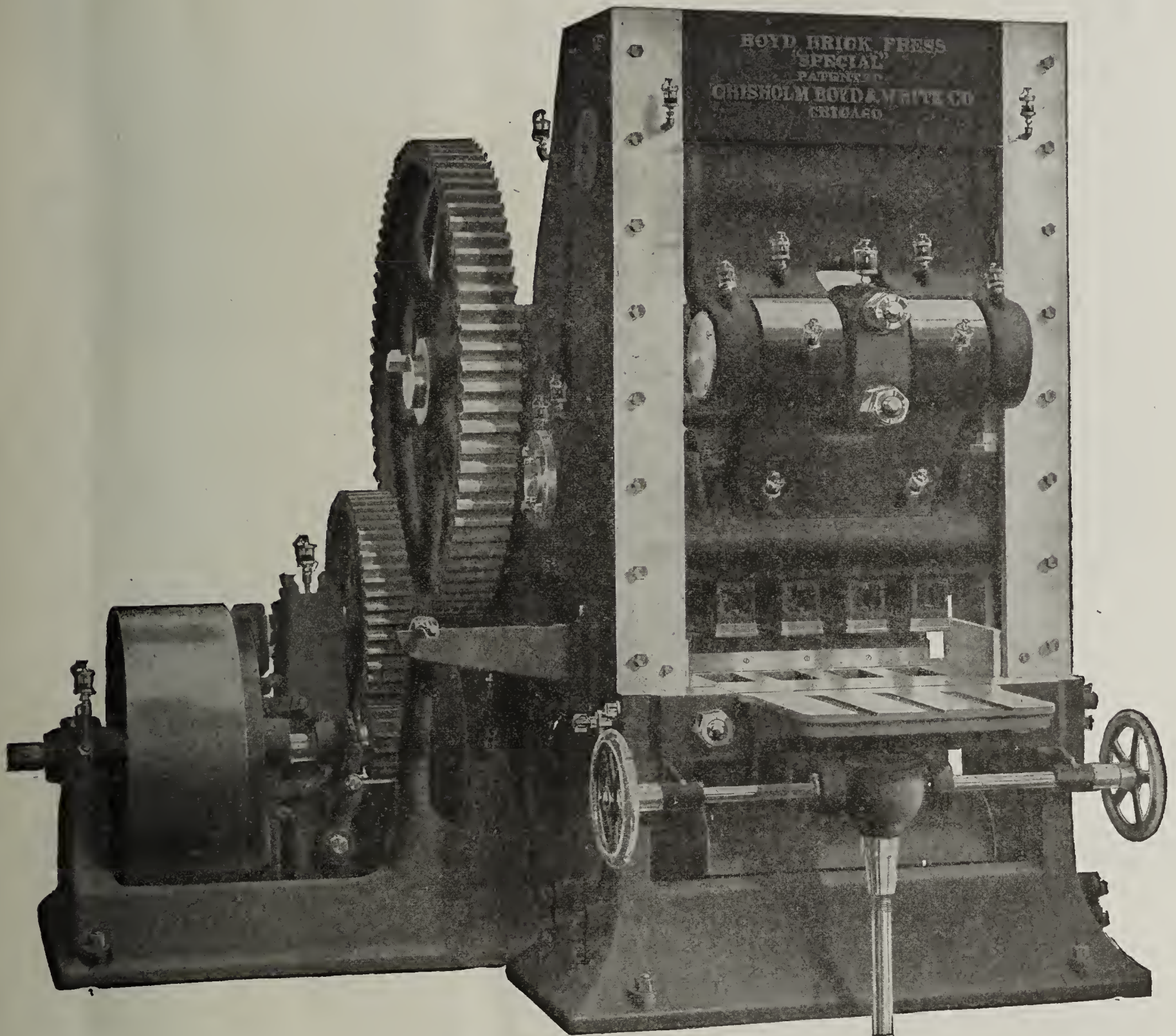
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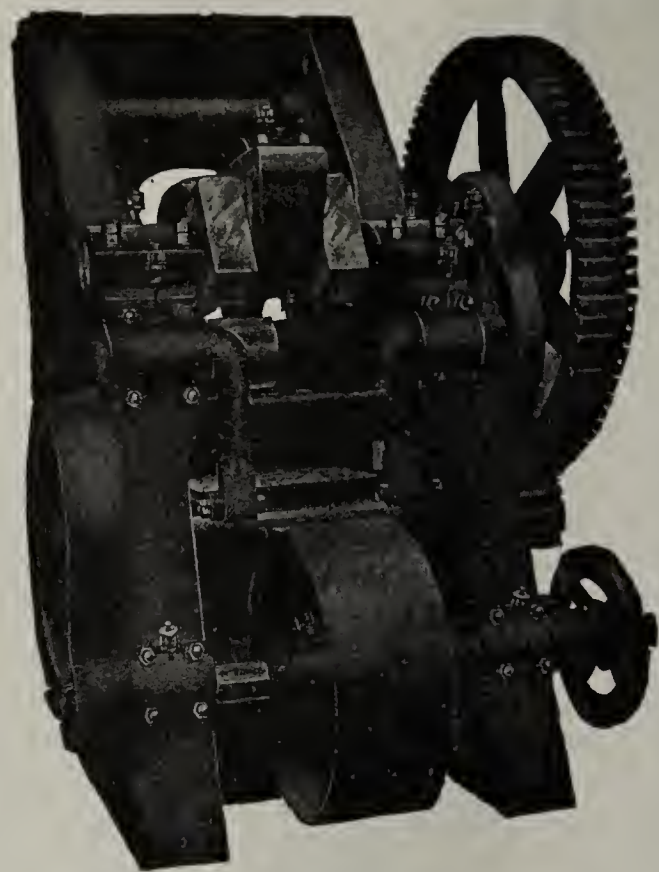
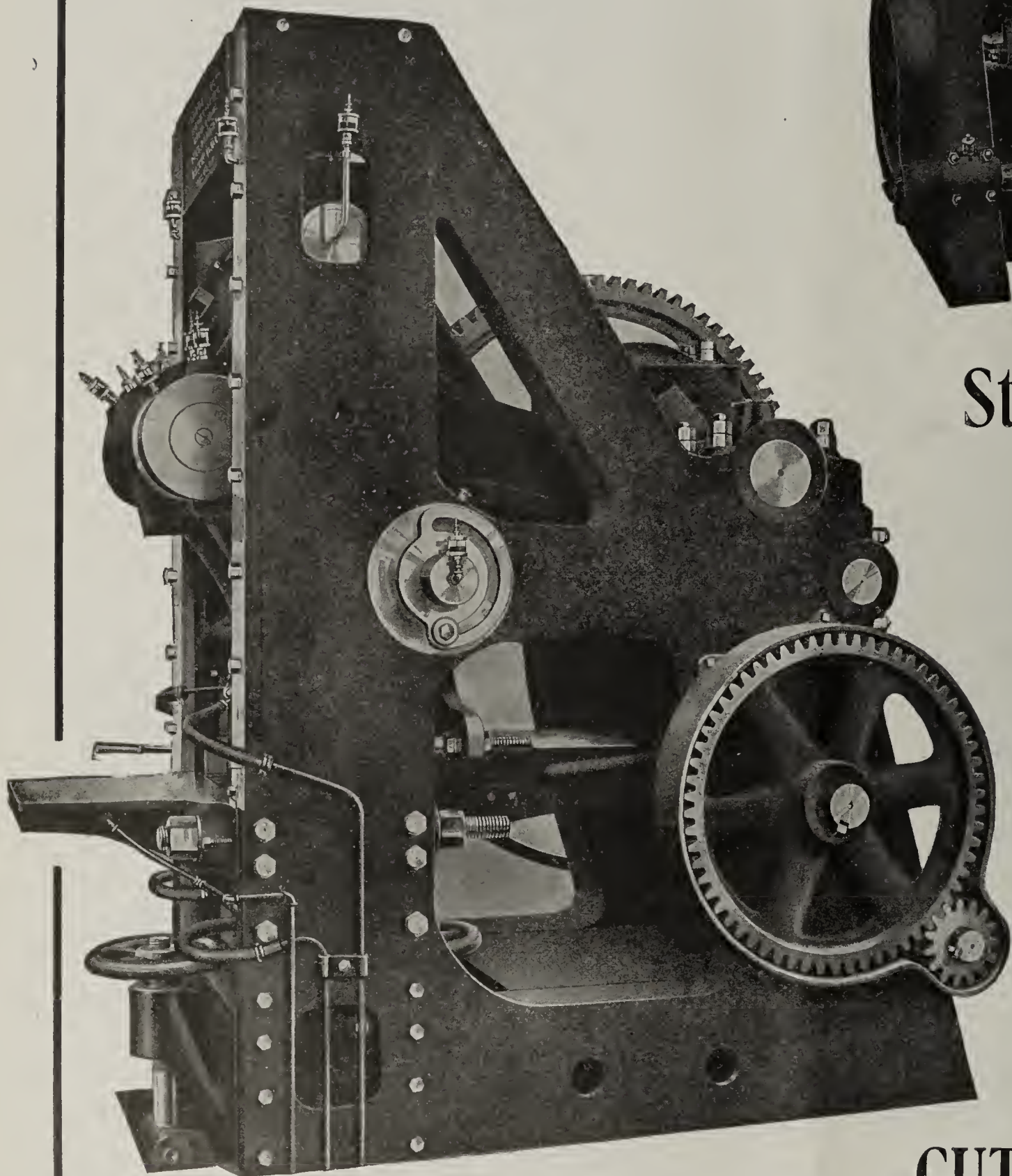
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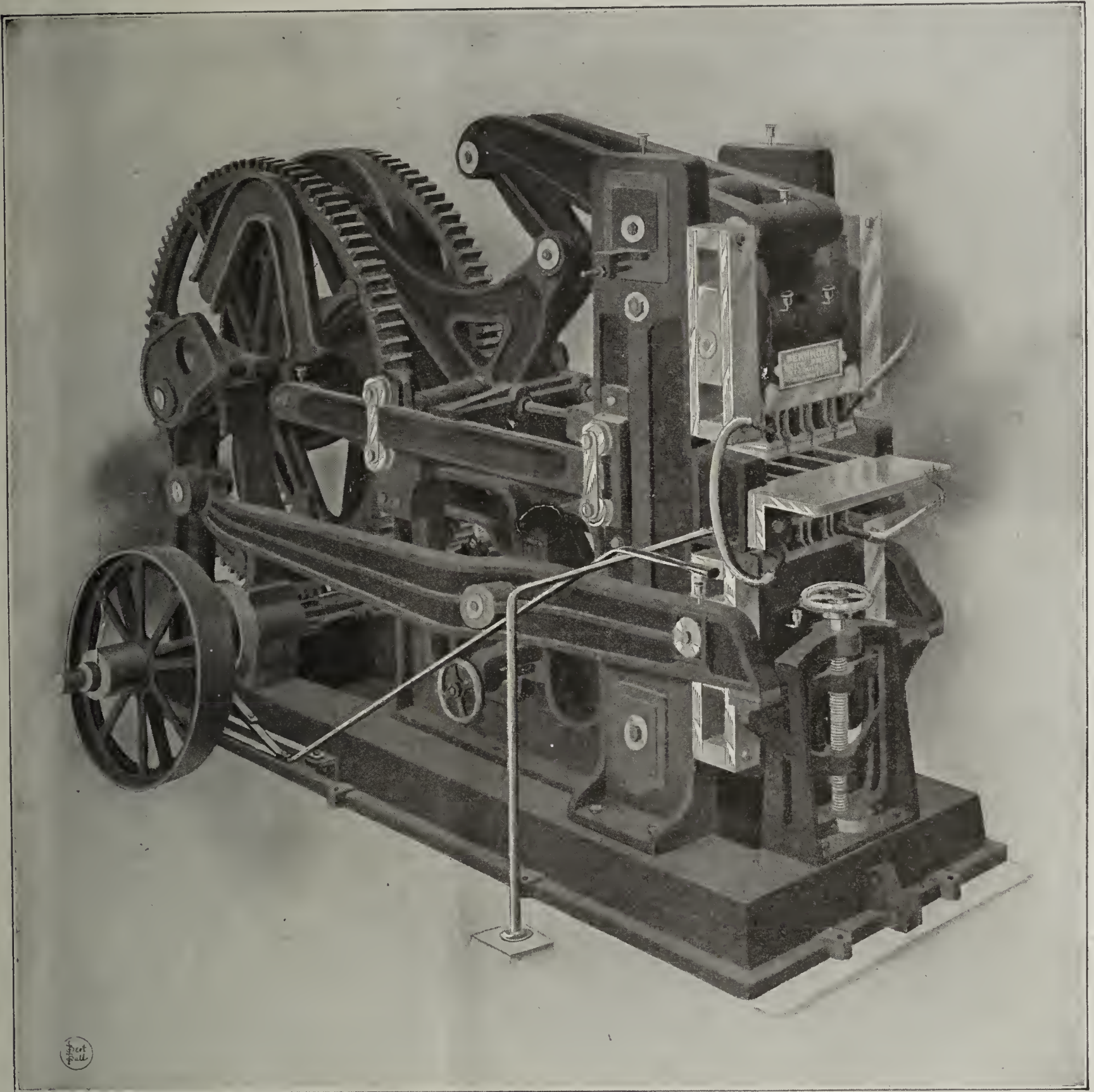
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The Fernholtz Brick Press.

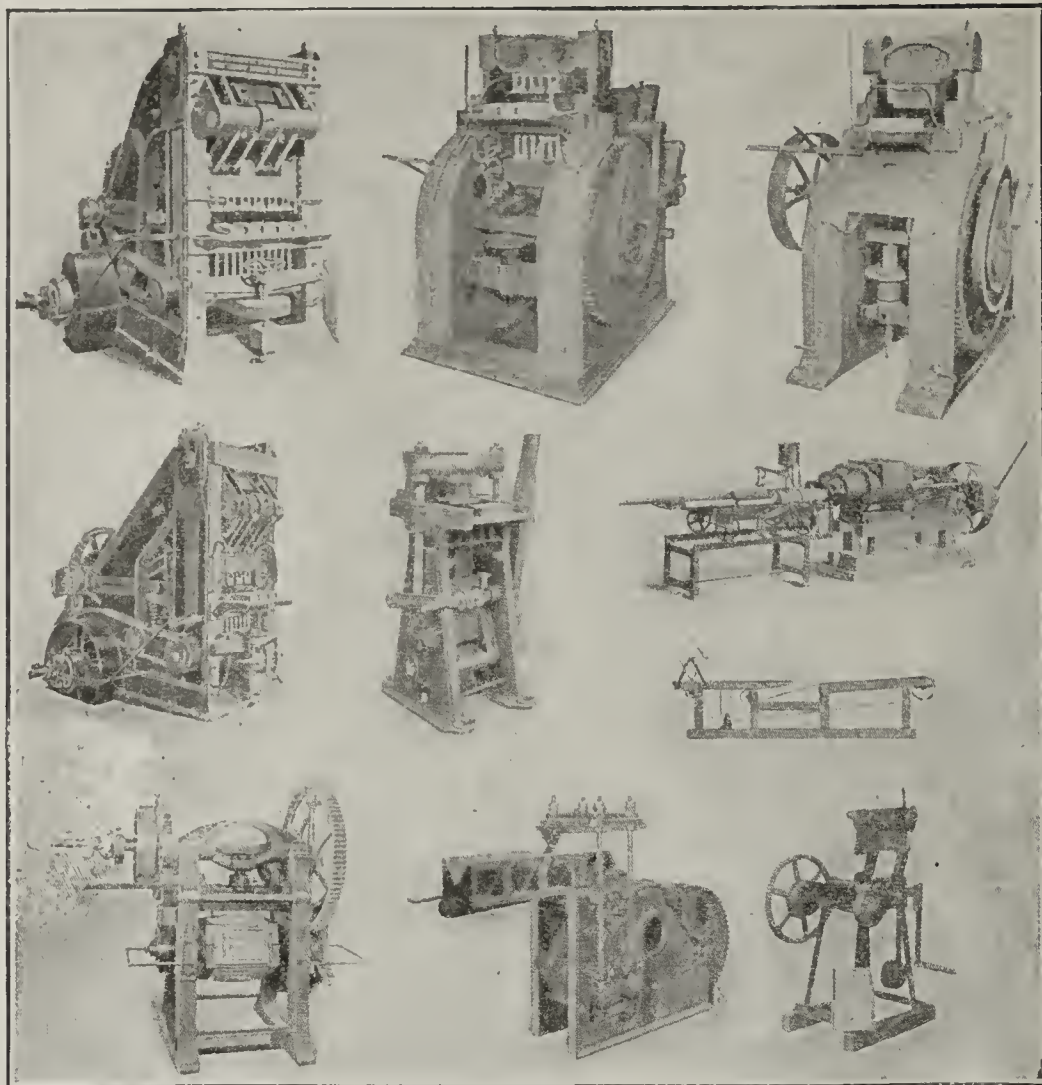
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For Highest Grade Press Brick
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The Best Machinery.

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Our Kiln Furnaces are simple, easy to handle, burn the smoke, prevent cracked ware
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For further information write

Illinois Supply & Construction Co.

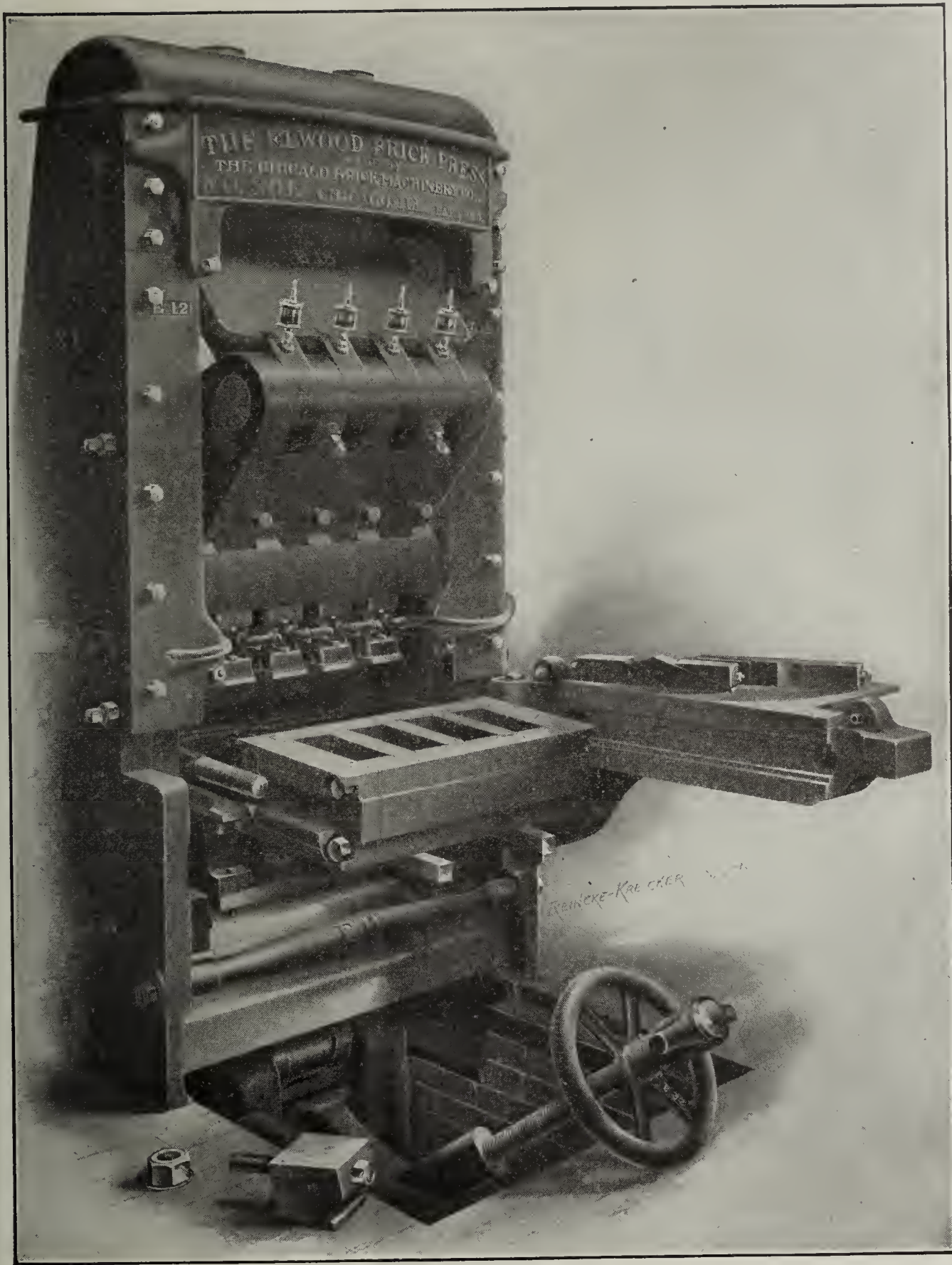
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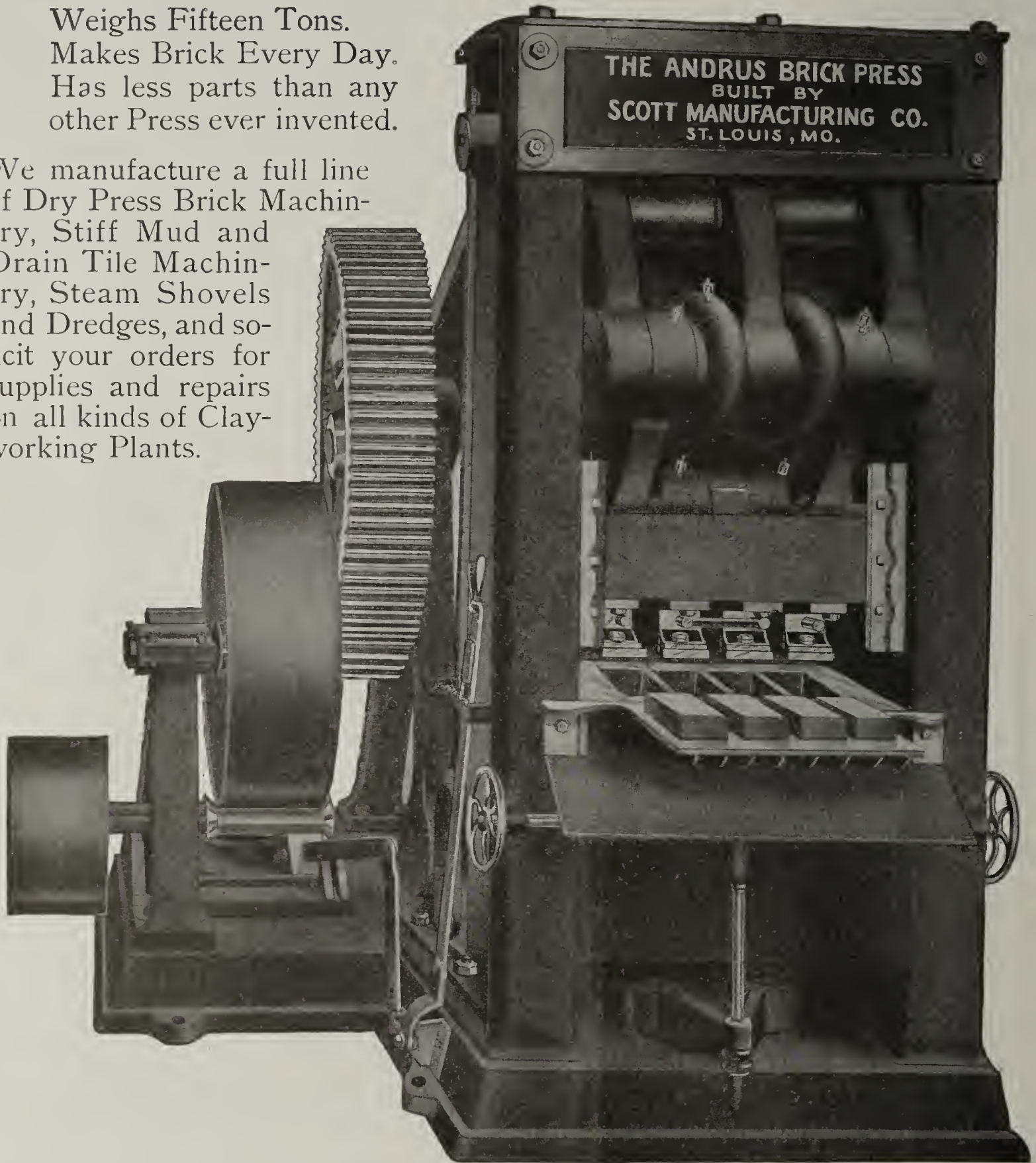
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Has less parts than any
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BECAUSE they promote harmony and accuracy.

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For that very purpose we are manufacturing a device for handling brick in a manner entirely new and surprisingly simple—inexpensive to install, inexpensive to operate and inexpensive to maintain.

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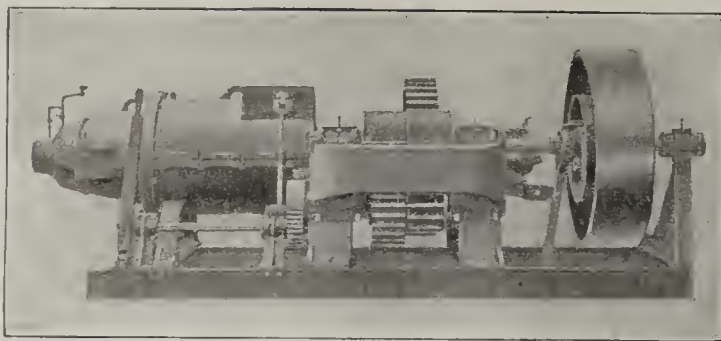
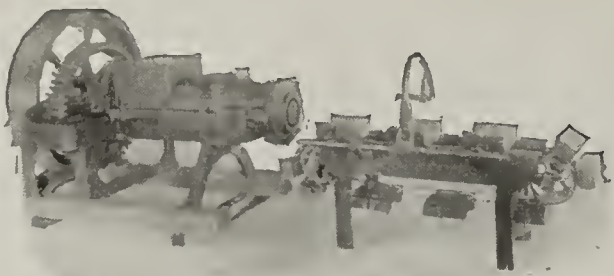
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MATHEWS GRAVITY CARRIER CO.

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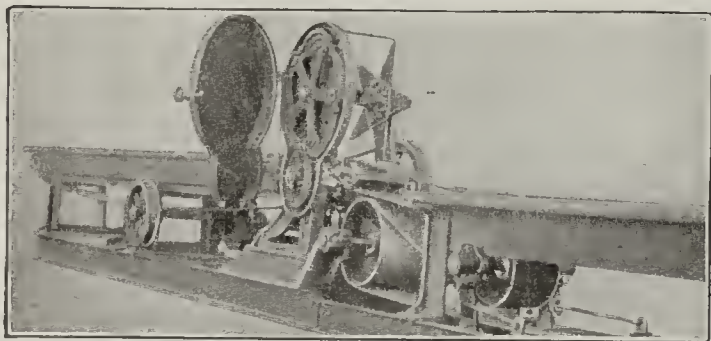
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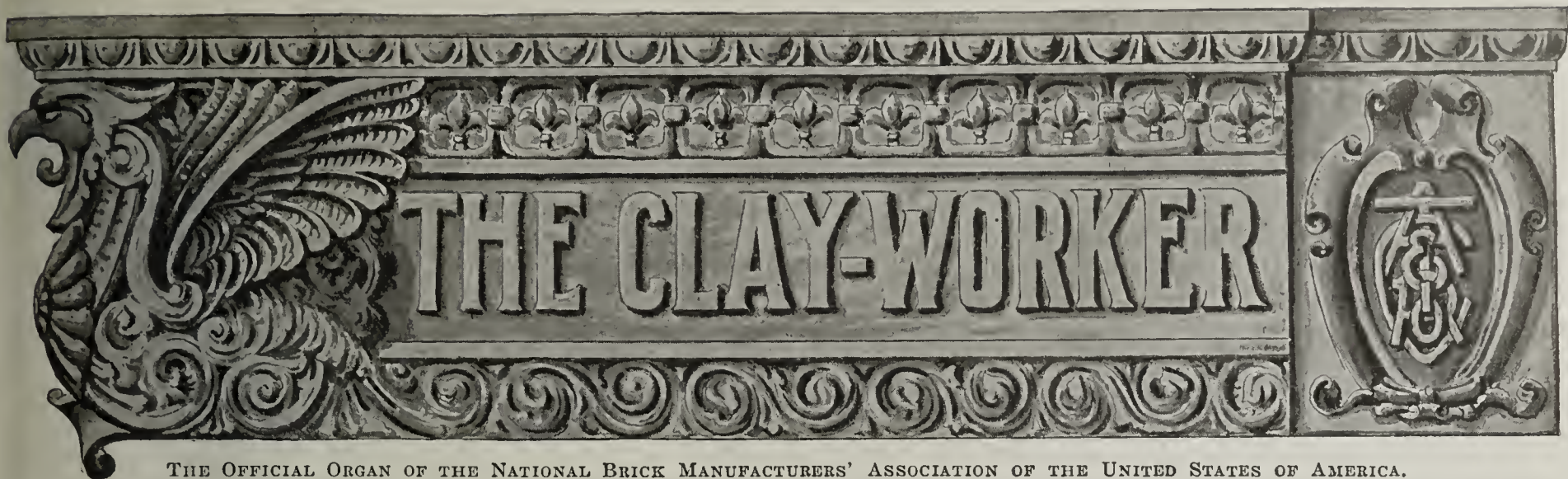
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Vol. LV.

INDIANAPOLIS, IND., APRIL, 1911

No. 4.

Written for THE CLAY-WORKER.

A NOVEL BRICK STRUCTURE.

Mammoth Milk Bottles of White Enameled Brick, in Which Are Spacious Offices, Etc.

IT REMAINED for an Indianapolis milk company to build milk bottles out of brick. Every year of the past decade has produced a new use for clay products. Even when necessity has not compelled, creative minds have produced

Indianapolis, stands almost as much a monument to the adaptability of clay products as to the business of the company carried on within the building in a manner quite as distinctive as the exterior appearance of the building.

The two front corners of the building are great towers in the form of giant milk bottles, built of white enameled brick. The proportions are exactly those of a standard quart bottle increased to a height of fifty-two feet and a diameter of twenty-two feet. Five carloads of specially made radius brick were used in the construction, and the combination of



Offices and Factory of a Hoosier "Sunlight Milk Plant."

substitutes. And with the disappearance of wood the clay and the shale have rapidly taken their rightful places among the natural resources.

But beyond this widening sphere of human necessity is the utilization of the clay product in the field of arts and crafts—in the decorative and the beautiful. And into this field has come this Indianapolis dairy company with a daring conception, executed in what is a unique architectural construction.

The new building of the Polk Sanitary Milk Company, of

perfect brick and skilled workmen has reproduced the model, exact in proportion and appearance.

This main building has 100 feet frontage on Lewis street and is 140 feet deep along the Monon railroad, in Fifteenth street. The building is of concrete, finished with a veneer of dark-colored vitrified brick. The floors are of cement and the roof, saw-tooth in form, is of cement and tile—a construction so truly fireproof that the insurance companies admit the fact, and the Polk Sanitary Milk Company enjoys at this plant the lowest insurance rate in the State of Indiana.

Not only is the exterior distinct, however. For the visitor is even more amazed in his trip through the plant. "The Sunlight Milk Plant," they call it, and the name is fitting. Every possible advantage was accepted for admitting light into each nook and cranny, and not least among the means to this end was found to be the white enameled brick again.

The great milk room, with its capacity for bottling 1,000 gallons an hour, is 100 feet by 40, extending up two stories for the advantage of the light and air. The walls are glistening white, made of enameled brick, reflecting the light which filters through the great skylights of glass. The floors are white, the ceiling white, while the tanks and piping are of brass, copper or German silver, nickeled. No gearing or shafting is visible, all this being beneath the floor.

Cleanliness cannot help but prevail in this great "sunlight plant," for every room may be flooded with steam or with water without resulting injury. There are no "corners"—a four-inch radius curve replacing these. The window and door openings, the lines where floor and wall and ceiling join—all these are rounded. There is no spot where the lurking germ or bit of dust may hide itself in this whole plant.

Then there is the power house, 60 by 70 feet, and the stables and garage, 50 by 150, built of vitrified brick, harmonizing in form and design with the main building. The whole plant occupies a tract of two and one-half acres of ground, with private switches.

The plant was constructed under the direct supervision of Samuel O. Dungan, vice-president and general manager of the Polk Sanitary Milk Company, and his able superintendent, Charles W. Desobry. They together conceived most of the distinctive ideas, though they united in giving Duane Dungan, the eighteen-year-old son of Mr. Dungan, the credit for suggesting the huge milk bottle towers. (And it should be said that these towers, these big milk bottles, are not mere ornaments. Not by any means. The main office and reception room occupies the first floor of one bottle, while the private office of James T. Polk, president of the company, whose home is at Greenwood, occupies the second story, directly beneath the neck of the bottle.) The second bottle is occupied by the sales department of the company, offering a separate entrance for the fifty delivery wagon drivers and the drivers of the auto trucks.

While in Indianapolis recently Elbert Hubbard made a "little journey" to the Polk plant, and in writing of it afterward he said:

"I know of no other city where a milk station is at once a school, a reception hall, a business office and a factory. The Sunlight Milk Plant symbolizes the new science of human service. It stands for the new Indianapolis—the big, beautiful and growing Indianapolis—the city where nothing is quite good enough, but where all things must be made better."

PIECE WORK AND PROFIT SHARING.

Piece work is an altruistic ideal that has developed weak spots here and there, and the eyes of both manufacturer and workmen have been so concentrated on the weak spots that they have really been unable to see much of anything else. Naturally, therefore, there have been some disappointing results, and we have harbored the disappointment and not given enough attention to eliminating the weak spots and rendering more practical the idea of a piece-work system or profit-sharing of some kind.

The disappointment in some of this altruistic effort is not confined to either one side or the other. There are instances where both sides have expressed dissatisfaction. There is a conspicuous case on record in England where the employes of a big institution themselves voted against a profit-sharing plan after having tried it out quite extensively. In this country recently some of the labor leaders have gone on record as opposed to piece work and profit sharing because they involve the old task scheme in a new guise.

Analyzing these objections, we find that part of them are

traceable to the fact that often when an employer puts his men on a piece-work basis and finds them making what seems more than they should out of the business he feels inclined to reduce the amount per piece and thus eliminate some of their gains. Where this is done it is perfectly natural for the workmen to take up with the idea that the employer is simply encouraging them to perform the greatest possible task so that they can find the maximum capacity and then re-rate them and pay them lower wages, in proportion, so that in the end they receive the same and are driven into doing more work.

On the other hand, a part of the dissatisfaction expressed by the workmen with the piece-work system may be traced to those who are slow or inefficient or lacking in capacity objecting to a method of rating by which they will not show up favorably with others who are more adept. The workmen of great capacity will seldom make this complaint. It is



One of the Milk Bottle Towers.

usually the slow-gearred or sluggish workman who voices complaint against the piece-work system on this basis.

What we need now is to ignore the weak spots and objections and not let them stand in the way of developing any good points that may exist in piece work and a profit-sharing system. In other words, we should seek for improvement rather than give up entirely an idea that has proven disappointing in part. No new thing, whether it be an idea of system or mechanical departure, ever fulfilled the original ideal at first. There is more or less disappointment, which must be followed by revision and correction, to attain the right measure of success.

That is perhaps what we need to do with the piece-work and profit-sharing business. We need to readjust and seek to correct some of the weak points and see what in the way of practical good, both for the employer and employe, may be gotten out of them.

Written for THE CLAY-WORKER.

LEGAL AND MORAL INCONSISTENCIES.

The Colonel Holds Forth on Distinctions Made, Both Legally and Morally, Between What Is Considered Trusts and Combinations and What Is Considered Personal Privileges.

THE COLONEL had both his feet hoisted on the near corner of his desk, which was the usual attitude, and with a paper before him and pipe loaded, he was still the usual in the matter of arrangement for comfort and enjoyment, but he was not reading the paper nor smoking the pipe. This is the part of it that was a little unusual, for generally he was to be found doing one or the other. He had let the paper drop down on his knees and the pipe rest on the paper and go out, while he was apparently buried deeply in

agreement that not only includes a schedule of wages, but it also includes a proviso that none of these union workmen are to work on any building where non-union material is used. In other words, it is an agreement that makes imperative the furnishing of union-made material throughout to the building trades, and it becomes, therefore, in effect a boycott against what is termed non-union building material, no matter whether that material is brick, stone, doors or interior trim.

"It seems that a lot of material men who have offerings that are excluded because of this combination have invoked the long arm of the law. In effect have charged that it is a combination in restraint of trade and virtually a trust, in that it not only sets prices, but excludes all material and workmen outside of this union agreement.

"Now, suh, I don't know just what the outcome will be. For while the arm of the law may be long, it is sometimes slow and gets mightily tangled up in its efforts to deal a body blow, but it has set me to thinking about trusts and other combinations and about some of the inconsistencies, both legal and moral, that pass before us and have at least our silent, unprotesting approval every day.

"Just to illustrate, there was recently put over right here in our town an agreement between what they call the Journeymen Barbers' Union and the Master Barbers' Association to increase the price of shaves 50 per cent. In other words, to raise them from 10 cents to 15 cents, and make some other special charges for certain extra work. There was no secret whatever about it. It came in with quite a lot of publicity of one kind and another, as there was a good deal of wrangling about it, and I happened to be in a barber shop getting a shave when the business agent or walking delegate or whatever you want to call the authorized boss of doings of this kind came in and signed up the barber on this agreement.

"He told the barber that it didn't involve any trouble whatever. All he needed to do was hang up a notice and charge the new prices.

"His manner of saying this inspired me to ask of him whether or not the people who got shaved and paid the bills had anything to say about it—whether they were taken into consideration.

"At this he just grinned and backed out the door, and then I took it out on the barber in a good-natured way.

"I asked him what was the difference in ethics and in law, other than a matter of size, between them arbitrarily raising their prices and the Standard Oil trust arbitrarily raising the price of oil.

"Pretty soon I had the barber up a tree, for since I was a good customer, he didn't want to offend by saying what was in his mind, but a customer in the shop took the matter up and said that under the existing conditions any business man ought to be willing to admit that a barber deserved more for his work.

"I granted that without protest, but then I sprung this question: I said, 'Suppose the lumbermen of the town or the brick men of the town should get together openly in this manner and sign an agreement to increase the price of building material 50 per cent. Then,' I said, 'the barber and everybody else would be violently in favor of a special session of the grand jury to indict them for forming a combination or trust in restraint of trade. It would not make any difference whether they deserved any more for their stuff or not. Neither, in the eyes of the law, does it matter whether a barber deserves more or not. Yet here we have one of those conditions that the late Grover Cleveland used to talk about confronting us.'

"What these conditions mean is ordinarily a labor union can organize, make an agreement setting prices on their product, that is, the product of their efforts, and sign it up publicly and even invoke the law to see that it is lived up to without any fear of prosecution. Yet, when we get down to the strict ethics of the matter, this is just as much a trust as



Section of the Brick Milk Bottle.

thought, and thoughts, too, which occasionally brought a half-smile to his face.

The half-smile of meditateness broke into a full smile of welcome when the Colonel was aware that he had a visitor. It seems that the visit was very timely, for he had just struck a point where he was coagulating and wanted to talk awhile.

"Well, suh," was his greeting, "you are mighty welcome this morning. You just came in at a time when I was thinking about something, and the quickest way to stop thinking about it is to tell about it."

And picking up his paper, he continued:

"I see here that up in New York there has been filed a suit to break up what is called a building trust. From what I can make out of it it seems that union carpenters and other union workmen, in entering into contracts with the mill men, the brickyards and the building contractors on a schedule of wages, have signed up with these builders and supply men an

it would be for all the brick men of a given city to sign up an agreement to sell brick for a certain amount per thousand.

"Now, suh, can you tell me out of your knowledge and experience just where we get the moral or the statute laws to make this distinction, and what form it is put in, and what the limitations are? Can labor unions set prices and sign up an agreement? And must they stop at that, or can they go on with these agreements with their employers and virtually boycott other than union material? In other words, where is the limit, and how is it fixed by the law? And what distinction is made between this kind of combination and agreement and other agreements of members of the trade that we are prone to characterize as trusts or combinations in restraint of trade?"

"You have got me, Colonel," I replied, "and I must fess up to both ignorance in the matter of law and also to lack of any specifically formed judgment as to the morals and ethics of

the thing. In other words, I don't know whether there are lines of distinction, nor what they are based on, if they do exist."

"Well," the Colonel finally replied, and his feet came down on the floor with a thump, as if he had reached a conclusion in the matter, "it looks like we are headed in one of two directions. That eventually the law will have to recognize and permit combinations of trade ordinarily called trusts and simply regulate against them when they become exorbitant in their exactions, or else, if we go the other way and continue invoking the law against trusts or combinations in restraint of trade and insisting that competition is the life of business and the main-spring of progress, then we are coming to the point where this same law that is invoked against trade combinations will for the sake of consistency have to be used against trades unions and their agreements, otherwise our laws and their administration will become something of a farce."

*STANDARD TESTS OF DRAIN TILE AND SEWER PIPE.

By A. Marston and A. O. Anderson, of the Iowa State College
of Agriculture and Mechanic Arts.

This paper is being presented by the authors in substantially the same form to the Iowa Cement Users' Association, the Iowa Brick and Tile Manufacturers' Association, the Iowa State Drainage Association and the Iowa Engineering Society. The object is to secure the adoption by each of these societies of the proposed standard specifications for governing tests of drain tile and sewer pipe. The first three organizations named above have already adopted these specifications on the presentation of the paper. It is hoped that the other will follow this example at its meetings to be held this week. The authors believe that the State of Iowa will be greatly benefited by the adoption of such standard specifications.

Great Need for Standard Specifications.

It has of late become plainly apparent that there is great need of standard test requirements for sewer pipe and drain tile. Occasional notices appear from time to time in the engineering periodicals showing that inspections of old pipe sewers frequently show a considerable percentage of cracked pipe. During the past year an especially disastrous failure of large cement drain tile occurred in Sac county, Iowa, the damage running up to several thousand dollars. Following this failure, intelligent and reliable experts have made examination of a number of large tile drains in the northern part of the State, and they report that many of the pipe in such drains are found cracked when the depth of earth filling exceeds seven or eight feet.

It is evidently, therefore, of great importance that the strength of sewer pipe and drain tile should be carefully investigated, and that standard tests should be devised and standard strength specifications adopted which will insure against failure.

In the absence of standard specifications for tests, great differences in the methods of making tests have developed in practice, with the result that our knowledge of the strength remains extremely deficient, and that it is as yet impossible to make a reasonable standard strength specification. It is exceedingly important that uniform methods should be adopted and used by all.

Recommend Standard Tests for Drain Tile and Sewer Pipe.

The cardinal qualities of drain tile and sewer pipe are two in number:

First. The quality of the material of which the pipe is made, and,

Second. The strength of the pipe.

The quality of the material is a cardinal quality, because the pipe will disintegrate and go to pieces unless the ma-

terial of which it is made is of such durable quality as to resist all disintegrating agencies. A cement tile must be made of hard, dense, uniform and comparatively impervious concrete in order to resist the action of destructive agencies and to prevent their ready penetration into its pores. In the same way soft and under-burned sewer pipe or clay drain tile are unsatisfactory, since such pipe cannot resist the action of freezing and thawing, and may disintegrate from other agencies. Also a laminated structure in clay drain tile or sewer pipe prevents resistance to frost and causes failure. High bearing strength of the pipe, as a whole, is not a satisfactory indication of the quality of the material from which the pipe is made, for high strength may be secured by using thick walls. Drain tile or sewer pipe with thick walls may be strong enough, and yet may be porous and disintegrate.

Two simple tests may be made to determine the quality of the material of which drain tile or sewer pipe are made, namely, the absorption test and the determination of the modulus of rupture. The absorption test is of great importance for cement and clay tile. In the case of cement tile the agencies tending to destroy the concrete cannot act with much rapidity unless they obtain access to the interior of the concrete walls. In the case of clay tile, the action of freezing would not be of much importance unless water could obtain access to the interior of the walls. Hence, the absorption test has a greater importance in testing drain tile and sewer pipe than in the case of most other materials of construction. For this reason and because it is simple and easy to make, we advocate it as one of the standard tests for drain tile and sewer pipe.

By the modulus of rupture is meant the tensile breaking strength of the material of the pipe wall, as calculated from the results of the bearing strength test. The determination of the modulus of rupture requires no independent test of the material, and it will probably give an important indication of the quality of the material. The modulus of rupture for drain tile and sewer pipe, calculated as above, exactly corresponds to the modulus of rupture of paving brick calculated from the results of transverse tests.

Hence, we recommend three standard test requirements for drain tile and sewer pipe, namely, the per cent. of absorption, the modulus of rupture and the bearing strength of the pipe. These three test requirements involve two standard tests, namely, the absorption test and the bearing strength test.

Methods of Making Absorption Tests.

The making of absorption tests has been standardized for paving brick, but not for other materials. The standard method for paving brick can be used as a basis from which to

*Read before the Iowa State Drainage Association, Mason City, Iowa, February 14 and 15, 1911.

start in determining the standard method for drain tile and sewer pipe. Studying these standard requirements, there seems to be no reason for varying the process in any material point except in the case of the time of immersion. In the case of paving brick the standard time of immersion is forty-eight hours. Our tests of drain tile and sewer pipe, as well as those of brick, indicate to us that it will be safe to reduce the standard time of immersion to twenty-four hours for drain tile and sewer pipe, and, as this cuts the time required in half, we recommend this change. Our full standard specifications will be found given in detail below.

Methods of Testing Bearing Strength of Drain Tile and Sewer Pipe.

In tests of bearing strength of drain tile and sewer pipe great difference in practice has developed. It will be unnecessary to discuss all of these. For example, it has been the practice of some to completely surround the pipe, during the test, with sand enclosed in heavy framework, but this method is no longer used, so far as the knowledge of the authors extends. Three methods have survived to such an extent that they are worthy of further discussion.

1. The Method of Concentrated Loading.—In this method the test load is applied along a line or a very narrow strip at the top and bottom of the tile. Some plan must be used



Prof. A. Marston, Dean College Engineering, Ames, Iowa.

for insuring comparative uniform distribution of the load, and for this purpose it is considered necessary to introduce a packing material of some kind between the bearing block and the pipe. Professor Talbot, of Illinois, uses a piece of fire hose. Mr. Boynton, of the Universal Cement Company, of Chicago, uses a strip of rubber packing.

There are numerous objections to the method of concentrated loading:

First. The test does not subject the pipe to forces approximating those which it must stand in the ditch.

Second. Even when packing is used there is no method of securing very uniform distribution of the load upon the pipe, especially if the pipe is slightly warped, which is very apt to be the case with hard burned clay pipe.

Third. The method does not admit of satisfactory distribution of pressure on the bells of sewer pipe, as well as on the straight part.

Fourth. The packing used must, by its yielding, introduce splitting stresses. The use of packing has been abandoned for crushing tests of building materials for this reason: The splitting stresses would be of especial importance in a strength test of drain tile or sewer pipe, in which failure must occur by tension.

As a variation of the method of concentrated loading Mr. Boynton, of the Universal Cement Company, has proposed supporting the pipe on two half-rounds at the bottom, spaced

two and one-half inches apart, and applying the load by one half-round at the top, using strips of rubber packing at both top and bottom. The authors consider this method open to all the objections already stated, and to the further objection that it introduces a method of loading which varies for different sizes of pipe. If the two and one-half inch spacing of the lower half-rounds is adopted for six-inch pipe, then to obtain the corresponding loading for a twelve-inch pipe the spacing should be five inches; for twenty-four-inch pipe it should be ten inches; for thirty-six-inch pipe twelve and one-half inches, and so on. If this so-called "Three-Point Method" were adopted, therefore, the strength of any particular diameter of pipe would depend upon the method of testing as well as the quality and dimensions of the pipe.

2. The Combined, or Brooklyn, Method.—For many years the engineers of the city of Brooklyn have provided regular strength tests and requirements in their specifications for sewer pipe. At first they surrounded the pipe by sand in their test, but now apply a concentrated load along the upper part of the straight portion of the sewer pipe, while bedding the pipe in sand at the bottom. No load is applied to the bell. This method undoubtedly gives more nearly the actual strength of the tile in the ditch than the method of concentrated loading, but we believe it will give materially less loads than a sewer pipe or drain tile will carry under actual average ditch conditions, if they are laid with proper precautions. Moreover, it is open, so far as the top loading is concerned, to the other objections raised to the method of concentrated loading.

3. Recommended Standard Method for Testing Bearing Strength.—The Engineering Experiment Station of the Iowa State College has been making tests of drain tile and sewer pipe for several years. When this work first began we made a careful study of actual ditch conditions, and devised a standard method which reproduced these conditions as far as practicable in a laboratory test which could be carried out with uniformity by different experimenters in different laboratories.

The Engineering Experiment Station is just publishing a bulletin upon standard tests of drain tile and sewer pipe, describing this standard method in detail, giving plans for inexpensive testing machines by which it can be carried out, and giving the results of several hundred standard tests of cement and clay drain tile and sewer pipe. In this method the pipe is bedded for one-fourth its circumference at both top and bottom in sand, and the load is uniformly distributed over the upper surface of the top bedding of sand.

This method has proven very satisfactory during several years of use. We have had opportunity to make comparison of the results with the actual loads of earth filling which have caused failure of large pipe in drainage ditches, and our standard method seems fairly to indicate the strength actually developed in the ditch under average actual conditions.

Our standard method enables the load to be uniformly distributed over the pipe, regardless of unimportant irregularities in the shape.

Our proposed standard method avoids all splitting stresses due to packing material in the bearings.

Sand is a material which can readily and cheaply be obtained in any community for the standard test.

By marking the pipe in quarters before testing accurate bedding in the sand is readily insured both above and below, and the method is, therefore, accurate.

The method permits the testing of pipe with bells as readily as those without, since the bells, as well as the straight pipe, can be imbedded in the sand bearing. We have made numerous tests of sewer pipe with bells and find no difficulty in such work.

The method is one which can be adopted for field tests without any testing machine whatever, by simply piling brick, sacks of cement or earth or other convenient material upon the pipe.

It is a method which is equally fair to cement pipe and to clay pipe.

It is a simple method which can be carried out by any

competent engineer, or by any competent superintendent of a factory.

It is a method which does not require translation to enable its results to be understood by people who are not engineers or manufacturers, which is not the case when such tests are made with concentrated loads, since these do not give the actual strength of the pipe as used in the ditch.

For all these reasons, therefore, we strongly recommend the adoption of this method by this organization as the standard method for testing the bearing strength of drain tile and sewer pipe. We ask the passage of a resolution for such adoption.

Testing Machines for Bearing Strength of Drain Tile and Sewer Pipe.

To enable the standard strength test to be made anywhere in the State where drainage or sewerage work is in progress, we have devised home-made testing machines which are within the reach of every city, county, drain tile or sewer pipe factory, or even the means of the drainage or sewerage engineer. Our Ames Junior testing machine consists of an ordinary platform scales of 2,000 pounds capacity placed in a wooden framework, with an ordinary jackscrew to apply the pressure. We find that the 2,000-pound scale can readily be loaded to 5,000 pounds without injuring it.

In addition, we have devised a lever by which, using a longer framework, the same machine can be used for tests up to 10,000 pounds without loading the scales beyond the 2,000-pound rated capacity. We designate this larger machine the Ames Standard testing machine.

Either of these machines can be built by anyone at a cost of from fifty to sixty dollars.

We would say further that Professor Talbot, of the University of Illinois, has devised a home-made testing machine in which the load is applied simply by a lever, and which, with a platform scale for weighing the load, would probably cost little if any more than those which we have devised.

Mr. C. W. Boynton, of the Universal Cement Company, has devised a machine similar to our Ames Junior testing machine which could probably be made at a cost of \$75.00, including scales. Although we do not advise the use of his so-called "three-point bearing," yet his machine could be used with our standard method by a slight variation in its construction.

The Engineering Experiment Station of the Iowa State College will furnish blueprint plans of either the Ames Junior testing machine or the Ames Standard testing machine to anyone desiring them.

Proposed Standard Specifications for Tests of Drain Tile and Sewer Pipe.

We give beneath definite specifications for standard tests, which we ask to have adopted by this convention:

Specifications for Standard Absorption Tests.

1. Specimens.—The specimens shall be each approximately two inches square, and shall extend the full thickness of the pipe wall, with the outer skins unbroken.
2. Number of Test Specimens.—Five individual tests shall constitute a standard test, the average of the five and the result for each specimen being given in the report of the test.
3. Drying Specimens.—Each specimen shall be dried in an oven or by other application of artificial heat until they cease to lose further appreciable amounts of moisture when repeatedly weighed.
4. Brushing Specimens.—All surfaces of the specimens shall be brushed with a stiff brush before weighing the first time.
5. Weighing.—The specimens shall be weighed immediately before immersion on a balance or scales capable of accurately indicating the weight within one-tenth of one per cent.
6. Water for Standard Test.—The water employed in the

standard absorption test shall be pure soft water, at the air temperature of a room which is artificially heated in cold seasons of the year.

7. Immersion of Specimens.—The specimens shall be completely immersed in water for a period of 24 hours.

8. Re-Weighing.—Immediately upon being removed from the water the specimens shall be dried by pressing against them a soft cloth or a piece of blotting paper. There shall be no rubbing or brushing of the specimen. The reweighing shall be done with a balance or scales capable of accurately indicating the weight within one-tenth of one per cent.

9. Calculation of Result.—The result of each absorption test shall be calculated by taking the difference between the initial dry weight and the final weight and dividing the remainder by the initial dry weight.

Specifications for Standard Tests of Bearing Strength.

1. Specimens.—The specimens shall be unbroken, full sized samples of the pipe to be tested. They shall be carefully selected so as to represent fairly the quality of the pipe.
2. Number of Specimens.—Five individual tests shall constitute a standard test, the average of the five and the result for each specimen being given in the report of the test.
3. Drying.—The specimens shall be dried by keeping them in a warm, dry room for a period of at least two days prior to the test.
4. Weighing.—Each dried specimen shall be weighed on a pair of reliable platform scales just prior to the test.
5. Bedding of Specimen for Test.—Each specimen shall be accurately marked, with pencil or crayon lines, in quarters, prior to the test. Specimens shall be carefully bedded above and below in sand for the one-fourth circumference of the pipe, measured on the middle line of the tile wall. The depth of bedding above and below the tile at the thinnest point shall be equal to one-fourth the diameter of the pipe, measured between the middle lines of the tile walls.
6. Top Bearing.—The top bearing frame shall not be allowed to come in contact with the tile or with the test load. The upper surface of the sand in the top bearing shall be carefully struck level with a straight edge, and shall be carefully covered with a heavy, rigid top bearing, with lower surface a true plane, made of heavy timbers or other rigid material, capable of uniformly distributing the test load without any appreciable bending. The test load shall be applied at the exact center of this top bearing in such a way, either by the use of a spherical bearing or by the use of two rollers or rods at right angles, as to leave the timber free to move in both directions. In case the test is made without the use of a machine and by piling on weight, the weight may be piled directly on a platform resting on the top bearing, provided, however, that the weight does not touch the top frame holding the sand, and provided, further, that the weight is piled in such a way as to insure uniform distribution of the load over the top surface of the sand.
7. Frames for Top and Bottom Bearings.—The frames for the top and bottom bearings shall be composed of timbers so heavy as to avoid any appreciable bending by the side pressure of the sand. The frames shall be dressed on their interior surfaces. No frames shall come in contact with the tile during the test. A strip of soft cloth may be attached to the inside of the upper frame on each side along the lower edge to prevent the escape of sand between the frame and the tile.
8. Sand in Bearings.—The sand used for bedding the tile at top and bottom shall be washed sand which has passed a No. 8 screen. It shall be dried by keeping it spread out thin in a warm, dry room.
9. Application of Load.—The test load shall be applied gradually and without shock or disturbance of the tile. The application of the load shall be carried on continuously, and the tile shall not be allowed to stand any considerable length of time under a load smaller than the breaking load.
10. Calculation of the Bearing Load.—The total breaking load shall be taken as equal to the total top load, including the weight of top frame, sand for top bearing, top bearing tim-

bers, etc., plus five-eighths of the weight of the pipe. This total load shall be divided by the length of the pipe in feet so as to give the bearing strength per linear foot of pipe.

Specifications for Calculating the Modulus of Rupture in Standard Tests of Drain Tile and Sewer Pipe.

The modulus of rupture for drain tile and sewer pipe shall be computed from the results of the standard test for bearing strength, according to the following rule:

Divide the bearing strength per linear foot by twelve, multiply the quotient by the radius of the middle line of the tile wall expressed in inches, and divide this product by the square of the minimum thickness of the tile wall at top or bottom, also expressed in inches. This quotient will be the modulus of rupture of the pipe expressed in pounds per square inch.

CLAY PRODUCTS IN LANDSCAPE ARCHITECTURE.

For several years now THE CLAY-WORKER has periodically urged upon the manufacturers of clay products the importance of giving a fair share of attention to developing the sale of clay products in connection with landscape architecture. By this is meant not only park gateways and ornamental piers and other work that comes under the head of what

Written for THE CLAY-WORKER.

STANDARD BRICK PLANT, COFFEYVILLE, KAN.

SITUATED AT THE BASE of a hill of rich shale. 100 feet in height, on their property tract of 30 acres, one mile northwest of the city of Coffeyville, is one of the best brick plants in southeastern Kansas. the Standard Vitri-fied Brick Company, which has proven an important factor in the brick industry of the Sunflower State.

The company was chartered in 1903 with a capital of \$70,000, which has since been raised by the increased valuation of the plant, and its operations have continued almost without cessation for the past seven years.

Seventy-five men are employed the year round and the annual pay-roll is in excess of \$75,000.

The machinery used by the Standard in its brickmaking is from the factory of the American Clay Machinery Company, of Bucyrus, Ohio, and consists of one 16-foot pug mill, one special Giant brick machine, one No. 20 automatic cutter, three Eagle represses and two 9-foot American Clay dry pans.

The daily capacity of the plant is 100,000 blocks.

The power used to operate the machinery and also to drive the big dynamos of their electric lighting plant is obtained



Kiln Yard of the Standard Vitri-fied Brick Company's Plant, Coffeyville, Kan.

might be termed public park improvement, but also private landscaping, garden walls and gateways, and all of the multitude of uses for a permanent and decorative structural material in beautifying the landscape.

These things are growing and the percentage of clay products used in work of this kind depends materially on the efforts put forth by the clay products people themselves. While we have not attained anything like the prominence of landscape work in the old country, we are now coming to it rapidly. People of means are not only building elegant homes, but they are giving much more attention to landscape architecture, and the cities all over the country have become thoroughly awakened to the importance of beautiful parks in plenty. So, that on all sides there are many opportunities for development and chances for the manufacturers of clay products, including brick, terra cotta and ornamental pottery, to get in some good work and not only make more business for themselves, but at the same time do public-spirited duty by making for the better and more permanent improvement of landscapes.

Think over it when you begin going out this spring and summer time to commune with nature, and not only think over it, but try developing some ideas, and then talk about them. Even if you are not deeply interested in all the products a boost for the other products is always a boost for yourself.

from a 250 h.p. Bass Corliss engine, receiving its steam from three Kewanee water tube boilers of 150 h.p. each.

Within 20 feet of the represses is an 18-tunnel waste heat dryer, which has a capacity of 150,000 blocks. The fan used for this dryer is 120 inches in diameter and driven by a 50 h.p. Atlas engine.

Fourteen 12-fire-hole round down-draft kilns, 30 feet in diameter, each with a capacity of 50,000 blocks; one 42-fire-hole Eudaly kiln, with a capacity of 80,000 blocks, and six 42-fire-hole up-draft kilns, each with a capacity of 200,000 blocks, constitute the burning facilities of the plant.

The six up-draft kilns are being torn down, one at a time, and replaced by Bushong rectangular down-draft kilns, each of which will have a capacity of 125,000 blocks. The six kilns when completed will cost nearly \$35,000.

All kilns are gas fired. The round down-draft kilns are equipped with a three-quarter-inch gas lead to each fire hole, reduced to a three-sixteenths-inch mouth at the mixer, while the up-draft kilns have the same size gas lead reduced to five-thirty-seconds of an inch at the mixer.

The average number of cubic feet of gas consumed daily is one and a quarter millions. The burning alone requires an average daily consumption of one million cubic feet.

The shale hill, which is said to be the most convenient of

any shale quarries of the brick plants in the southeastern section of the State, is worked on two levels. Level No. 1 is about 65 feet higher than the floor of the machine room, and level No. 2 is nearly 85 feet higher. Ten medium sized dump cars are used to carry the shale to the dump and are hoisted and lowered by cable, the engine and drum controlling it being on the second level.

Lying parallel to each other and to the kilns, two tracks, terminating nearly 100 feet beyond the kiln yard, each of which will accommodate 17 cars, solves the loading proposition, making it easy to load from any number of kilns to cars on both tracks with scarcely any interference of the wheelers. The loading tracks are four and one-half feet lower than the kiln yard, which makes the car floor and the yard almost level.

The Standard Brick Company is officered by Huston Wyeth, president; L. C. Hamilton, secretary; L. C. Burns, vice-president, all of St. Joseph, Mo., and W. H. Shepard, treasurer, and M. M. Bushong, general manager, both of Coffeyville.

CONCRETE AND CEMENT.

Brick manufacturers are somewhat pessimistic regarding the competition of cement construction, accepting the term in its broadest sense as including both cement and concrete. Perhaps there is reason for it in some portions of the eastern district. Cement construction for small buildings is growing in favor somewhat, but how seriously it will ultimately affect brick must be determined by the future. It is impossible to make any predictions that could lay any claim to accuracy.

What brickmakers should remember is that a considerable proportion of these small buildings have been built of wood in the past. Manifestly, if a building is now made of cement which might have been made of wood under other circumstances, there is really no change in the situation so far as the brick man is concerned. The present desire for what is considered reasonably fireproof construction and the high price of wood have combined to influence builders to adopt cement or concrete as offering a reasonable solution of both problems at relatively low cost. These factors have undoubtedly been the principal features in the adoption of this style of construction.

The brick man's opportunity lies along this same line. He offers a more durable and better appearing material than the cement man and absolutely proof against fire. The additional cost is more than made good to the owner by reduced expenses for insurance and other costs incidental to the non-fireproof structure. Indeed, instead of the desire for cement construction being a detriment, it should be a help, since it indicates how rapidly the movement for fireproof construction is spreading. Rightly presented to builders, the brick man has an unanswerable proposition and should be able to largely increase his business through utilizing the influences that surround the present movement.

It looks like, even though there is more or less wrangling yet, that the powers that be and the railroads are getting on better terms and coming to understand each other better, so that there may be less loggerheading in the future, more attention paid to the needs of the public, and quicker service in the way of passing on and adjudicating complaints and freight rates.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.

WHILE THE building season is progressing fairly, the situation in general is not so good as it was a year ago. This is due largely to the unsettled conditions produced by internal warfare among a number of unions closely connected with building activities. Six big buildings in the downtown district and a large number in various parts of the city have been held up for several weeks by a row between the steam fitters and the plumbers; the carpenters'



The Standard Vitrified Brick Company's Fine Shale Bank.



View of S. V. B. Plant—175-Foot Shale Bank in Background.

union and the sheet metal workers; the latter and the ornamental iron workers; the building laborers and the cement finishers; the carpenters (millwrights) and the machinists; the latter and the elevator constructors, and the latter and the machinery movers. All in all, the mess is a fine one, for these troubles among the various unions always are worse than an out-and-out strike, with sympathetic outbreaks in other quarters. The issue is confused and settlement is harder. It was found necessary to call in Samuel Gompers, of the American Federation of Labor, in the hope that he might straighten out the worst of the tangles. Otherwise, it

has been feared that the building season of 1911 will be seriously affected.

The big buildings which have been tied up—some of them at the outset of construction almost, and others when nearing completion, are the Karpen building, the Jelke building, the Harist Trust building, the Heisen building and the Hearst building.

In figuring on skyscrapers in Chicago after September 1 a height limit of 200 feet, which goes into force on that date, will have to be taken into account. The theory on which this limitation was made was that it would relieve the increasing congestion of the "Loop" district, and would tend to make the

acquired from the Lamber Tree estate, and the razing of the handsome Tree residence will be necessary.

A new wire face-cut brick, the "Velvet" brick, manufactured by the Warren B. Ferris Brick Company, has been introduced on the market with apparent success in the last few months, being energetically pushed by the McLaughlin Building Material Company, exclusive sales agents for Illinois, Indiana, Wisconsin and Michigan, who report a great demand for this brick, and the soft, dark velvet effect which it gives to the exterior surfaces of structures in which it is used. These brick have been used, among other places, on the Oak Park Warehouse and Van Company's Oak Park storehouse, the Freeport Railway and Light Company's power plant at Freeport, Ill., and are being used on a new building being constructed by the University of Chicago for lease to the Great Lakes Dredging and Dock Company, at Lake and Market streets, and on the artistic new railroad station which the Chicago & Northwestern railroad is putting up at Wheaton, just west of Chicago.

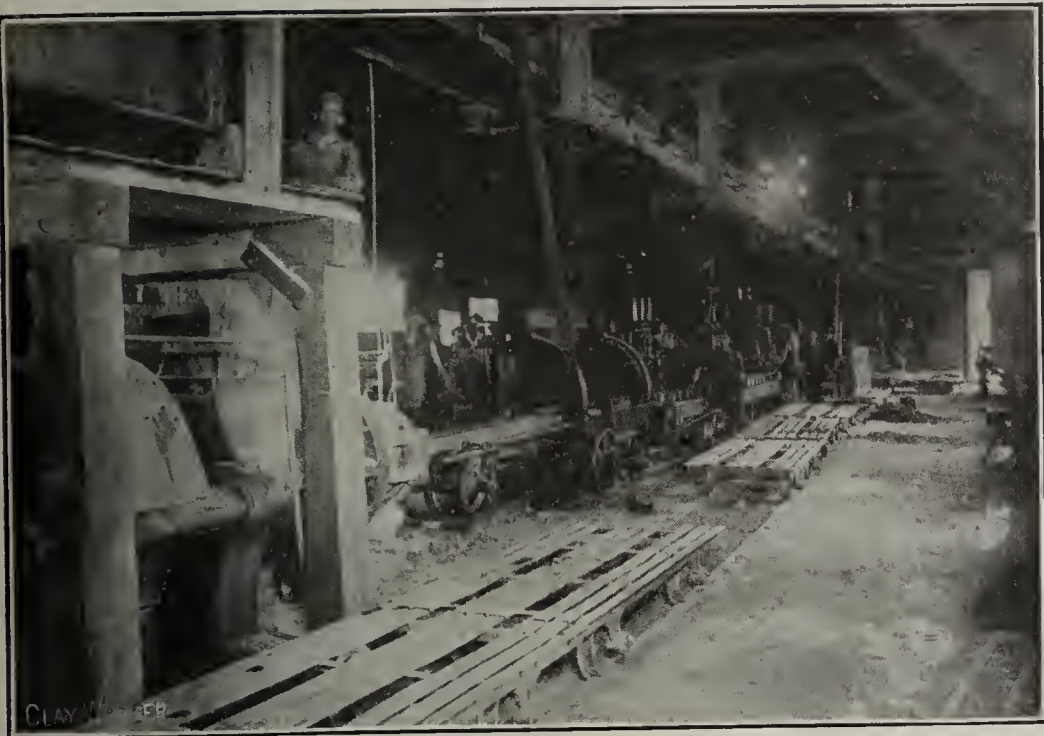
The use of brick for street paving has been deservedly gaining in favor in Chicago in the last eighteen months or so, and the McLaughlin Company has been credited with aiding materially in this worthy missionary work. Chicago has been backward in this reform until comparatively recently, but the McLaughlin Company has been unusually successful in bringing many streets into up-to-date condition so far as pavement was concerned.

Of the large projects within the downtown district should be mentioned the proposed North America building, at the northwest corner of State and Monroe streets, which will run to nineteen stories and cost in the neighborhood of \$1,500,000. This will be a pioneer in several respects, as it is planned to have a number of second-story "shops" for retail trade, and a thoroughly up-to-date waiting and writing-room for women, with telephone service and maids in attendance, just as though the entire building were operated by a single store.

John B. Mallers, the builder of the Mallers building, the first "skyscraper" to be erected in Chicago, a seven-story structure, which quite took away the breath of the builders of that day, has on hand a twenty-story project on the site of the old Continental Hotel, at the southeast corner of Madison street and Wabash avenue.

A building quite as unique in the downtown district today as was the Mallers "skyscraper" of nearly two decades ago, is the Sears building, for which George C. Nimmons is the architect, and which will grace Jackson boulevard at the southeast corner of Plymouth place. Instead of twenty stories, it will be but three, but it is to be exceedingly artistic and one of the finest buildings of its type. Its exterior is to be in soft-toned enameled terra cotta, in varied color

tints, harmoniously blended. Its cost will be about \$125,000. SCRIP.



Machine Room Standard Vitriified Brick Company's Plant.

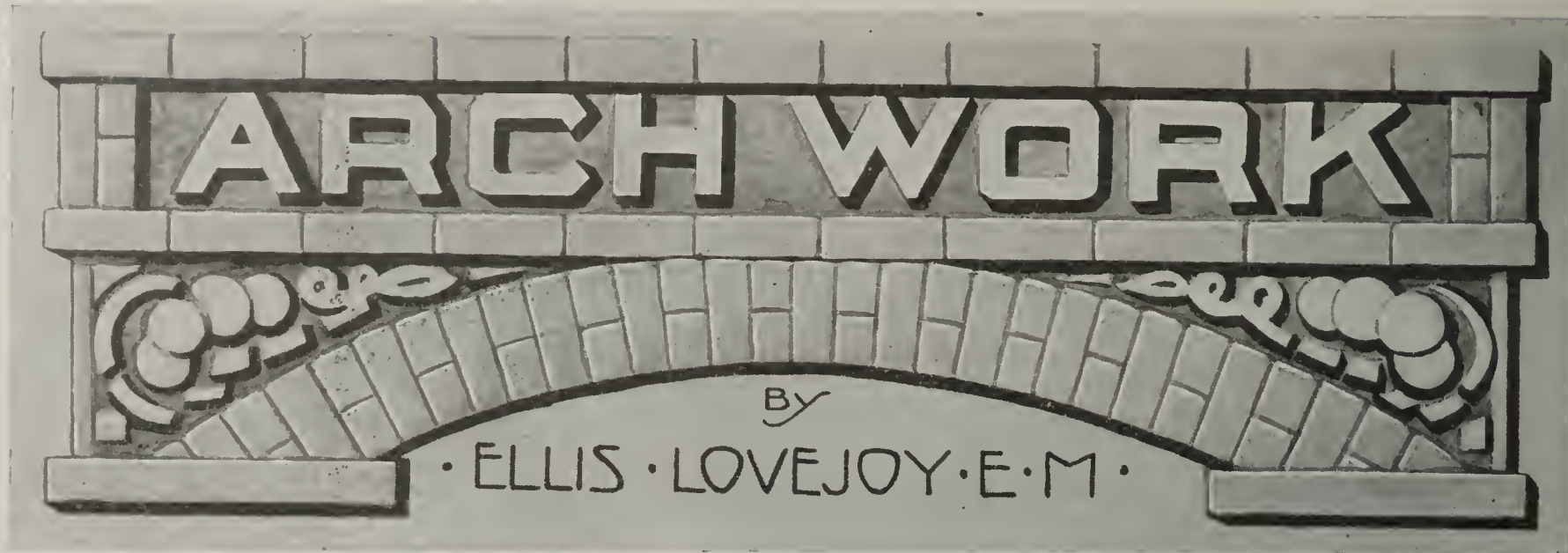


Repressing Brick on Coffeyville (Kas.) Plant.

city spread out, architecturally speaking, over a broader area than it would otherwise. It will be interesting to note the results.

Most of the building projects worth noticing just now lie outside of the "Loop" and are apartment houses, good-sized mercantile buildings, churches, lodge halls and the like. The Medinah Temple is planning to build a magnificent new home on the east half of the block bounded by Ontario, Cass and Ohio streets. It is planned to construct it on the Turkish mosque style of architecture and to make it the largest of its kind in the country. The cost is estimated at about \$300,000. It will have a seating capacity of 5,000. The site is being

There are fifty cities in the United States which exceed 100,000 population, according to the 1910 Census Report, and of these fifty thirty-four made a greater increase during the last ten years than during the ten years previously. The aggregate population of these fifty cities runs a little over 20,000,000. Also of these cities nineteen exceed a quarter-million in population, and the big five are made up of New York, Chicago, Philadelphia, St. Louis and Boston, as usual.



PRELIMINARY STEPS IN ARCH WORK.

FIRST PAPER.

THE PURPOSE of this series of articles is to illustrate the proper manner of laying out arches for grinding or cutting, to discuss the methods of doing the work, to show the proper way of setting in the kilns and of packing for shipment, and to describe the various machines for grinding and cutting, including mention of the several abrasives in use.

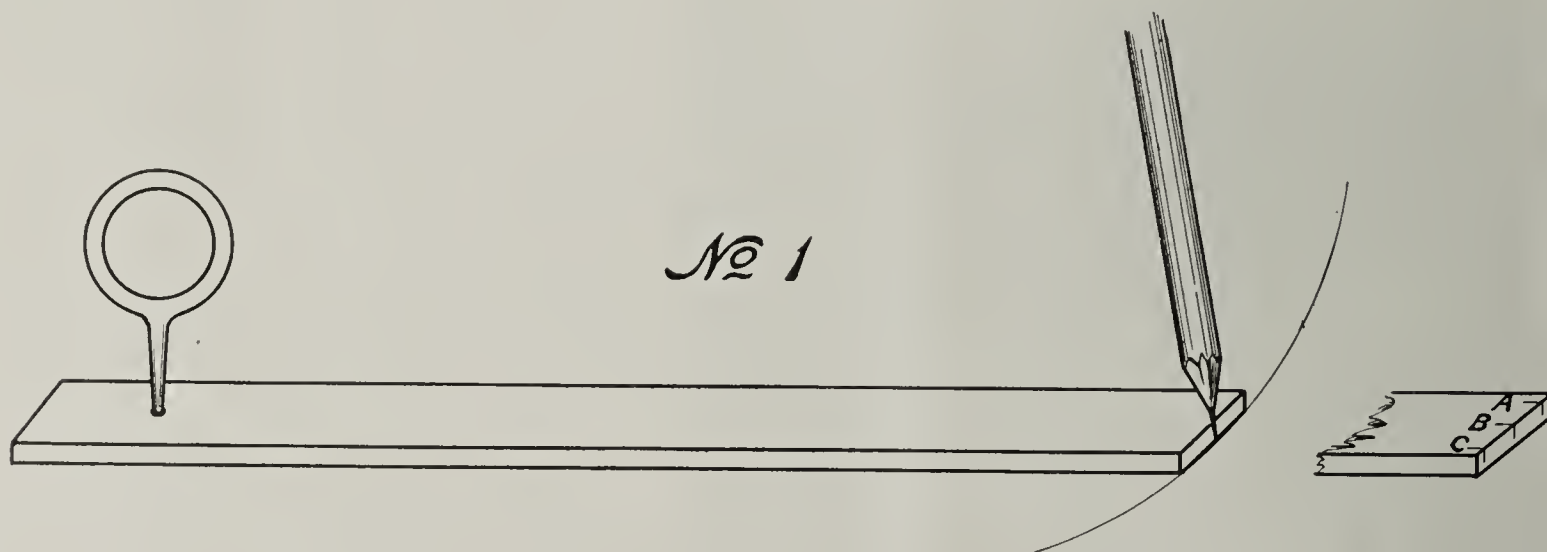
It seems so simple to draw an arch and cut it up into brick sizes that one naturally wonders how anything worth while can be written on the subject, and perhaps it is not worth while, but if the author could have had in the beginning the experience which he now has, he would have avoided

after the architect, who in time sends details made out by some novice in the office who hardly has any conception of a brick; the brickmaker finds that he must either make a lot of special sized bricks or must do a lot of extra cutting and grinding in order to carry out these details, and in desperation he finally corrects the details.

He should have done this in the first place, and by not doing so gets in bad with both contractor and architect, besides perhaps delaying the job and getting the owner down on him.

Architects do not follow the N. B. M. A. standard, and hardly a set of drawings come to the factory upon which the brickmaker does not have to make changes in order to fit his product to the work, and has to take chances in doing so.

We consider it good business policy to take such chances. The brickmaker works out his material to the best advantage



numerous blunders, he would have been saved many anxious hours waiting for letters which were to inform him that his decisions had been wrong and that the work would have to be done over, and perhaps he would have saved the company numerous dollars.

Aside from the worries which came from the uncertainty of the intention of the architect, the numerous kinks and short cuts which permit the work to be more quickly done, are alone worth while.

Some manufacturers say that they demand such drawings from the architects, which removes any doubt.

Many plans are marked "Contractors will furnish all details," and we are wondering how many manufacturers have been up against the details of arches furnished by the contractor.

When such details are not forthcoming the manufacturer sends back to the contractor for details; the contractor goes

and gets the work out promptly; the contractor is not delayed; the architect is not bothered; the owner sees his building growing to the finish. At least three customers who will come again. Such questions as the following are continually coming up. A set of drawings showing circular arches in a series of rings, but with a through joint.

It was impossible with standard bricks because the face of the arch was so wide that a standard brick in the outer ring would be less than nothing in the inner ring, or, in other words, the mortar joints would come together before reaching the soffit line. What was to be done? Make up special bricks? This would delay the work. Refer it to the architect, perhaps to be curtly told to follow the plans, which are perfectly clear. We broke the joints and thus could use standard sized bricks. The contractor got the work promptly and was more than pleased because fewer ground bricks were required. The owner saw no difference. The archi-

tect, unless he was a crank, saw the fault of his drawing and made no objection. How different the result might have been if the plans had been literally followed.

When an architect says twelve inches he may mean twelve inches or he may mean a brick and a half. That is for the brickmaker to decide.

When the architect shows a perfectly flat arch he may intend it so, but the chances are a hundred to one that if you properly camber it, he will accept the work and be pleased that you corrected a fault in his work without calling his attention to it.

Such questions as these are coming up in nearly every set of arches, and the brickmaker should answer most of them as he believes to be right and add to his prestige.

The equipment for the drafting work is not extensive, nor need one be an experienced draftsman, nor must he be an architect or engineer, except he must be able to read plans, which any brickmaker can do.

There should be a long table, with a good-sized drawing board, for it must be remembered that all drawings of this kind are full sized. Drawings of large size or with long centers can be made on the floor, as we have frequently done,

square, so that we may fudge perhaps one-eighth of an inch without changing the brad awl. Fudging can also be done by holding the pencil with the thumb and forefinger and lifting the straight-edge with the second finger, so that the describing pencil can be tilted under or away from the end of the straight-edge, thus getting a smaller or larger circle without changing the center.

When one wishes a two-foot radius, he may miss it a little in forcing the brad awl through the straight-edge or into the table. Instead of correcting the center he may gain or lose a quarter of an inch at the pencil end by the above method of fudging. Since arches are largely circle drawings, such kinks count for speed.

Soft carpenter's pencils are best for the work, and they should be sharpened to chisel edges.

To line out mortar joints we use two pencils fastened together with a twisted rubber band. The sides of the pencils are shaved down in different degrees so that with the two thin sides together we get a thin joint; with a thick and a thin side we get a medium joint, and with the two thick sides a heavy joint. When we wish to be exact, instead of changing the thickness of the pencils, we can adjust the thickness with a slip of paper, using one or more thicknesses.

The rubber band makes a flexible swivel.

It may be remarked that many architects' drawings show a taper joint, which should not be. The lines of all mortar joints should be parallel, and the double pencil makes them so.

In striking the radial joints of a circular arch, or any arch, for that matter, the straight-edge must be half the width of the mortar joint off from the center line of the joint. In order to hold it off this amount from the center of the arch a small cork is fitted to one of the brad awls, which is used as a center pin in striking the radial mortar joints.

The double pencils and the center pin are shown in sketches No. 2 and No. 3.

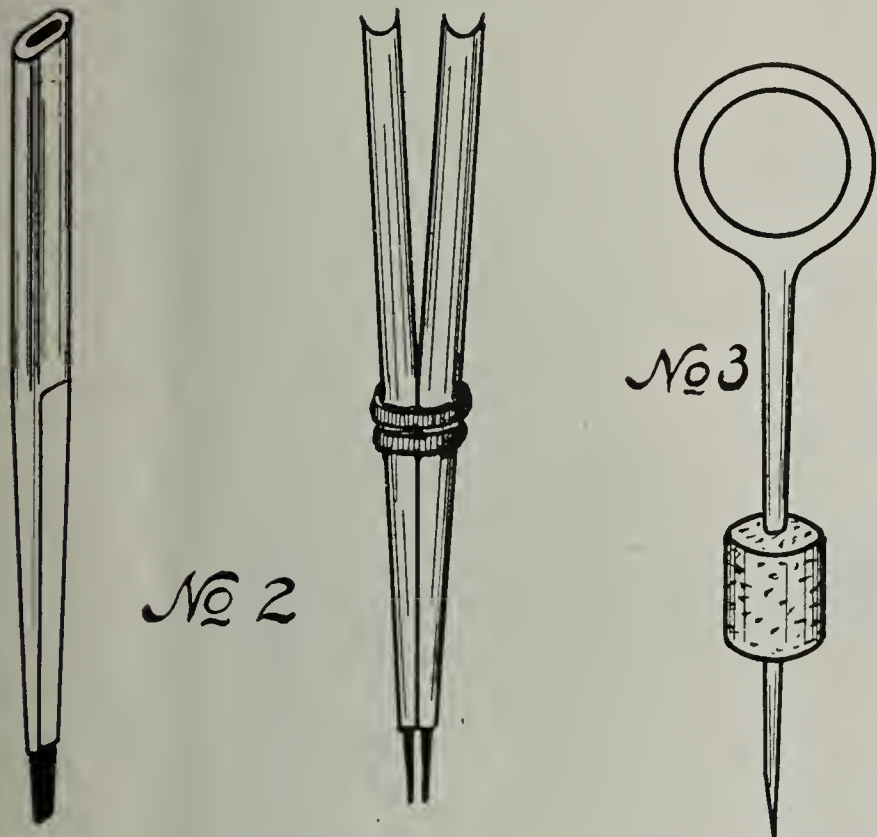
We are now ready for the first problem.

(To be continued.)

EXPORT TRADE IN SPECIAL CLAY PRODUCTS.

In the international trade we have always bought much more special clay products than we have sold, and, generally speaking, the brick industry especially does not look to the export trade as becoming an important factor. Perhaps because of this fact we overlook some good opportunities for extra trade. We know there are opportunities to develop trade in chinaware and some specialties of that kind, and fair progress is being made with the work, but we are probably neglecting some opportunities in brick.

For example, there is a report from the Canary Islands, with which there has recently been established a direct line of ocean-going communication, and the consul, in his report, tells of the arrival of the second cargo since the opening of what is known as the Woermann Line, from New York to the Canary Islands. He gives some idea of the varied nature of the cargo as an encouraging feature of his report, and in the different articles listed is brick to the extent of 505 kilos. This is a small shipment, of course, and it is perhaps for some special purpose, but it is enough to serve as a reminder that here and there in the development of our export trade there may be found opportunities to sell fire brick, paving brick and ornamental brick, terra cotta, and many of the special clay products. Every manufacturer of products of this kind who is in position to supply a call from abroad should keep his name on file with the Bureau of Manufactures at Washington, D. C., together with a statement of the different products he is prepared to furnish. In this way it will often get him into communication with people seeking material of this kind, for many inquiries are made through the consular service, and those who have their names on file are the first to get such inquiries.



or even outdoors on the ground, as we have also done, or in a stock shed.

A drawing Tee-square is required and a set of 45-degree and 30-60-degree triangles come in handy, although a carpenter's square may take the place of both Tee-square and triangles.

An architect's scale, thumb tacks or carpet tacks, two-foot rule, dividers with thumb-screw and spring adjustment preferred, medium heavy manilla drawing paper, with soft finish for pencil work; straight-edges, pencils, brad awls, etc., make up the outfit.

We find that the yard-sticks given away as advertisements are very convenient for straight-edges and for striking short radii. Long straight-edges should be made of soft wood about two inches wide and one-eighth inch thick, and there should be several of them. For very long radii two or more of the straight-edges may be tacked together.

The brad awls should be made slim and sharp-pointed, so they can easily be forced through the straight-edges and into the table and at the same time not split the straight-edge.

Sketch No. 1 shows the method of using brad awl, straight-edge and pencil to strike the circle required.

It is convenient to have the end of the straight-edge not

NEWMAN'S FINE BRICK COUNTRY ROADWAY.

Splendid Four-Mile Stretch of Brick Paved Roadway, a Fine Example of the Best in Durable, Economical Road Construction.

ON A WINDY day the last of March in company with Mr. Will P. Blair, secretary of the N. P. B. M. A., and Mr. W. T. Blackburn, who made Paris, Ill., an excellent brick-paved city, THE CLAY-WORKER scribe boarded a train at Indianapolis for Newman, Ill., with the express desire of inspecting Newman's brick-paved country road. When we reached Newman a forty-mile gale was blowing and the cold wind chilled us to the marrow. However, with such an insistent gentleman as Mr. Blair in the party, who would rather look at a good stretch of brick pavement than eat, we were persuaded to climb into a two-seated surrey and drive out over Newman's newly brick-paved country road, which extends four miles to the north of the town limits and has been the direct means of educating the farmers and people of that vicinity in the real value and many advantages of such a material for road-building purposes.

When we had driven two miles out into the country the

which would cost \$5,000 alone, not including the twelve-foot clay grade. Then, too, the stone macadam roadway is but temporary, while a well-built brick-paved road as found in Newman, is permanent and will last for ages without a dollar's cost for repairs or upkeep.

The real value of the pavement is shown in the following statement: On January 18, 1911, Mr. James Rice, a farmer living two and a half miles outside of Newman, alongside the brick roadway, hauled with a single team five wagon-loads of corn at one time. The round trip from farm to Roller granary, a distance of five miles, was made in two and one-half hours, the driver being assisted by only one man in the unloading. This feat was accomplished at a time when it would have been difficult for a horse and buggy to make the trip in less than that time on their unimproved country roadways, which are certainly in bad condition, as are most unimproved country roadways at this time of the year. The



Hauling Corn on Newman's Brick Paved Country Road at a Time When an Empty Wagon Could Not be Pulled on Dirt Road.

wind was lashing the curtains and burning our faces to such an extent that further travel was almost insufferable, so we turned about and after hastily taking some pictures, drove back hurriedly to Newman. During this drive, however, we had ample opportunity to see the pavement, and were well satisfied that we had made the trip.

The pavement for the first quarter of a mile touching Newman's boundary line is 14 feet wide, while the remainder is but 9 feet wide, but of ample width for its purpose. The brick are those of the Marion (Ind.) Brick Company and were laid on a good two-inch sand cushion overlying a six-inch concrete foundation. A well-made cement filler and a suitable concrete curbing hold the brick in place and make the pavement strong and perfect. A twelve-foot clay grade was built beside the brick pavement. The brick-paved roadway and the clay grade, covering 21 feet in width, was built for \$1.62 a linear foot, or \$8,000 per mile. When the durability, strength and ease of travel are taken into consideration, this is a low figure, as compared with a stone macadam road,

total amount of corn hauled in this trip amounted to 319 bushels and 60 pounds, or 11 tons, 350 pounds. The corn was owned by Rice and was weighed at Roller's by S. J. Slaughter.

One of the illustrations shown with this article is a picture taken of the five loads on their way to Newman and gives an idea of how this brick-paved roadway solved the farmers' problem of haulage. They are well satisfied and want all the brick pavements they can possibly have in their neighborhood.

Those who were opposed to it so strenuously at first and went so far as to place every obstacle possible in the way to defeat the proposition, are now among the chief exponents and enthusiastic advocates. In fact, the two farmers, namely, Messrs. Kinkaid and Wagner, who fought the petition most strenuously have learned the real value of such a roadway and are willing to give unusual concessions for the continuance of same. Mr. Kinkaid offers a donation of \$2,000 outside of his assessment and taxes for the building of an extension past his farm, while Mr. Wagner declares that he will

pay his taxes for ten years in advance if only he can have it built to the limits of his farm.

The city officials have obtained all the bonds the state law will allow for the construction of roadways, so that at the present time the extension of the roadway is impossible, but within the next year or so several miles will be added to this well-built roadway. All credit for this pavement is due to J. W. Roller, a wealthy man in Newman, who was so thoroughly convinced that brick pavement was the only construction of real value to the farmers in hauling their products to market that he built a quarter of a mile of brick roadway at his own expense to prove to the doubting ones its real importance to the farmers. This roadway he built from the town limits to his own farm, making it 14 feet wide with four-inch concrete foundation, two-inch sand cushion and cement filler, also concrete curbing. So well satisfied did the farmers become with this small stretch of pavement during the hauling season and so unsatisfactory and almost impassable were the country roads that their eyes were opened and an enthusiastic campaign resulted in Mr. Roller taking the contract for the construction of the four-mile stretch, and in this manner he was repaid for the expense he had undergone in the first instance.

Mr. Blackburn declared that after driving over the pavement he could not feel otherwise than that the farmers could not afford to be without this brick roadway, no matter what the cost, for the condition of the prairie land in Illinois makes good brick roadways imperative, while Mr. Blair stated that if the landowners could be persuaded to sit down and figure the advantage of a brick highway, both in comparison with an improved gravel road, a macadam road, tar or greased road, or without any road at all, their conclusion would be such that hundreds of miles of brick roads would be built in the farming districts of Illinois, and there would be a great economical saving in their use from year to year. Each 160 acres of this Illinois land produces on an average of four hundred and forty tons of corn annually. With the good roads this immense crop could be hauled to market with about forty-five loads for a single team, but with the roads such as they are, even with the improved gravel and stone roads, it requires to move such a crop about 250 loads, pulled by a light team. But the 250 loads are obliged to be hauled in a condition of weather that insures the roads to be in a useful condition, and that is just the kind of weather that should be

utilized in the general farm work; but with the brick roads the crops can be hauled off during a time when general work on the farm cannot be engaged in.

The people in and about Newman are fully awake to the many advantages of a good brick-paved country road and are going to insist that many more miles of this excellent material be laid in their township. It is a fine example of the best possible permanent pavement and should give impetus to the constructing of many similar roadways throughout the country.

THE CLAY INDUSTRY IN ENGLAND.

Exchanges received in San Francisco from Great Britain indicate that 3,000 pottery operatives in North Staffordshire

have handed in a month's notice to cease work. The firms affected represent the whole trade. Other notices will be handed in later on. About 50,000 operatives are employed in the pottery trade in and around Hanley, Stoke and other districts of "The Potteries," as the center of the great clay industry is known in England. Although a relatively small proportion of the 50,000 operatives are members of the union, the stoppage of the organized workers will dislocate the entire trade and lead to a general closing down of the factories. The workers demand more equitable consideration of customs of the trade, better allowance of apprentices, and a general rearrangement of conditions between worker and employer.

Trade generally in the clay industry in England and Wales is slack. Most of the North Wales potteries are on three-quarter



A Glimpse of Newman's Excellent Brick Paved Country Roadway

time. Scores of skilled clayworkers have during the last few months left England for the United States, the exodus of the plaster model and mold makers from North Wales in particular having been phenomenal. At the several potteries in the neighborhood of Ruabon, Denbyshire, the pioneer district of the clay industry, trade was never worse than at the present. At one Ruabon terra cotta plant, where fourteen draftsmen were engaged busily ten years ago, the staff is now simply a solitary draftsman. Most of those who left through slackness of trade are now in the United States attached to Eastern and Western pottery companies.

Intensive farming of the truck garden class, which is quite the fad nowadays, makes for a larger use of drain tile and a better use of the saw.



Under Drainage and Dry Farming.

THE COLORED preacher in Kirkwood, Mo., who was caught stealing coal in the winter time some years ago told the judge in defense of his actions that "the Lord helps them that help themselves." And so he does. At the creation materials suited to the needs of man were made and laws governing these materials were instituted. It is for man to utilize these materials and laws so far as he can in helping himself.

The almost miraculous achievements of our modern civilization—the fur overcoat, the umbrella, the heating plant, the sleigh, the carriage, the automobile, the trolley car, the aeroplane, the roast beef, the yeast bread, the mustard plaster, the dose of castor oil, the vaccine virus, the antitoxine, the various serums; the postal service, the telephone, the wireless telegraph; the power plow, the manure spreader, the irrigation ditch and the tile drain are only instances of men helping themselves to what they want.

Men help themselves by utilizing the materials and natural laws given in the creation of the world.

In order that farmers may raise good crops they must work together with these natural laws. When there is too much water in the fields the law of gravity is used. A channel is cut, obstructions to the action of gravity removed and the water runs away in conformity with the universal law of gravitation. In the arid districts men help themselves by cutting irrigation ditches—removing the obstructions that prevent the waters in the streams higher up from running down upon the lands to be cultivated, helping themselves to the water they need.

Gravitation will not help to supply and conserve moisture in all cultivated fields during the crop growing season. There is another force that is of inestimable value to the husbandman in supplying moisture to his growing crops. This unostentatious, quiet little force is called capillary attraction from the small, hair-like or hair-sized, places or spaces where it acts. On this small but very important natural law or force rests the basis of subsoiling and dry farming. The object of subsoiling is to loosen up the soil to a greater depth and make it mellow and porous so the air can come in and "slack" the subsoil and put it in condition so that the roots can go down easier and deeper and so capillary attraction can act more readily in supplying moisture from below and distributing it where it is most needed.

The predominant thought in dry farming in the semi-arid districts is the conservation of moisture by keeping the soil finely pulverized.

It is well known that an open, friable soil withstands the damaging effects of a drought much better than a close, compact soil. Therefore the mechanical condition of the soil should receive attention.

Advanced farmers and gardeners have learned that to keep the surface soil fine and level by frequent stirring it serves as a mulch and prevents the escape of much of the moisture so necessary to plant growth. It is a good practice to stir the surface of the soil as soon after a shower of rain as the soil will pulverize finely. A rain runs the surface together and renders the capillary tubes more effective in conducting the soil moisture to the surface, where it is evaporated.

By passing over the surface soon after a rainfall the capil-

lary tubes are broken and the moisture held for the benefit of the growing crop. Or, in other words, the surface soil made fine for a depth of two or more inches serves as a mulch.

Tile Drainage Pulverizes the Soil.

Some fifty years ago, when a farmer was draining a tract of very wet land his wife suggested that he would want to stop up his drains during the summer time.

"My dear," he said, "when that time comes there will be no water to drain under any circumstances and the land will be covered with cracks, the result of the drought, in which you could put your hand, if I did not drain, and mellow as an ash heap and moist if I do."

When stiff subsoil is thrown out and exposed to the air it soon slacks and becomes friable. When land is tiled and the surplus water taken out from between the particles of the soil air enters and the soil becomes mellow by slacking. By holding a lighted match at the outlet of a tile drain the blaze will be seen to blow with the current of air passing through the tile and airing or ventilating the soil. The tile are empty during a drought and large quantities of the warm summer air laden with water in the form of invisible vapor is carried into the soil, which, being shaded, is cooler than the air. When the warm, moisture-laden air comes in contact with the cool soil moisture as dew is deposited on the same principle as great drops of water gather on the outside of our ice pitchers on a summer day. Thus does drained land increase its moisture from above.

An undrained soil that is thoroughly saturated and allowed to dry as it must, by evaporation only, becomes hard and the particles of soil are glued together, and it is particularly noticeable on the surface that the substances held in solution by the standing water will form a hurtful crust not unlike the glazed surface of pottery, which prevents air from entering and also dew from being readily absorbed.

One of the greatest damages from drought is the cracking of clay soil into a perfect network of fissures, sometimes as wide as one or two inches on the surface and even a half-inch as far down as for two or three feet. These, together with the innumerable small fissures, tear apart the rootlets of the plants, whose important office is to absorb plant food. This hard-baked, cracked subsoil does not draw moisture very well from below.

Benefits of Well Tiled Land.

After a soil has been tiled for a few years and the air has had time to act upon the soil the subsoil will become mellow and porous down to the depth affected by the drains. When water falls upon such well-drained land it settles down into the soil and the warm air and roots follow and by their combined action, together with the decay of the roots, the subsoil is rendered more porous from year to year.

Well-drained land being mellow and porous, will absorb and hold within its pores much larger quantities of water than undrained soil, and will hold it to supply the needs of growing plants.

The large, deep, mellow, drained field will take in and hold beneath the surface an ordinary rainfall until it can be carried away by the tile, thus preventing standing water upon the surface with its deleterious effects.

It also prevents surface washing and carries surface fertility and manures down into the soil, where it is filtered out and held, to be taken up by the roots and utilized by growing crops.

Preserve the Soil Moisture.

By numerous tests it has been shown that more water evaporates from uncultivated land than from cultivated land. There will be found more moisture in corn land in time of drought than in pasture land or stubble land. Experiments show that soil loses water at night in dry seasons. Much of the dew is water that escaped from the soil and condensed on reaching the colder air. Trees do not take up water from the air by their leaves. They give water out. This is true of

growing crops. Hence the importance of preserving the soil moisture.

Here is an important factor to be observed in order to avoid the effects of drought. Since the leaves of plants evaporate water taken from the soil by the roots, the ground should be kept free from weeds whose roots and leaves will rob the soil of water that is needed by the crops. One large weed or bunch of grass growing in a potato row will take up moisture enough to make three or four good potatoes.

Well-drained, clean, fine soil, frequently stirred and dragged on the surface, especially after a rainfall, will serve to lessen the damaging effects of drought.

Subsoiling with Dynamite.

The attempts of J. Henry Caldwell, of Spartanburg, N. C., to secure a mellow soil is described in the "Technical World Magazine" in an article entitled "Plowing with Dynamite." This is the most dramatic, spectacular, high-sounding, rip-roaring, ear-splitting, earth-shaking, elevating, pulverizing, far-reaching method of subsoiling of which we have ever heard and is described substantially as follows:

"The usual method of breaking the soil is with plows drawn by horses and only loosens the soil to the depth of less than a foot. This is insufficient for deep, tight soils that are hard and practically impervious. On soils with hardpan near the surface fertilizers cannot penetrate to depths sufficient to give best results, but are often washed away by rains because it is kept on or near the surface. This difficulty can only be overcome by breaking the land to much greater depths than can be done by ordinary plowing. Attempts at plowing to greater depths proved too hard for horses and ordinary machinery.

"I next tried plowing a cotton field in the usual manner and charged two acres of it with seventy-five pounds of dynamite to the acre. The dynamite cartridges were put two feet apart in rows. The method of planting the cartridges was simple—one man walked ahead with a crowbar and stuck it into the ground about three feet; the man following affixed a percussion cap to the stick of dynamite and two feet of fuse and tamped it into the hole with a rake handle, finally leaving only the white fuse protruding. Incidentally, the dynamite used was of the strength ordinarily used for blasting stumps and is not as costly as that used in rock quarries.

"In exploding the field four rows were set off at a time, one man going rapidly down each row lighting fuses with a red-hot iron as he went. The explosions came thick and fast, and both the sub and surface soils were sent into the air in clouds, again falling on the land in a powdery mist."

Mr. Caldwell concluded that the land must be broken to the depth of four or five feet. He had observed that where stumps had been pulled or any deep excavation made and filled the land grew much better crops than on the surrounding soil. The crops over such spots did not wither with drought and in time of rain the surface soil, with its valuable plant food, was not washed away. He therefore concluded that clay once disturbed to a depth of four feet will never pack to its original denseness, and for that reason will always hold its moisture and plant food for the growth of crops.

Mr. Caldwell said: "The cost of breaking land to this depth has been the question; horse-power cannot be considered; the cost of digging is prohibitive.

"It seemed to me that the only key to the situation lay in the use of dynamite. I began by exploding a stick of dynamite in each of my watermelon hills and the resulting increase amounting to 33 per cent. of the crop, allowing me to pay for the dynamite and have an increased profit besides."

Another instance is chronicled in the National Land and Irrigation Journal as follows:

Raising the rate of production by the use of dynamite seems to savor somewhat of heroic treatment, but it appears to have been done, and done successfully, on a limited scale. Moreover, it is reported that a company dealing in explosives

has expressed a sufficient interest in the trials already made to offer to furnish the necessary explosive for a test with different crops on a five-acre tract.

Nothing radical or incredible is involved in the process, as it is described to have been carried out by the superintendent of the Jasper county farm in Missouri. The farm is carried on under the direction of the State Agricultural College. One of the fields was made practically useless by the presence of a pond in the middle of it, due to a hard, water-tight subsoil. The tool necessary for drainage consisted solely of an old-fashioned auger lengthened by welding on a bar of steel. With this a hole an inch and a half in diameter was bored to a depth of four feet, and into this a single stick of dynamite was dropped and firmly tamped. The explosion of the charge raised a hill some 30 feet in diameter and broke up the ground in every direction for about the same distance. The success with the first hole led to the trial of a similar treatment for the whole field, with the result that its productive-ness of corn was raised from 5 to 45 bushels to the acre. This particular field is described as having been the lowest point of a considerable area, and situated too low to drain.

Probably there are not very many or very extensive areas where the conditions are such that it would pay to treat by this heroic method of deep subsoiling; but, on the other hand, it is not likely that any of the usual methods of treatment would have produced any results at all in the case in question. If one forgets for a moment the somewhat ridiculous simplicity of the treatment, really the cost of an auger, a few sticks of dynamite and the labor of boring a series of holes 30 feet apart are not a heavy price to pay for shooting new life into refractory soil.

TILE KILN FLOORS.

THESE IS A vast diversity in the way tile kiln floors are made. Either there is no "best" way to make them or many manufacturers have not learned what is the best. These remarks, prompted by experience, observation, conversation and cogitation, refer to down-draft kilns.

If there is a best kind of floor for down-draft tile kilns we would all be benefited by using that kind.

A good floor is level, so that the setter can set tile down as fast as he can receive them, and the tile will set straight up and flat on the bottom. The air spaces will be of such size and properly distributed so that the heat will be evenly carried by the draft to all parts of the kiln. If one place burns too hard the spaces there should be reduced and the draft checked. If another place does not burn hard enough, the draft should be increased.

Many tile manufacturers like the slotted brick permanent floor.

Tile can be set in a kiln with a permanent, level floor much faster and easier than where brick have to be set in the bottom to make flues for the draft. It is not profitable to be bothered with bringing and setting a few brick in the bottom of a kiln while a crew of men are on the job of setting the kiln with tile. Kiln floors should be built before time to set the kiln. Floor building and kiln setting are two distinct operations. Some kilns have solid floors and the tile are set with spaces between them to allow the draft to work towards draft holes in or near the floor.

This may be well enough when setting large tile on the floor, but small tile are apt to be unstable and tedious to set, especially if the floor is a little uneven. Besides, the spaces between the tile in the bottom course are lost and with a slotted floor could all have been filled with tile, thus increasing the amount burned at each time.

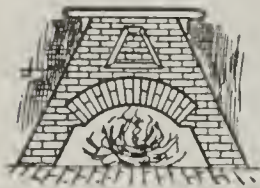
The objection has been advanced against slotted kiln floors with bench walls and tunnels under the slotted brick floor that the tunnels become filled and obstructed after several

burnings and must be cleaned out and that the bench walls become staggered and rickety and must be rebuilt.

Experience has taught the writer that this cleaning and repairing can be done when there is no crew of men in waiting, and is a very small item compared with the losses attending the use of floors of other kinds that we have seen.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



ACCORDING TO the building permits taken out the past month there is less going on in this line than at this time last year by far. At this time last year everything indicated a very heavy demand for building material of all kinds, but as the spring advanced the demand fell off, largely on account of the fact that money was hard to get on loans. This year there seems to be more money in sight, in fact, the bank statements show that they have a great deal more money on hand than is best for them, from a revenue standpoint. The people who borrow money and erect buildings as a matter of speculation, however, seem to not be pushing operations as they were a year ago and for several years previous.

Brick men declare that the class of building permits which are being taken out at this time, however, are best for their business, as the small jobs—cottages, residences, flat buildings and small stores—are the buildings which take a larger percentage of brick to the amount invested than the larger buildings, where steel and concrete take the place of so many brick.

There seems to also be a feeling among the brick dealers that this year is going to start off a little slow and end up with a big demand, that the demand will steadily increase right through as the year advances. The ordinary winter weather in this section of the country is so mild that only a few days need be lost in the entire season on account of it, if there is enough work to do, and it is predicted that there will be plenty of work to keep contractors' gangs together and working pretty regularly all next winter after finishing up a big summer and fall season.

Just at the present time there is a strike of the carpenters, as they demand 55 cents per hour instead of 50 cents, and a Saturday half-holiday. This will, of course, have some effect upon building operations, although contractors say the "woods are full" of carpenters who are willing to work at the old wage, and they will have no trouble filling the strikers' places. The worst drawback, so they say, will be the timidity of those who contemplate building, as the timid ones will defer starting their building until strike troubles are over. Of course, if this course was followed by all there would be little building done, as some organization is always sure to strike just as soon as it thinks it has the contractors well supplied with work, so the demand can be enforced. We note that there are very few strikes among the building trades in the winter season, when contractors are doing their very best to find work so they can keep their men busy, and at least working enough to pay expenses. It is at the time of year when the contractor expects to make some money for himself that the strike comes. At the present time there is no talk of a sympathy strike with the carpenters.

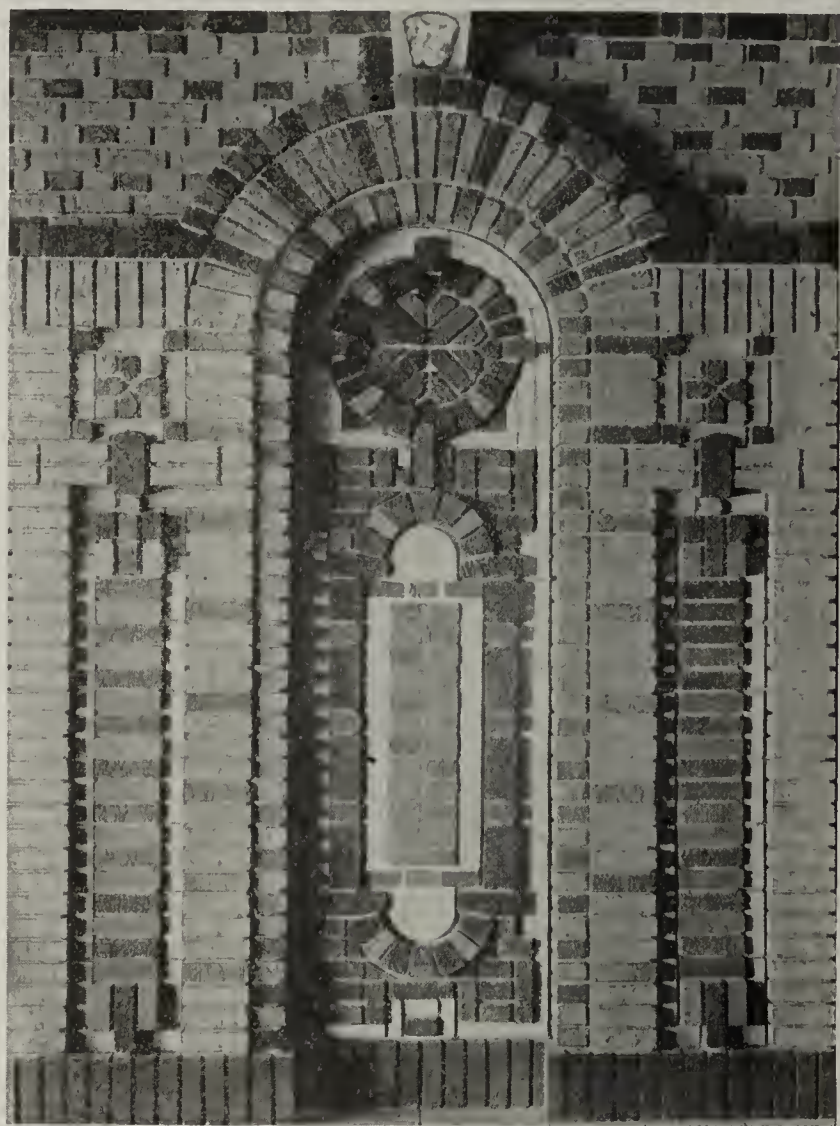
The Diamond plant of the Kansas City Hydraulic Pressed Brick Company is still operating on coal as a fuel, and not only their other plants, but all the idle plants in the city, will begin operations as soon as they are assured of a steady supply of gas to burn with. It is expected that plenty of gas will be available within a few days. The Lyle and Flanagan plants are already running right along and are selling their brick as fast as they are turned out.

Brick jobbers report that they were not able to make

nearly as good a showing in March as they should on account of the shortage of brick, as they could not nearly keep up with the demands made upon them.

At a meeting of brickmakers held the latter part of March in southern Kansas it was found by comparing notes that there was 8,000,000 less brick on hand at their plants than at the same time last year, and all were of the opinion that the demand for brick justified an advance in the price of from 25 cents to 50 cents per thousand, making the price at plant about \$4.00. This would put the price in Kansas City at from \$6.00 to \$6.25, according to the weight of the brick per thousand, on board cars, and jobbers are not expecting any cheaper brick for a good while, as the demand ought to be strong enough right along now to keep the market clean of any surplus.

The Kansas City Hydraulic Pressed Brick Company reports the sale of 100,000 of its Diamond vitrified face brick to be used in the construction of the new building at the Wil-



Fine Display of Front Brick in New York Office of H. P. B. Co.

liam Jewell College, in Liberty, Mo., and the sale of 75,000 of the St. Louis gray brick to be used for facing the new Y. M. C. A. building in Sedalia, Mo.

The plant of the Topeka Vitrified Brick Company, of Topeka, Kas., is offered for sale and will be a bargain for someone, as it is able to turn out pavers of a good quality.

Thomas Eadie, head of the Eadie Building Supply Company, has returned from his pleasure trip to California.

A. C. Baird, formerly secretary of the Kansas City Hydraulic Pressed Brick Company, is doing a jobbing business on his own account, with offices in the R. A. Long building.

K. A. W.

Disastrous floods are bringing their lessons, and the most impressive one is that we need storage reservoirs on the watersheds, not only to prevent floods, but also to insure crops by irrigation. It will take years of work, so the sooner we start the better.

Written for THE CLAY-WORKER.

IS A BRICK DISPLAY WORTH WHILE?

SCATTERED over this country there are numerous clay product displays to be seen in the offices and show rooms of the progressive clayworkers, who profess this to be their best method of appealing to their customers and educating them in the beauty and adaptability of clay products in commercial and structural lines. The display as an advertising proposition has a great value, especially if it is so made up as to show the various methods of laying the wall, mantel, floor, roof, etc., with respect to the different joints and bonds and artistic colorings in the ware itself. No matter what line of ceramic ware the exhibitor desires to show his customers and visitors, a sample room with attractive displays is bound to bring excellent returns for the in-

vestment or outlay and time spent in making same of an appealing nature.

have to look to any other material to secure any desired effect. The firm receives big returns from its investment in this display, for once the customer or probable purchaser of brick visits this room, views the exhibit and talks over the possibilities in brick work, it is seldom that an undesirable verdict is rendered.

This is only one of the many displays bringing big returns to the owners. We find them in St. Paul, Chicago, Pittsburg, Cleveland, St. Louis, Columbus, Louisville, Indianapolis, Detroit, San Francisco, and nearly all of the larger cities.

In the pottery line there is hardly a manufacturer but devotes part of the space in his factory to a sample room, where the best of his products are exhibited. We can say the same for the floor and wall tile manufacturers, the makers of sanitary ware, earthenware and stoneware, sewer pipe,



Display of Front and Ornamental Brick in Office of Fredenburg & Lounsbury, New York City.

vestment or outlay and time spent in making same of an appealing nature.

Many of our representative face brick manufacturers make attractive displays of front brick in their city offices. One of the most attractive exhibits we know of is that of Fredenburg & Lounsbury, representing the Hydraulic Pressed Brick Co., with offices at 381 Fourth street, New York City. We are pleased to show two views taken of their display room, in which may be seen some exceptionally fine effects. The display is so arranged and constructed as to show to best advantage their many different colored brick, set up with various bonds and in unusual and original patterns. The marvelous variety of colors and combinations of same with well-selected mortar joints are the chief points of value in this permanent exhibit. It shows that the possibilities in color effect in brick work are boundless and that we do not

fire clay specialties and chemical ware, and various other lines in the ceramic field, but to a much smaller degree.

There are vast possibilities in fine architectural effects in brick work, and an original idea in method of employing different shades and colorings oftentimes makes a great demand for the innovator's product. With such an excellent material as clay, that can be burned to almost any color and made in attractive shapes and sizes, there is no end to the manners in which it may be employed.

If you are making a product you think worth while, and one which you know is worth all your time and trouble in boosting, why not start in right by educating your customers with displays showing just how it can be used to best advantage?

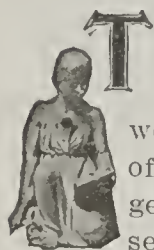
Many a good clay product, excellent in its original finish,

has been spoiled and degraded through inartistic work of contractors and architects.

In this age of clay there are no bounds to the possibilities of clay products, especially so in the structural lines. Many of our manufacturers are wide awake to this fact, and are constantly at work forming new ideas and placing the good ones into effect. The displays of our progressive brick manufacturers prove this. Are you in doubt as to whether or not an artistic display of your product would be worth while?

Written for THE CLAY-WORKER.

BRICK NEWS OF NORTHWESTERN OHIO.



TOLEDO BRICK manufacturing institutions are now showing considerable activity, and reports from various points indicate that all over northwestern Ohio there is unusual activity in all branches of the brick and tile business. Building business generally is humming and the prospects are that the season will be an exceptionally fine one. In Toledo, while there is a splendid volume of building in progress, it is noticeable that the large brick-consuming jobs are much more numerous than last year. Last year the brick business here suffered somewhat by the fact that industrial and commercial construction work was extremely low, and while the totals of building operations were satisfactory, the bulk of the business came from frame residences and other smaller structures requiring but few brick in their building. Several million dollars will be expended this summer in large factory buildings and store and other business buildings, school houses and public works. Building operations thus far have been highly satisfactory, the figures showing substantial gains over last fall. All the local brick plants are now very busy, and some have increased their capacity to meet coming needs. At that stocks are not at all large, and it would not be surprising to see an actual scarcity before the season has advanced far. The outside trade holds up well and thousands upon thousands of building brick are now being shipped out to Michigan and Ohio points. Prices are naturally holding very firm, and there is no prospect of decline. While there has been no recent advance in value, the market may be said to be growing stronger every day, and all indications point upward when a change in price does come.

Street paving, sewerage and draining work will be much more extensive this year than ever known in this section before if indications count for anything. Already miles and miles of street paving contracts have been let in northwestern Ohio cities and towns. Toledo has awarded contracts for an unusually large amount of this work, and Toledo is no exception among municipalities of this section. The result is a firm market, with small prospect of inactivity for some time to come. One thing that has helped along this line perhaps more than anything else has been the general clearing of the financial atmosphere, which has brought not alone a larger volume of work, but has enabled municipalities to sell their bonds and thus take care of their part of the work, a thing which bothered many of them for a long time following the recent financial stringency. Quite naturally farmers, who have for several years enjoyed unusual prosperity, are now expending more money in drain tile and other improvements, all of which is making itself felt in the general prosperity of clayworking industries. Other clayworking institutions are also sharing in the general prosperity, and notice the better condition of the money market in increased orders for their wares. On the whole, it may be said that all clayworking plants in this section appear to be entering upon one of the most cheerful seasons of recent years, and a general tone of optimism prevails in every branch of the business.

The city of Toledo is just now in the throes of a strike, which promises to retard building operations materially, even

though nothing worse should occur. Some time ago the building trades of this city adopted the universal card system, which means in effect that no union man will work on any job for a contractor who employs a non-union man. The system was adopted by the carpenters, lathers, painters, plasterers, structural iron workers, plumbers and, in fact, by all departments of the building trades, with the exception of the bricklayers, who are not affiliated with the central labor body. The demand that the universal card system, together with a substantial advance in wages, ranging from 10 to 20 per cent., to become effective on April 1, brought a protest from contractors, who announced that while they might be willing to accede to a demand for higher wages, they were not willing to adopt the closed shop or universal card system. Upon the refusal to meet the demand the members of the building trades went out on strike, and all efforts thus far to effect a settlement of the trouble have proven unavailing. It is estimated that at least 4,000 workers in Toledo will be affected by the difficulty. Both employers and employees appear to be unalterable in their positions and the result is problematical. While the bricklayers are not involved in the actual dispute, the business will necessarily be much disturbed by the difficulty, as brickwork cannot proceed far without other workers to carry on the incidental construction work.

Amos Gretzler, Toledo contractor, was last week awarded the contract to erect a handsome brick store, bakery and barber shop for Herman Bremfoerder. The work will amount to several thousand dollars, and a large number of building brick will be used in its construction.

The Enamel Vitriified Brick Company was recently incorporated at Toledo with an authorized capital stock of \$200,000. Those named as incorporators of the company are J. J. Urschel, William Urschel, C. E. Holden, George C. Penny and E. S. Smith. The company has a new process for making building and paving brick from sand and lime, burned and vitrified, which it claims contains many valuable features. It is now negotiating for property on which to erect a large plant in Toledo on the west side of the Maumee river bank. The concern already has a large plant in process of construction in New York City, which when completed will have a capacity of 130,000 brick per day. William Urschel will be the president and J. J. Urschel will be manager of the new corporation.

A contract that means something to the local building brick industry was awarded last week, when the job of erecting a \$200,000 structure for the National Supply Company at Toledo went to A. Bentley & Sons, contractors. The plant will be built at Auburn avenue and Bancroft street, and will be one of the season's best.

Ferguson & Son, contractors, of Findlay, Ohio, recently landed a fat contract when it was given the job of building the new Howard School, in that city, at its bid of \$17,488. The old school building was condemned by the state building inspector some time ago and was sold to the contractors for \$3,200.

That there will be activity in the street improvement business of Toledo this summer is evidenced by the fact that the Board of control last Friday awarded contracts for an aggregate of \$146,921.28. Many other streets will be paved, legislation being already under way looking to that end. The largest contract let was for the paving of St. Clair street from Monroe to Cherry.

Handsome offices are now being fitted up for the Auburndale Brick Works on the first floor of the sixteen-story Nicholas building. The office force of the concern will occupy its new quarters within the next few days.

T. O. D.

Too much kiln waste is deplorable, but if you have got waste it is better to leave it at the kiln than send it on to the job and have to lose it after you have paid the expense of freight or hauling. In other words, deliver to the jobs only what material is good and useful.

Written for THE CLAY-WORKER.

THE SELLING PROBLEM ON THE HUDSON.

SEVERAL MEETINGS of the Hudson river manufacturers have been held during the past month in an effort to solve the selling problem. And it is not yet satisfactorily settled. The numerous differing ideas regarding the best methods seem destined to hold off any satisfactory organization indefinitely. Some of the largest manufacturers have expressed themselves as discouraged at the outlook and fear that the season will open with no agreement respecting selling which will be helpful.

A meeting was held toward the last of March at Fishkill Landing, N. Y., where the matter was discussed. There it was discovered that some of the large manufacturers were not interested in an organization because they had decided to shut down this year. Others hope to influence them to do something regardless of this. There may be some hope of their coming in if business promises well enough to warrant undertaking any work.

According to present appearances not much more than 10 per cent. of the manufacturers will operate to full capacity. They say that a price below \$6.25 f. o. b. dock New York means loss, and they do not intend to run their plants at a loss. Quotations, as have been pointed out from time to time in these columns, have generally been \$5.00 or below all winter. According to the assertions of these manufacturers that has meant a loss upon every load of brick that came down the river. Under these conditions they do not propose to go into the business very extensively this year.

The Hudson river manufacturers are generally agreed upon the proposition that some sort of organization is necessary. Just what that shall be is an abstruse question and one quite likely to cause a good deal of trouble before it is adjusted. The old association, which had a long life, comparatively speaking, did not meet the views of all its members and consequently during the latter part of its existence was rather weak. This had a tendency to discourage members, or prospective members, in any other. It is very natural to assume that because one organization scarcely fulfilled expectations another will not.

The meeting referred to was held with the purpose of interesting manufacturers on the west side of the river. For example, the largest of them all, John B. Rose, has refused to enter any combination or organization which did not meet his views of what such an organization should be. And Mr. Rose will prove a dominant factor in any such organization.

Some months ago A. B. Wheat, a partner of Senator Edwin Brackett, attempted to form an organization which had as its basis the elimination of agents representing the individual manufacturers and place the selling in the hands of a separate agency. This never attracted most of the large interests. Accordingly it has been virtually abandoned.

Another plan is now under consideration, and while it is secret, there are certain features of it which have become known, or partially so, at least. It does not entirely eliminate the agent, it is said, but it provides that the manufacturer shall protect him by not quoting under his prices to purchasers.

It is difficult to get at the reason for this provision, but there are agents who assert that manufacturers have made prices to them and then have cut them to large buyers, thus demoralizing the market and at the same time reducing their sales. To what an extent this is true it is impossible to discover, but according to some assertions it is more common than has been generally supposed. Whether this has any effect in preventing manufacturers from entering an organization is a question which no outsider can answer.

Of course, manufacturers in considering any sort of an organization have to move with extreme care. Anything

which savors of the fixing or control of prices is in opposition to the provisions of the Sherman anti-trust law, and to that extent renders the manufacturer liable under its requirements.

SCARCITY OF BRICKYARD LABOR.

EASTERN BRICK manufacturers, especially those in New York State and probably in the Hackensack district, in New Jersey, are already beginning to complain about the difficulty of getting labor to carry on their business this year. For example, there are important public or semi-public works in process of construction which will attract many men who might otherwise work in the brickyards.

The great New York water works operations in the Catskills and at Croton are taking all the available men in those districts, and there will be a beginning upon new subways before the season is fairly under way probably. These demands upon labor will have a tendency to reduce the supply available for brickmaking, and manufacturers may suffer severely.

In some instances they did not object when last seen, since they do not intend to operate their plants to their full capacity. In others they are still wondering where they are going to find men. Last year there was a good deal of difficulty in securing men, but fortunately good brickmaking weather prevailed and there was ample opportunity for a few men to do the required work. This year the outlook is uncertain, since no one can foretell what the weather will be.

OHIO STATE ASSOCIATION OF BUILDERS' EXCHANGES HELD ANNUAL CONVENTION IN COLUMBUS, OHIO.

The annual convention of the Ohio State Association of Builders' Exchanges was held in Columbus on March 21 and 22, with headquarters at the Chittenden Hotel. Delegates were present from Cleveland, Cincinnati, Columbus, Toledo, Dayton, Springfield, Elyria and Youngstown. The meeting was called to order by John R. Squire, of Youngstown, president of the association, and the delegates were welcomed to the city by John A. Kelley, secretary of the Columbus Builders' Exchange. The first session was devoted to the consideration of bills pending in the State Legislature affecting the building interests, the convention adopting a strong resolution against the so-called Irvin bill, undertaking to tax deposits of building and loan associations. This bill was opposed because of undoubted effect in restricting building operations. The convention also adopted resolutions favoring the majority report of the Workmen's Compensation Commission appointed by Governor Harmon and opposed the minority report as creating a double liability of employers. The constitution and by-laws of the association were amended and the following officers were elected:

President—J. W. Bebb, of Columbus.

First Vice-President—C. A. Schuster, of Springfield.

Second Vice-President—J. C. Skeel, of Cleveland.

Third Vice-President—C. T. Handman, of Cincinnati.

Secretary and Treasurer—E. A. Roberts, of Cleveland.

At a social session and luncheon given in honor of the convention in the rooms of the Columbus Builders' Exchange, the association had as a guest of honor Governor Harmon and several city officials, who delivered addresses, to which a response was made on behalf of the association by Secretary Roberts.

In response to an invitation from the Builders' Exchange and the Commercial Club of Springfield, it was decided to hold the next convention in that city on a date to be selected by the executive committee.

Revenge is sweet only while you are seeking it. When you obtain it you find it is bitter.



Ceramic School in England.—A. S. Doulton and his sons have donated a piece of ground in Stoke-on-Trent for the erection of a ceramic school. The building must be erected within two years, this being one of the conditions of the donation.—*Keramische Rundschau* No. 4, 1911.

Clay Deposits in Brazil.—According to the report of the German consuls, there have been discovered in Brazil large deposits of clay. The clays are suitable for brick and tiles. Some kaolins and extensive feldspar deposits have also been found in several localities.—*Keramische Rundschau* No. 4, 1911.

Austrian Magnesite.—The present production of magnesite in Austria will be increased to twice its capacity and the production will be pushed to 60,000 or 75,000 tons for the year 1911. The Austro-American Magnesite Company, which is controlled by the American Refractories Company of Chicago, will export most of their production to Philadelphia and New Orleans, where they have extensive storage capacity.—*Tonind. Z.* No. 5, 1911.

The Burning of Grog.—It will take about one ton of coal to every ton of clay to burn grog in a continuous kiln. Good grog should be burned at a temperature of cone 10 to 20, according to the nature of the clay. It is quite possible to set the kiln with wet clay, but the disadvantage is in the burning, as it will take more fuel to burn the wet than the dry clay. The price which can be obtained for burnt grog is from \$3.60 to \$5.00 unground, and from \$7.00 to \$9.00 in ground state.—*Deut. Topf. & Z. Z.* No. 8, 1911.

Peeling of Slip Clays.—A slip clay should have such composition that it would work in harmony with the body on which it is employed. It must therefore have the same coefficient of expansion and contraction as the body. Color will influence these conditions, and every colored slip must be tested in order to get the right shrinkage. The addition of more plastic clay, or some non-plastic material, such as flint and silicious clays, will help to alter the mixture and adjust the slip accordingly.—*Keramische Rundschau* No. 8, 1911.

Disintegration of Roofing Tiles.—The causes for the disintegration of roofing tiles have been investigated often, and while in some cases results have been produced, it is often only a local cause which causes the trouble. The clay and its proper preparation is one of the chief points which should be watched. The proper laying of the tiles on the roof is another point which in fact causes more trouble than any other. The scaling of the roofing tiles is often caused by the same trouble of bad laying. The scaling on the surface takes place usually after a heavy rain or thunder storm. The cracking of the roofing tiles takes place usually after a long freezing spell, and when sudden thaw weather sets in. This cause is especially observed when the roofing tiles are laid up with cement mortar and no allowance is made for the expansion and contraction of the roof proper. With very hard-burnt and glazed tiles this cause does not appear so often. There are only very few clays which can be used without any further preparation for the use of roofing tiles, but most clays have to be prepared very carefully in order to give good results. Soft burning will also cause much scaling and disintegration of the tiles. The burner should be especially

cautioned not to burn roofing tiles too soft. Taken all the points given together, the disintegration can be remedied by the following four methods: First, the use of the proper clay; second, not to sell nor ship any soft-burnt roofing tiles; third, to prepare the clay very carefully and grind the same fine, and, fourth, not to lay the roofing tiles in cement mortar.—*Tonwaaren Fabrikant* No. 4, 1911.

The Automatic Slipping of Brick and Tiles.—Contarde and Vincent Blanc have patented a machine for the automatic

FIG 1

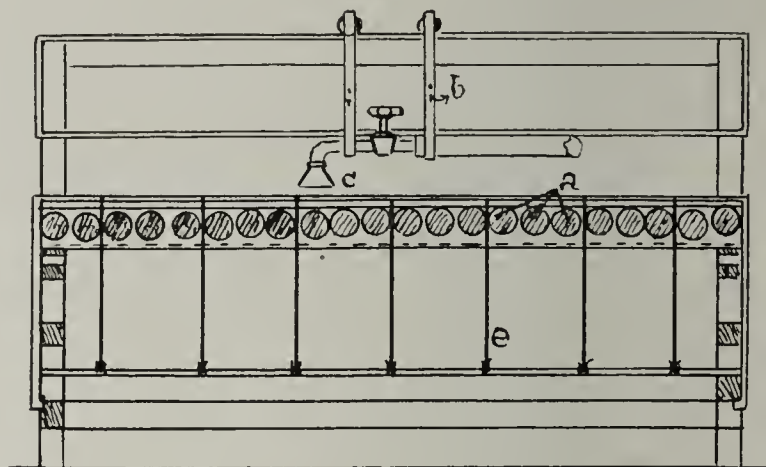


FIG 2

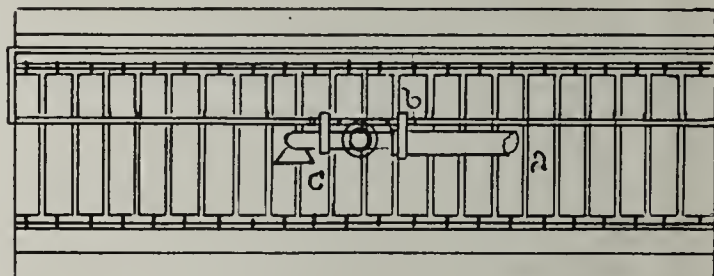


FIG 3

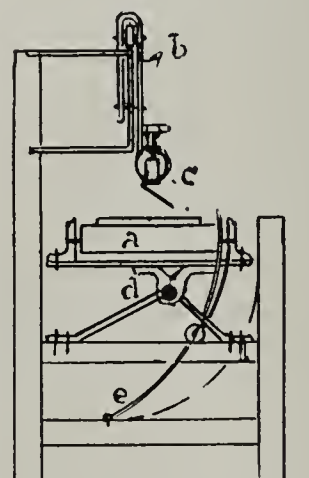
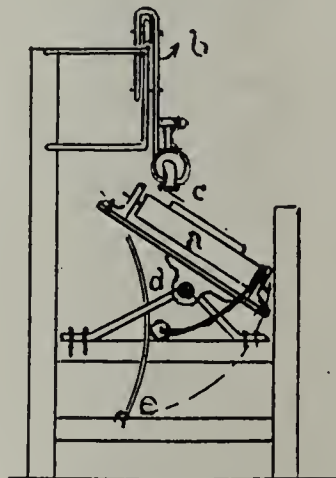


FIG 4

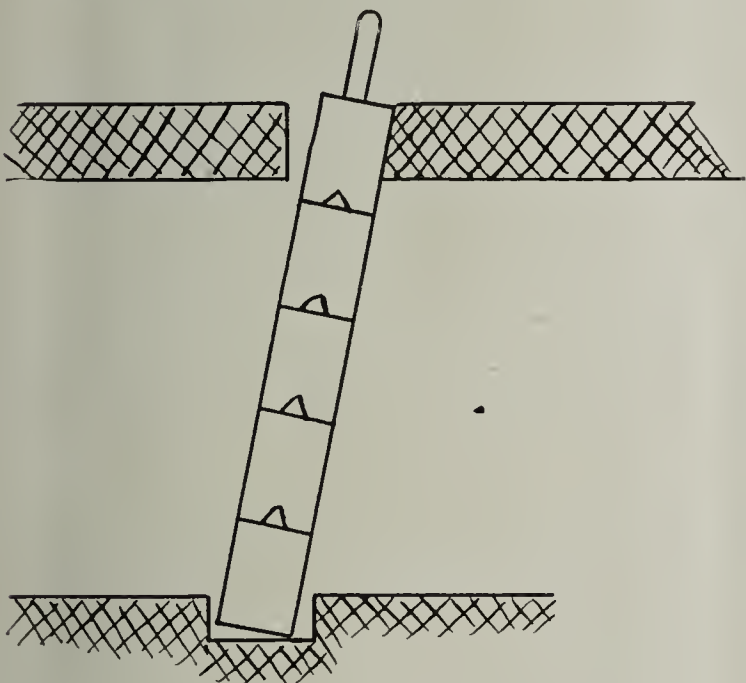
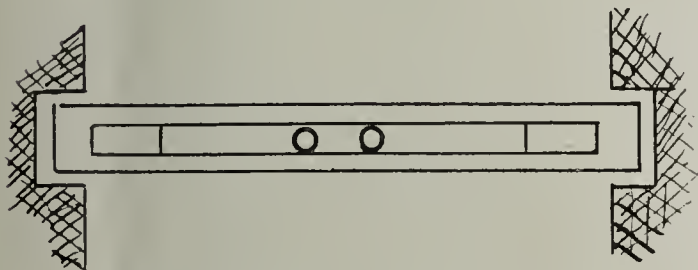
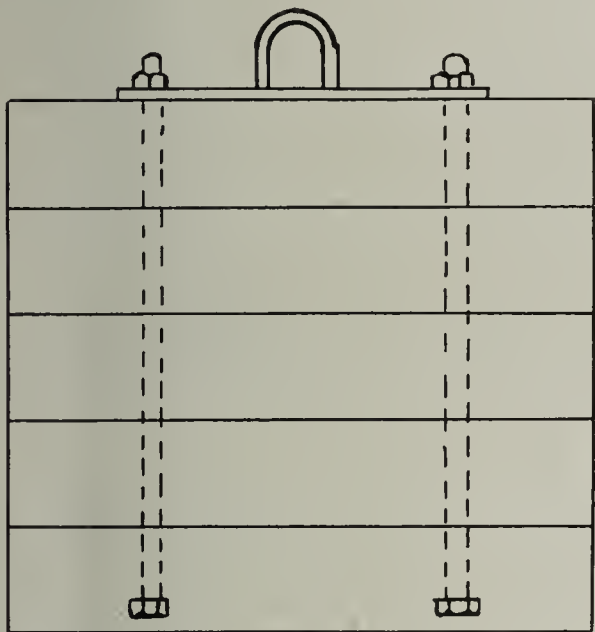


application of slips to bricks and tiles. The bricks or tiles are put on a belt, which runs over a set of rollers, and the slip is applied with special funnel arrangement. In order to drain any slip from the bricks or tiles the carriage belt is made in such a way as to be set on an inclined position.—*Moniteur de la Ceramique* No. 4, 1911.

Black Color for Stoneware.—A good black color which can be used under glaze, and which is often used for stoneware, is made as follows: 40 parts of oxide of iron, 40 parts of

oxide of chromium and 9 parts of oxide of manganese, and 11 parts of oxide of cobalt. This mixture must first be calcined in the high heat of a biscuit kiln.—*Keramische Rundschau* No. 3, 1911.

Damper Arrangement for Kilns.—The use of iron damper for flues in kilns has always been unsatisfactory. The use of fire brick damper has therefore found a large application. In order to protect the iron which is necessary in such damper the methods as shown in the sketch are used. As these dampers work somewhat hard when they are used in a ver-



tical slot, the sliding arrangement on an incline work very satisfactory.—*Tonind. Z.* No. 10, 1911.

Clay-Washing Plant for Brickyards.—The washing of clays for brickyards is necessary when the material which is to be used is not suitable in its natural condition. Stones, pebbles, lime, nodules and other impurities are separated by the washing process. Wash very short and sandy clays; the washing will greatly help to obtain a more plastic material, as the sand will be washed out to a great extent. While the ma-

chinery people are always endeavoring to invent methods for the proper separation of these impurities, and while they have succeeded in their endeavor to a certain extent, it has always been found that in washing clays and separating these impurities much better results are obtained. Many brickyards have been turned from a failure to a success by disregarding the mechanical preparation of clays and installing the washing system. The washed clay is run into tanks, which are usually made with earthen walls. The settling of the clay and the drying will take about thirty days, so that there must be enough tanks to provide for the capacity of the plant.—*Tonind. Z.* No. 9, 1911.

Brown Slip for Stoneware.—Ordinary stoneware has been glazed with brown slip, and Bunzlau clay (Albany clay in United States) has been used for this purpose. The stoneware is burnt at cone 7-9. As the methods employed in the manufacturing of stoneware have been considerably improved, especially with the co-operation of the Ceramic School at Bunzlau, the brown slip has been found to give too much variations for uniform stoneware effects. Dr. A. Berge, of the Ceramic School, has made a series of experiments in order to produce a slip or combination which will work uniformly on green stoneware and which will give better results than the old Bunzlau clay. The results of his experiments are described by him at length in his article, and the final composition of the glaze is as follows: Feldspar 266.27 parts, Bunzlau clay 76.47 parts, flint 69.71 parts, whiting 40 parts and magnesia 10.08 parts. To this glaze is added 5 per cent. of oxide of iron and 1 per cent. rutil, and the final weights are 462.53 parts of glaze, 23.13 parts of iron oxide and 4.63 parts of rutil.—*Sprechsaal* No. 9, 1911.

Shut-Downs of Brickyards.—With the exception of some large brickyards, most yards, either operated by hand or by steam, are shut down for a certain period every year. Most of the regular employees find work in other branches, and it behooves the owner or manager to bring the yard and machinery again in good repair for next season's business. After the business of the season has stopped and the machinery has been shut down, the first thing to do is to blow off the boiler. Next the boiler should be cleaned. In many cases this is done either by contract or day's work. The belts of the main engine are taken down and should be stored properly in a dry room so that they will be well preserved. It is best to roll the belts up and store them in that way. The engine should be completely overhauled and cleaned. After this is done the polished parts should be properly greased and the whole covered with canvas or kiln paper. The brick machines, the dry pan, the crusher, the pug mill, should all be cleaned from the clay which has been in the machines, and the parts should be well greased, so that the machines are in good shape whenever it is necessary to begin operations again. The belts of these machines are also taken down and cleaned from the grease and dirt. This is best done by washing the belts with soda. When some parts of the machines are found in bad repair they should be taken off, and either new ones installed or the old ones repaired. The clay pit should also be taken care of in good shape. When the clay must weather it is necessary to harvest as much clay as possible in the fall of the year. Otherwise the storage sheds should be filled up, so that plenty of dry clay is on hand for the next year's start. All wheelbarrows and other cars and trucks should be looked over and put in proper condition. In many yards it is customary to keep so many green brick on hand as is necessary to fill the first chamber for the next burn. The kiln should also be looked after and repaired whenever necessary. It is also necessary to lay in a stock of repair supplies for the next season's run, so that nothing will interfere to make a good run. Not many yards will take care of their machinery in this method, and it is quite often that we find the yards are shut down and left exactly in the same condition as on the last day's run, and after starting up again they find all kinds of trouble.—*Deut. Topf. & Z. Z.* No. 1, 1911.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

Our kilns work different in winter than they do in summer. As we use the same coal all the time, we thought perhaps it might be that the air had something to do with it. Can you enlighten us on the subject through your columns?

As you do not give an analysis of your coal, it might be just as well to substitute an analysis of a coal for which the writer had to make the subjoined calculations and estimates some years ago to cut out the same troubles that you have and write about. All complicated formulæ are dispensed with and the following calculations will serve as a good guide:

Analysis of Coal.

Carbon	66.50
Hydrogen	4.42
Oxygen	10.66

For theoretical combustion, as is well known, one pound carbon takes two and two-thirds pounds of oxygen to form carbon dioxide, and one pound hydrogen consumes eight pounds of oxygen to form water, but as there is already 10.66 pounds of oxygen in the fuel, allowance should be made therefor, and we then have:

Hydrogen, $4.42 \div 10.66 \times 8 = 3.32$ pounds of available hydrogen, and in this condition there would be necessary for one pound of coal: $(2 \times 2.3 \times 0.665) + (8 \times 0.0332) = 2.04$ pounds oxygen.

As each pounds of normal air contains 0.232 pounds of oxygen by weight, hence we would have to furnish for one pound of coal for theoretical combustion: $2.04 \div 0.232 = 8.8$ pounds of air. As at 32 degrees Fahrenheit and at normal barometric pressure (29.92 degrees necessary) one pound of normal air occupies a volume of 12.39 cubic feet, therefore the required volume would be $8.8 \text{ pounds air} \times 12.39 \text{ cubic feet} = 109 \text{ cubic feet air}$. However, as is well known, that with the theoretical quantity of air it is not practical to effect perfect combustion, therefore we will assume an increase of 50 per cent. of such air, and the result would be $109 \times 1.5 = 164 \text{ cubic feet of air}$.

The preceding normal dry air calculations are based on standard conditions (32 degrees F. and 29.92 degrees barometer), which do not exist in warm weather, therefore for the purpose of illustration it is assumed that the existing conditions are 60 degrees F. and normal barometric pressure, which is 29.92 inches. In making the following calculations it should be borne in mind that the element of absolute temperature is introduced, which is the theometric reading plus 460.7, hence in this case the necessary temperature for calculation is $460.7 + 60 = 520.7$, and normal temperature recalculated to absolute temperature is $460.7 + 32 = 492.7$ degrees.

Hence the normal air quantity for theoretical combustion (109 cubic feet) at a temperature of 60 degrees F. would be increased to a volume of $109 \times 520.7 \div 492.7 = 115.2 \text{ cubic feet}$. But with a barometric pressure of 28 inches, the quantity would change as follows:

$$109 \times 520.7 \div 492.7 \times 29.92 \div 28.00 = 126.5 \text{ cubic feet.}$$

And with 50 per cent. air in excess of theoretical requirements it would then be:

$$126.5 \times 1.5 = 189.8 \text{ cubic feet.}$$

In using the preceding methods of calculations for various conditions we would have as follows:

1 theoretical air (32 degrees F., 29.92 inches barometer) equals 109 cubic feet.

1½ theoretical air (32 degrees F., 29.92 inches barometer) equals 164 cubic feet.

1 theoretical air (60 degrees F., 29.92 inches barometer) equals 115 cubic feet.

1 theoretical air (32 degrees F., 28.00 inches barometer) equals 126.5 cubic feet.

1½ theoretical air (32 degrees F., 28.00 inches barometer) equals 189.8 cubic feet.

1 theoretical air (100 degrees F., 29.92 inches barometer) equals 124.0 cubic feet.

1 theoretical air (100 degrees F., 28.00 inches barometer) equals 132.5 cubic feet.

1½ theoretical air (100 degrees F., 28.00 inches barometer) equals 199.0 cubic feet.

From the results obtained by the above air requirement calculations it can readily be seen that temperature and barometric pressure are of a vast influence in governing or regulating burning conditions, and the progressive burner should be in a position to take cognizance and benefits of the effects of these variable conditions.

These calculation methods proved of great benefit and advantage to the writer at the time this coal was used in that the results of these calculations were plotted in a series of diagrams, by means of which the burner was enabled to see at a glance how to control his kilns to get the desired burning results. The kilns in use were a "unit" stack system and the burner was enabled to make regular fires in quantity and periods as the combustion or draft was indicated or shown on the diagrams, and it made practically no difference what the temperature or pressure of the outside air was.

Have or can good paving brick be made by the dry clay process?

Paving bricks from shale clay have successfully been made in the United States by the dry clay process or by what might be termed out of semi-dry clay, as it comes from the deposit and in Europe gilt-edge paving bricks have been and are today made successfully on the hydraulic press, while the American shale pavers had been made on the so-called mechanical power presses. As a matter of personal private communication the writer was informed by the then manufacturers of the best reputation shale stiff-mud paving brick that with three consecutive rattler tests on his own plant of the same lot of dry pressed paving bricks the total abrasion loss was equaled by the loss of his own pavers in a single rattler abrasion test. The testing station of a large city reported that when these dry pressed pavers were pressed and burned right they were better than any stiff-mud pavers they had ever tested.

Process.

The shale was prepared in the usual way, but worked a little damper than is customary in the dry clay process. The brick underwent a double distinct pressure, that is, they were pressed in two sets of molds, first on edge in the rear molds, and, secondarily, on the flat in the front molds. The idea was this: In pressing on the edge in the rear molds the air in the clay was confined in the center of the bricks, and this compressed air on being released from the exerted pressure rapidly left the body of the bricks and thus reduced the quantity of air remaining in the bricks to the minimum. Such bricks on being transferred to the front molds were then in the best condition to receive the full benefit of the secondary higher pressure, owing to the absence of the elastic air cushion, and the resultant product was therefore a very compact brick.

Causes of Failure.

At the time the mechanical press was sold the output was guaranteed to be a certain number of bricks per working day

of ten hours and the press turned out this quantity with the clay in the condition as it is ordinarily used in dry presses. But the clay being worked a little damper than customary, and when the press was operated at a high speed the bricks so made would pop or split, owing to the pressure of the confined compressed air in the bricks. The engineer discovered that with a decreased production this confined air had a better opportunity to escape, which resulted in a perfect brick upon the secondary high pressure.

Either the proprietor of the plant or the brick machine manufacturer, upon this point I am not quite clear, insisted that the capacity of the machine was so and so many per hour, and that such a quantity must be made. This order brought in the factor of the personal equation as to the off-bearer. It was dependent upon his judgment whether a brick should pass to the kiln or not, and very often a defective brick was not rejected in order to bring the machine capacity up to the expected number. This procedure caused the quality of the brick to be variable and unreliable. But the engineer, whenever an opportunity offered itself, cut down the running speed of the machine and then made perfect pavers, but in reduced numbers, and when such made paving brick were subjected to the rattler test they showed up phenomenally good. The output of the reduced speed of the presses was very close to the output of high-speed operation after taking out the rejected brick, but with all that the yard owners could not or would not see this fact in the proper light and the orders and instructions were: "The presses must be run at full speed." The result of this management was that the product was irregular and unreliable, thus not satisfactory, and this was partly the reason why the plant was ultimately abandoned. But since that time the principles of dry clay press machinery and the operation of such machines have considerably advanced and it should not be difficult to find a press that will fill the bill, especially as the pioneer manufacturer has demonstrated that good pavers can be made by other than the mud process. Especially so on the dry clay or semi-dry clay process, as it is not difficult to effect what might be termed a granitic structure in that the coarser ground particles of the clay are not so liable to lose their granular structure as the finer ground clay particles upon fusion, surrounding such coarser particles will cement them together and thus not lose their identity, and in that way bring about a rock-like structure and a great deal like granite. One point not to be overlooked in pressing dry clay is this: Air dry clay has pores which contain air. If this so-called pore air space is filled with water then such volume of air cannot exit and when such clay is pressed into the molds there will only be air spaces present between the clay particles and not in the clay itself. Experience has proven that the compressibility of such clay is increased by a certain water percentage, and if this percentage of water is increased then the compressibility is again decreased. The minimum limits of such water addition lays between 6 and 8 per cent. This water causes the clay particles to hold together by adhesion, whereas the bond in stiff-mud brick is by a force which might be termed cohesion. However, by repressing mud brick the cohesion bond is transformed practically into an adhesion bond, thus putting the above named semi-dry clay brick on a par with the repressed mud brick. The second or main cause of failure was poor kilns and improper burning results. The kilns used on that plant were down-draft kilns, which were constructed by putting in a division wall in ordinary square up-draft kilns and with crowns supplied, constituted the kiln system. The brick that were burnt right were very good, but the percentage of "soakers" or underburned brick was very high, and putting such brick in with the proper burnt brick caused the failure. The consensus of opinion of all who were in a position to know was

that the most active factor in causing failure was poor burning results, and that with proper care and equipment good pavers could be made on dry clay presses.

In Europe paving brick are being made successfully on dry clay machines and the term "flawless" pavers is the worthy title of the "Keramit" pavers made on a dry clay brick press in Hungary. These pavers stand without a rival and are made out of calcareous clay. Particular stress is laid upon the setting and burning methods.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE BUILDING operations in the Pacific Northwest are slower than they were a year ago. There is some indications that they will improve as the spring advances, but taken in general, there is not the activity that general business desires to make the same good. Brick prices in Seattle are as low as they have been for many years, and with only slight indications that they will improve very much. The brickmakers of that section are taking advantage of the building condition in British Columbia, and are shipping a large quantity of brick to Victoria and Vancouver. The situation in Portland is better than in Seattle at present, and the yards obtain good prices for their brick.

Several new clay companies are being organized for the development of clay plants in this section. Chehalis, Wash., is very anxious to get a brickyard located in their town. In order to determine the value of the local clays of that section, and which are found extensively in and about the city, the Citizens' Club has shipped two tons of clay to a large clay manufacturing plant in Ohio to test the clay. The assurances have been given that if the tests prove satisfactory a large brick manufacturing concern will be located in Chehalis.

H. F. Hall, of Coffeyville, Kas., has been in Walla Walla for some time investigating the deposits of clay found near there. Mr. Hall intends to erect a modern brickyard at that place if the tests which he is now conducting prove satisfactory.

The Coast Shale Brick Company, of Vancouver, B. C., has been incorporated with \$80,000 capital. This company will erect a plant on Perrins Island, near Vancouver Island, for the manufacturing of common brick. Raymond H. Bond, who was connected with the C. W. Raymond Company, is interested in the proposition.

A sad accident happened recently when officials of the Denny-Renton Clay and Coal Company walked unawares onto a slow blast in their coal mine at Taylor. With a terrific report and violent explosion several hundred tons of broken rock and coal were hurled over the party, which was inspecting the mine. The party with miners' lamps advanced along the main entrance to a distance of half a mile from the mouth. The afternoon shift had just gone off duty, and, according to custom, the holes which they had drilled were heavily charged. The miners had passed out along a parallel tunnel and had not observed the inspection party. The explosion happened when the party reached the end of the entry. Mine Superintendent Samuel A. Tomes was instantly killed; J. R. Miller, general manager, and John Keenan, local manager, were seriously but not fatally wounded, while the mine foreman, W. Loawton, was only slightly injured.

The Washington Brick, Lime and Sewer Pipe Company is going to enlarge its lime plant at Bayview and put in machinery for a hydrate of lime product. The company is working a large force of men at their various brick plants. They have secured some large contracts for architectural terra cotta in Spokane and Portland.

The National Brick and Clay Company, of Portland, which was only recently incorporated, have been put into the hands of a receiver. The liabilities amount to over \$110,000.

C. M. Partridge, of Falls City, Ore., has found some valu-

able clay deposits and will erect a plant for the manufacturing of common brick and tile in the near future.

SIWASH.

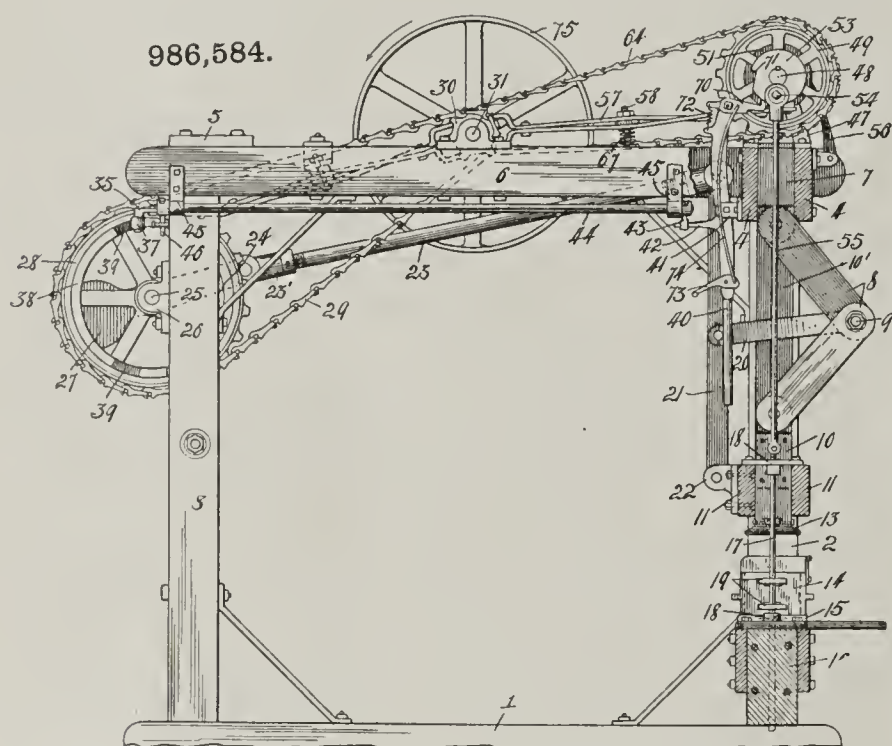
FIVE YEARS OLD.

With the June issue of "The Mantel, Tile and Grate Monthly," published at Utica, N. Y., that publication completes its fifth year of existence. It has been unusually successful and is counted as one of the best trade mediums in the country.

It is the only publication in the world devoted to the interests of the mantel, tile, grate and kindred goods industries, and is the official organ of practically all of the associations connected with those industries.

At a recent convention of the Interstate Mantel and Tile Dealers' Association of the United States, held at the Hotel Astor, New York City, very complimentary resolutions were adopted regarding the monthly, which, we believe, are well deserved.

The monthly reaches not only dealers in mantels, tiles, grates and kindred goods, but also architects, contractors and builders. Its editorial offices are located at Utica, N. Y., and its display advertising is handled by The Bramwood Company, State Life Building, Indianapolis, Ind. The subscrip-



Machine for Making Bricks or Blocks of Clay or Cement.

tion price to the monthly is \$1.00 per year; foreign subscriptions, \$1.50 per year, payable in advance.

BRICK COMPANY HAS UNIQUE DISPLAY.

The Puritan Brick Company, Detroit, Mich., which has just moved into new quarters in Room No. 1325 Penobscot building, has a unique and very effective method of displaying the bricks they manufacture. The walls of the salesrooms are covered with panels of brick, actually set in mortar, showing just what the material will look like when it is put into the building. There are 70 different panels, showing the varieties of brick and mortar in all colors and bonds.

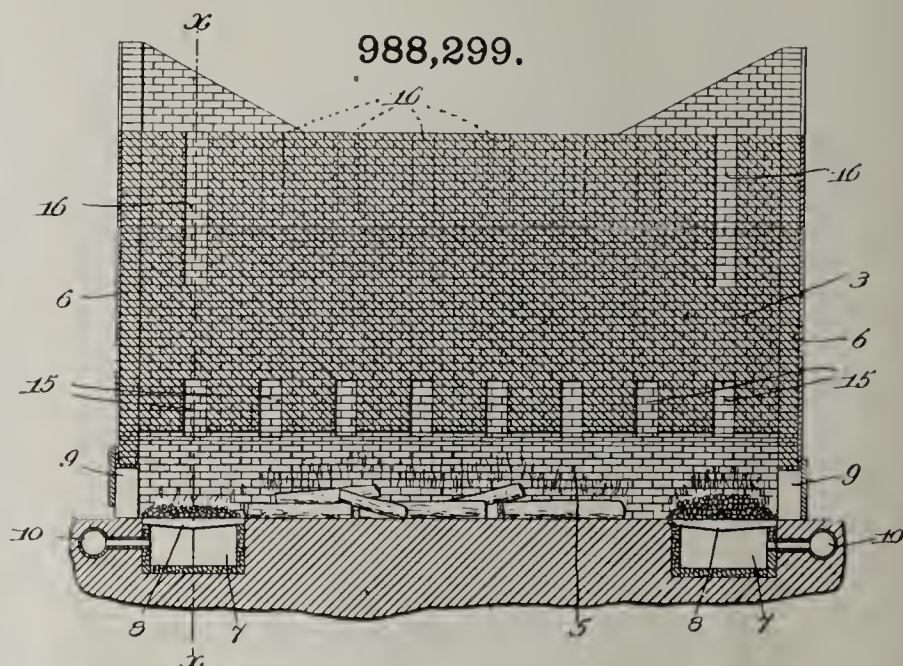
The bricks were laid in the yards of the Puritan Company and are set in removable panels in the rooms. The panels contain from 30 to 500 bricks each. To add to the natural conditions there are green plants in the room that may be set against the panels to show the effect of shrubbery. The Puritan Brick Company, besides the offices and salesrooms in the Penobscot building, has one of the largest and best-equipped plants in the country, in Hampden, Ohio. This plant has a capacity of 100,000 face brick per day and special railroad facilities make prompt shipments possible.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Brickmaking Machine.—Philip J. Mead, of Morenci, Mich. 986,584. Patented March 14, 1911. This is a brick machine which may be used for making bricks or blocks of either clay or concrete. It is a power-operated machine, working on the toggle principle. The illustration shows a longitudinal section through the machine, parts being shown in elevation. Space does not permit of a detailed description.

Method of Burning Brick.—Josiah Q. Bennett, of Cambridge, Mass., assignor to Boston Brick Company, of Boston, Mass., a corporation of Massachusetts. 988,299. Patented April 4, 1911. The illustration shows a vertical section through a kiln illustrating the improved method. The method relates to a process of successfully utilizing coal as fuel for burning bricks. The inventor realizes that many attempts have been made which have heretofore not been satisfactory, but states that he has produced perfectly good re-



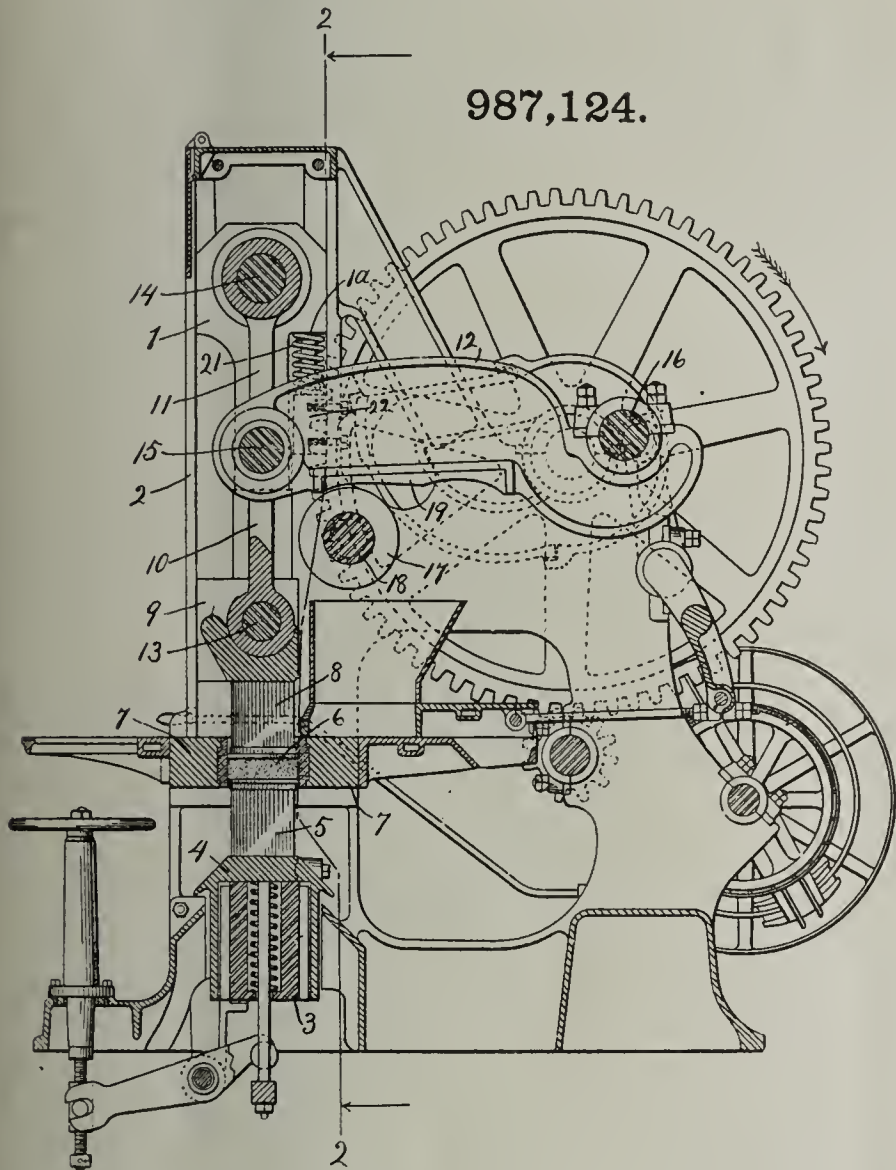
Vertical Section of Bennett Kiln.

sults by his improved method. In his specification he says:

"One objection to the use of coal has been that it produces a strong local heat which is apt to injure the brick in the immediate vicinity of the fire, but which cannot be readily distributed throughout the kiln to effect the proper burning of the bricks at a distance from the fire; another objection has been that the use of coal is apt to produce 'white-washed' bricks, as it is termed, that is, discolored or light bricks. After many experiments with coal as fuel for burning bricks, I have discovered a process of using coal by which bricks can be produced that are equally as good, if not better, than those produced by burning with wood, and by means of which a kiln can be burned with less percentage of waste than is usually found in a wood-burned kiln. In previous experiments with the use of coal as fuel for burning brick with which I have been concerned, the kiln has been burned by using coal at the end of the arches and wood in the center of the arches and by burning the coal under a forced draft. While these experiments gave fairly good results, yet it was found that the kiln was very apt to settle to a greater extent in the center than at the ends, and although the bricks in the center of the kiln were of the proper hardness and color, yet those composing the heads of the kiln were not always burned sufficiently hard and were apt to be of too light a color to

command the best prices in the market. The reason for this failure to properly burn the heads seemed to be that with former methods of using coal it had not been possible to throw the heat clear into the heads of the kiln. I have discovered that if the coal is burned under a forced draft during the first part of the process or while the kiln is clearing, and if after the kiln has cleared and while the kiln is settling, the forced draft is materially reduced and at the same time the kiln is fired from the opposite ends alternately, it is possible to throw the heat into the heads in such a way that the kiln will settle uniformly and as good bricks will be produced in the heads as are produced in the body of the kiln."

Brick Press.—Harry J. Flood, of Chicago, Ill. 987,124. Patented March 21, 1911. The illustration shows a side view of the complete machine, parts being in section. Of this machine the inventor says: "The invention relates to brick presses, particularly those in which vertically reciprocating plungers operate in stationary molds. The object of the in-



Harry J. Flood's New Brick Press.

vention is to provide a pressure equalizing device for automatically regulating the amount of pressure applied to the top and bottom of the brick so that both upper and lower sides will be equally pressed. The type of machine to which my invention is best adapted is one in which the pressing mechanism consists chiefly of an upper and a lower cross-head, side bars and toggle mechanism, the toggle mechanism consisting of an upper and a lower toggle member operated by a pitman, the upper toggle member being connected at the top to the upper end of the side bars, and the lower toggle member being connected at the lower end to the upper cross-head."

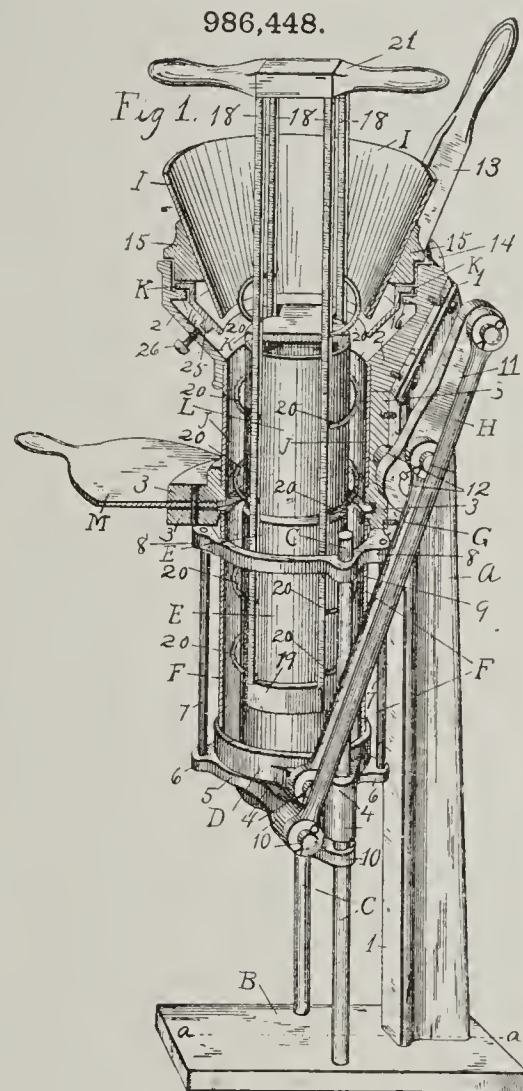
Machine for Making Tile and the Like.—Charles G. Elmore, of Jackson, Mich. 986,448. Patented March 14, 1911. The invention relates to machines for making tile and similar articles. Prominent objects of the invention are to pro-

vide a simple, practical and effective machine for making such articles, to arrange for the easy and ready operation and control of the same, to assure a high degree of efficiency in the use of material and operation of the machine, and to accomplish the foregoing and other desirable results in a simple and expeditious manner.

The illustration represents a perspective view of the complete machine, parts being shown in section. Space does not permit of a detailed description, and those interested should obtain a copy of the patent.

BRICK AND PAINT.

From a practical point of view the brick house is an excellent investment. Well constructed at the start, it needs very little repair, and has the advantage of becoming more beautiful from year to year instead of increasingly shabby, as is the case with many of our wooden structures; generally the case where the houses are painted instead of being oiled.



Perspective View of New Tile Machine.

And if one stops to think of it, what an inartistic as well as unfriendly thing it is to paint a house over from time to time in quite a new and different color. How can we hope for tender associations about a dwelling that is green one spring and red another and yellow another; that from year to year has a different face for us, and seems to be striving in a crude way to keep in fashion? What would we think of a friend who came to us one season as a blonde and the next as a brunette, and then suddenly startled us as we were trying to form some sweet tie or association, in the guise of a striking Venetian type, all red and gold and orange? No sense of affection can spring in your heart for the house that does not grow old beautifully, that does not hold the same friendly aspect from year to year, changing only as the hand of time is laid upon it. We want to find in our houses what we seek in our friendships—an unchanging quality, a welcome and a surety of peace and comfort.—From an article in "The Craftsman."

THE NORTHWESTERN CLAY ASSOCIATION AT MINNEAPOLIS.

Third Annual Convention, Held March 15 and 16, a Very Successful One, With Excellent Program and Enthusiastic Discussions.

THE THIRD ANNUAL meeting of the Northwestern Clay Association was held at Minneapolis late in March (March 15 and 16), in the parlors of the handsome new Hotel Radisson. The attendance was not all that could have been desired, and was certainly not what the program deserved, but favorable weather for starting spring work seemed to have detained a number of clay men at home. The program was an excellent one and showed great care in preparation and arrangement. Ira C. Jones, of Minneapolis, was chairman of the program committee, and evidently devoted a great deal of work to the program.

The meeting had twin leaders for topics—individual educational development and better and more effective publicity for clay wares. These subjects were discussed with the vigor which practical and self-trained men can devote to subjects which are cast in grooves different from those in which they are acquainted. There was the usual variety of opinions displayed, but the meeting was distinctly educational, and more than one admitted that the showing was such as to convince that old methods had passed away and some new methods were essentially necessary.

The sessions opened informally, President J. W. L. Corning, of St. Paul, rapping for order and starting the program. The president's report was not delivered, Mr. Corning stating that he had not prepared any address along the usual lines. The report of the secretary, Axel Anderson, of Minneapolis, came next, and was as follows:

Report of Secretary Anderson.

To the Members of the Northwestern Clay Association:

Gentlemen—It has been said that the value of an organization is measured by its accomplishments, and therefore it may be well to reflect for a few moments upon the past year's history of our organization and see if it has accomplished anything worth while during the last year.

The Northwestern Clay Association was organized in Minneapolis on May 1, 1908, with twenty-five charter members. Its main object is, and has been, to establish and maintain among its members a just and equitable system of dealing, to disseminate valuable information in regard to the business of its members and to foster social intercourse.

The Association has held two meetings since our annual meeting on January 12 last year, namely, on April 6, when the attendance was about forty, and on October 12, when the attendance was some less. At the April meeting resolutions were adopted asking the Board of Regents of the University of Minnesota and the State Department of Public Instruction to see to it that a proportion of the general appropriation for manual training be devoted to teaching the art of laying brick, tile and masonry. Copies of these resolutions were sent to Mr. John Lind, president of the Board of Regents, and Mr. C. G. Schultz, superintendent State Department of Public Instruction. Both of these gentlemen acknowledged the receipt of the resolutions. Mr. Lind said the resolutions would be laid before the board and would be borne in mind in connection with the planning of the work of the institution. Mr. Schultz, who is also a member of the Board of Regents, said that if the question should come before the Board of Regents he would give it very careful consideration. He also said he would bring the matter before the High School Board at its meeting the second Friday in August. This was early last summer, but nothing further has been heard from either of these gentlemen. Probably our Committee on Industrial Education has some interesting news on this subject.

At this April 6th meeting there was a finance committee appointed, consisting of A. C. Ochs, Springfield, Minn.; Louis Koch, Minneapolis, Minn.; R. B. Hinckly, Luverne, Minn.

At the October meeting it was decided that the president

of our Association be authorized to appoint a committee to be on the lookout for the interests of the clay industry during the next legislative session, which committee should also take up with the Minneapolis Builders' Exchange the question of starting a trade school. The following committee was appointed: W. Siwart Smit, St. Paul; C. J. Swanson, Minneapolis; A. C. Ochs, Springfield, Minn.; President Corning, ex-officio member.

The attendance at both of these meetings was not what it should have been, when we consider that we have in the neighborhood of two hundred brick and tile manufacturers in our territory (meaning Minnesota, North and South Dakota and western Wisconsin), showing that there is still a lack of interest in general in the work this association is trying to do, although the program committee in each instance tried to have as good and interesting a program as possible. Those who have attended our meetings regularly expressed themselves as perfectly satisfied with the progress the Association is making, and say they are well paid in dollars and cents for the time spent at the meetings, as well as for the few dollars they have contributed towards the Association work. It is to be regretted, however, that several of the largest brick and tile concerns in the Northwest have not yet seen fit to cooperate with us, although repeatedly asked to do so, or give us any financial assistance whatever, while they undoubtedly are, and have been, reaping the benefits of the work of our Association.

The clayworkers in the Northwest need an organization just as well as they need organizations in other trades, and if the clayworkers would all stand together and all work for the common good there could be a great improvement made in the products now manufactured, there would be more demand for the products, and there would be more profit in the brick and tile business for those who engage in it. With some the question of price is the only issue, whether they furnish a first-class ware or not; with some the question of getting jobs away from others, regardless of price, seems to be the only issue, and sometimes it looks as though there was more time spent in stealing business from the other fellow than there was time spent in drumming up new business.

But this Association is young yet, and has many things to learn. We will have to learn how to make as good brick and tile as can be had anywhere else; we will have to get the people interested in the use of our ware, and as manufacturers of practically the same kind of goods we will have to learn to work together and stand together. Our competitors in other lines of building material are well organized and carry on a systematic campaign of publicity, and we will have to do the same, if we are going to advance, or even hold our own. It is up to the brick and tile manufacturer to boost his own business and to be watchful of his own interests.

The prospects for the future were never any brighter, and the time to start to help boost this Association along has never been any better than it is just now.

Respectfully submitted,

AXEL ANDERSON, Secretary.

Minneapolis, Minn., March 15, 1911.

The report of Treasurer L. A. Boyce, of Minneapolis, showed a balance a year ago of \$155.32 and disbursements of \$112.12, leaving a balance of \$43.20 at the beginning of the meeting. This report was referred to an auditing committee consisting of Messrs. Hinkly and Ochs, which reported the books correct.

A nominating committee was named—Messrs. Jones, Ochs and Nixon—to report later.

There was a little discussion on the subject of skilled bricklayers, it being stated that too many so-called skilled bricklayers do not half do their work; that they pick up but

a smattering of the trade and then start off as trained workmen and get full wages for their labor.

The address of A. R. Van Dyck, a well-known architect of Minneapolis, attracted considerable attention and approval. Mr. Van Dyck's subject was "Brick—Its Durability and Artistic Possibilities as a Building Material." Mr. Van Dyck was happy in his subject, and was heartily applauded. He spoke as follows:

Brick—Its Durability and Artistic Possibilities.

BY A. R. VAN DYCK, MINNEAPOLIS.

Mr. President and Gentlemen:

As gold has been the standard of value and the basis of practically all monetary systems, so has burnt clay been the standard material and the basis of building operations for centuries.

The whole civilized world knew thousands of years ago that no other material was so adaptable to all requirements, so durable under all conditions and so susceptible of a high degree of artistic finish.

However, we often forget the wisdom acquired by experience and are led astray by the desire for novelty and the use of new materials which promise much, so as statesmen and politicians have sought to change the gold standard, we have sought to change the building material standard and have experimented with various materials, a large number of which are worthless, and none of them, however valuable in their own special places, are satisfactory as substitutes for brick. Time and progress combined are rapidly clearing our streets of these experiments in unsuitable material, and we note with pleasure that practically all our new buildings are of brick and terra cotta. These buildings represent the perfections of the clayworker's art and are a lasting satisfaction to the owner.

Ten thousand years ago men made brick. To be sure, these were only sun-dried and could not long resist exposure to the weather. In the course of time they learned to face these sun-dried brick walls with burned brick. In the ruins of Babylon and other ancient cities these face brick are found elaborately ornamented with colored glazes in as perfect a condition as when first laid. Whoever was the discoverer of the process of burning clay into a hard, durable substance should be accorded the honor of being one of the greatest benefactors of the building industry and consequently of humanity.

It has been said that buildings constitute a history of the civilization of the world, and if this is true, then brick are the type with which this history is printed.

From that distant time down to the present the use of brick and other burnt clay products has been continuous, and at different times and in different countries has attained a height of perfection and beauty almost unbelievable to one not thoroughly familiar with the possibilities.

All old Italian cities are full of the most beautiful brick and terra cotta work; in Germany it has been much used, and in Holland its use was and still is almost universal. Spain is full of fine buildings of molded clay, while England has gone so far that elaborate carving is done on brickwork of a fine, firm texture, carving such as we would think possible only on stone.

All of these old buildings show that brick is not only durable, but that it is a material which, like certain wet goods, improves with age and acquires additional charm with each passing year. This feature should be of great comfort to the architect when his building proves not to be the thing of beauty he had expected. If it is of brick he knows that nature will kindly take it in hand and after he has been dead for years some artistic soul will discover and exclaim over the wonderful coloring and blended tones of the walls.

But in accomplishing this result nature does not take kindly to man's interference, and if any assistance is offered it must be done very carefully and tactfully, and it must not be in the form of paint. Often we have seen walls just beginning to bloom with the subdued tones of age "brightened up" with a thick coat of paint, which utterly kills all the life, character and beauty of the material.

Paint is a good thing in its place, and like the mantle of charity, may be made to cover a multitude of sins, but there

should be nothing to cover in a brick wall. We should not forget that both the durability and the beauty of brickwork depend not alone on the maker of the brick, but upon the mortar, the bricklayer and the man who designed the building.

The best brick will make a poor wall if improperly handled, and, by the use of good mortar and intelligence, much may be done with an inferior grade of brick. This does not, however excuse the use of poor brick, for the result can never be entirely satisfactory. You know all about the making of the brick and how to obtain the desired color and texture; the bricklayer probably knows little about the processes through which the brick passes before reaching his hand, but he does know how it should be laid to secure the best results. While I, as the architect, may know even less than the bricklayer about the manufacturing process, I should know more about design, and the combined labor of we three produces a complete building, impossible to any one of us alone.

Perhaps it is unkind not to include the salesman in this combination, as it is he who calls to our attention the beautiful products of the kiln. Unfortunately he brings no tangible material into the deal and consequently has no visible part in the finished work.

One important factor in the success of brickwork which I should like to bring out may not interest you except as an additional means to successful bidding.

This is the question of bond. Bricklayers and architects as well are just beginning to appreciate the importance of bond from the point of durability as well as of effect. Have you not, at a fire or even on some old building, often seen whole sheets of face brick peel off, leaving exposed the real wall of common brick behind?

It is evident that such facing, merely tied on, can add little, if any, strength to the wall and is a source of danger in case of accident.

Why should we try to conceal the necessary bond as though it were something improper, a thing not to be seen or mentioned in public?

In the old country numerous varieties of bonds are employed, and they add greatly to the interest and beauty of the work, not to speak of the strength gained by having the wall tied together into one homogeneous mass. Let us, therefore, have a bond, not invisible, chipped corners or ties of wire and strips of metal, but a bond, visible and real, with each individual header doing its duty undisguised. They give the wall a character and dignity which it would otherwise lack.

When I spoke of the insufficiency of the ties I did not wish to belittle that wall of common brick exposed by their failure, for it is there for a purpose, and it accomplishes that purpose in the best and most economical manner, but, like a man's bones, it looks better when well covered. In the great wealth of face brick and terra cotta offered let us not forget the legitimate and logical use of the humble common brick—the backbone of the wall. There are numerous buildings in which to use a fancy or expensive face brick would be not only a waste of money, but inappropriate as well.

In such a case a careful study of mass and detail suitable to the material and an intelligent use of color in joints would accomplish a most dignified and attractive result.

Abraham Lincoln's remark about people might apply equally well to brick. He said, "God must have loved the common people, He made so many of them." Are not burnt clay products almost the universal building materials? Our wheels do not skid so badly on brick pavements, our walks are often laid of brick, our buildings have foundations of hard or vitrified brick, the walls above are of brick, the floors and partitions of hollow tile, and the whole is crowned with a tile roof—a complete and beautiful structure, which needs no repairs and fears no fire. Even when the building shows a front of granite or marble, in most cases we will find the body of the wall to be of brick. This in the case of a severe fire is the only part to escape destruction. Would it not be much better to use the one material throughout, thereby gaining in honesty of construction, strength, durability and artistic effect? The durability of brick is beyond question and the variety of color and texture is so great that it would seem im-

possible to devise more. The manufacturers, however, constantly studying for new effects, are every month surprising us with new varieties. It is now possible to obtain brick of a character to suit any style of architecture from the simplest cottage to the stately public building, and it is a waste of money to send abroad for costly stone when we have such an unlimited supply of the better material at hand. Let us hope that the near future will develop the use of brick to such an extent that a frame building will be as rare as a marble one is now.

I notice that I am announced as president of the Architectural Club. That is a mistake, as I am only ex-president, twice removed, but the club I represent contains a bunch of brick enthusiasts, who are working toward that end and are sure to accomplish their purpose.

Let me quote from some verses published a few years ago in *THE CLAY-WORKER*:

Clayworker, brick builder, look back, if you will
To the very beginning of time.

Why didn't the Lord make man of cement?

Why didn't He make him of lime?

Why didn't He make His man from concrete?

Why didn't He use lime and sand?

He had just made the world, knew what it contained,
And knew that He had them on hand.

Clayworkers, 'tis true the good Lord well knew
Such men would soon crumble away.

Did He not, I inquire, wish to test man by fire

When He planned and made him of clay?

Just what kind of clay we're unable to say

God used in that far distant past,

But He made man as slick as a vitrified brick,

Strong and sound and forever to last. (Applause.)

"Industrial Education" was the topic of Dr. E. V. Robinson, of the University of Minnesota, Minneapolis. Dr. Robinson made clear the present situation as compared with former days, and why mechanical training is now needed when it was not formerly. He stated that education must necessarily adjust itself from generation to generation, as there is a constant need of revising it. The present need of revision is because the system of education in vogue is but a bookish one, and have dropped the hand work of former days which was then a part of the daily work on the farms, but has been outgrown through changed conditions. He declared that this country is quite mediæval in its system of education as compared with other countries, and changes are very necessary to meet the new conditions. First, it must get away from the idea that education is wholly a matter of books. We will eventually come to trade schools, but we are not yet prepared for them, as we lack the base for them to work upon. Trade schools are maintained in England, in Belgium, in Holland, in France, in Italy, in Austria, in Switzerland, Germany, the Scandinavian countries and in Japan, and they are beginning to be established in the United States. But it is necessary to reform the work preceding the trade schools. He stated that it is not wholly feasible to instill a trade in a boy before he is 16 years old, since he is not prepared either physically or mentally to undertake it. But in the meantime there is strongly needed a system of schools wherein the children are brought along by the differentiation of tastes. Beginning at the age of 12, there should be offered parallel courses, one offering hand work and one academic, making each available in every way to all and emphasizing the different courses to give a chance for the expression of individuality of the pupils to assert. The tendency to require children to follow one line of training regardless of tastes has done much to drive the boys out of school under the present system. He believed that all high schools should be technical and that the exclusively literary high school should not exist as a public school. It will be necessary to work gradually to trade schools through preliminary preparation for it, and the modification of the present systems. There must be continuation schools. We are also coming back to the apprentice system in a measure, at least in some of the machine trades. The school of the future will divide its instruction so that part will be shop work and part school work. The vital point is now in the seventh and

eighth grades, which must be changed and divided from the present primary course. They should be added to the ninth grade for an intermediate course, leaving the remainder of the course for the high school course.

Prof. John R. Bell, of Huntington, Pa., was called upon to make a few remarks on the same subject. He stated that industrial education is designed to teach the boy correct methods of work, correct handling of tools and skill through repetition. He believed that there was no need of any change in manual training system, although there was more or less manual training by teachers not qualified to teach it.

There was more or less discussion on different systems of trade schools, such as the Philadelphia system, the Cleveland system, the Cincinnati system, the St. Louis system and others.

Prof. Bell displayed a number of brick mantel designs and other designs which had been worked out by boys under his charge, who were trained from six to fourteen months, and who could do any kind of brickwork, including corners.

The Banquet.

The program continued at the evening banquet, which was served on behalf of the Minneapolis Commercial Club in their quarters in the same building (the Hotel Radisson). After disposing of the menu President Corning introduced Mayor Haynes, of Minneapolis, as a brickmaker—at least one who was interested in a brickyard somewhere in Minneapolis. This was a sly dig at the brickyard which is maintained at the city workhouse as a means of furnishing the prisoners with work during their incarceration. Mayor Haynes admitted the charge and outlined how the plant came to be installed and declared that it was a good thing, for it furnished work for the prisoners. The mayor proceeded from the story of this plant to general references to the growth of association ideas and how they had benefited people who were competitors and improved general conditions.

"Building a Permanent City" was the topic of James G. Houghton, inspector of buildings for the city of Minneapolis. Mr. Houghton told of the work of his department as it related to such permanent construction. He started with a reference to his criticism of a year ago at the same convention that the character of common brick delivered on the jobs in Minneapolis was frequently very poor and poorer than in former times. He added that whether they had changed their methods of making and their systems of delivery, there was much less criticism during the past year along the same line. Taking up his subject, he told of what the city had done in the way of constructing paving, sewers, curb and gutter work, etc., the cost of the permanent improvements being \$26,000,000. The building department of the city was organized in 1884 and has issued permits since that time for work valued at \$185,000,000, and has issued permits in the twelve years that it has been in his charge for \$114,000,000. Previous to 1904 there were only 19 so-called fireproof structures in Minneapolis; now there are 271. The change has been caused by the higher cost of lumber, by greater restrictions in the building ordinances, by higher insurance rates and more knowledge of fireproof construction. He urged the association to educate for fireproof construction as much as possible, and to teach that with fireproof construction it will be possible for merchants to carry a large part of their insurance risks themselves.

H. B. Wakefield, of the Minneapolis Daily News, spoke of "The Value of the Public Press in Building Up an Industry." Mr. Wakefield presented a number of suggestions to the brick men that were valuable. He declared that they had not done anything toward educating the average man as to what their product really was and how it compared in cost or otherwise with anything else. The result is that nearly every one assumes that brick construction is far more expensive than anything else, because they have never been advised any differently. The average man is at a loss to know what the real merits of brick may be, all because the makers and sellers of the article have not taken the trouble to advise him through proper advertising.

A suggestion for the erection of a specimen residence of brick at state fairs as exhibits of what brick construction

really meant, was presented by Prof. Samuel Weidman, of the University of Wisconsin, at Madison. Prof. Weidman's outline plan was quite interesting and was closely followed by the hearers.

This paper will be published in full in a subsequent issue of THE CLAY-WORKER.

State Senator C. J. Swanson, of Minneapolis, who was down to respond to "Legislation and Trade Schools," rather injected a little variety into the trend of discussion by expressing his doubts of it being possible to accomplish anything practicable in the way of producing skilled mechanics in school work. He declared that the attempts at teaching farming and other things in school were not successful, for it had to be done in practice on the farm. He thought too much was expected to be accomplished by law, and urged a more thorough training of the trades.

The value of publicity to the clayworkers was covered by W. Siwart Smit, of St. Paul, of the Twin City Brick Company. Mr. Smit declared that brickmakers were inclined to ignore the force of publicity, and they have been paying all their attention to the supply and none to the demand, with the result that the better they developed and the more they progressed at that end, the worse off they became because of producing more without having provided an adequate outlet or demand for the increased production of their wares. He declared that it takes a hundred years to demonstrate the need of fireproof construction in dwellings, but that publicity could hasten this materially. He urged a publicity bureau to present the facts, and spoke of the good work which the Building Brick Association of America is doing in that direction. He stated there were 69,000 frame buildings built last year, and these would have been of brick if built abroad. He argued that if they had been brick veneered, averaging 15,000 brick each, the demand would have been beyond the output of the veneer brick concerns by 175 per cent.; if they were solid brick, they would increase the sale of common brick by 20 per cent. He argued that such possibilities as these showed that the legitimate field of brick had not been exhausted.

Charles S. Allbright, deputy labor commissioner, spoke in general terms upon the relation of labor and education. He told of compulsory education in its various fields, and against the employment of child labor. He urged the members to be careful not to permit the employment of young boys in their yards, because of the effect of the heavy work upon immature frames.

Prof. John R. Bell, of Huntington, Pa., responded to the question, "Are Trade Schools Practical?" answering strongly in the affirmative. He took occasion to answer Senator Swanson's reference to the impracticability of teaching trades in school, declaring that it had been established beyond peradventure that it was practicable and successful.

Further Business Sessions.

"Producer Gas Burning" was the subject handled by George C. F. Vater, of Dayton, Ohio. Mr. Vater went into considerable detail on the work, giving much valuable information.

R. B. Hinkly, of Luverne, Minn., spoke in an interesting manner on drain tile, on which he is an authority, having been in the drain tile business for a number of years in southwestern Minnesota.

There was quite a little discussion on ways and means of interesting farmers in the use of drain tile, and instances were related showing the value of tile in practical use. Cases were cited where tiled fields brought a yield of more than double the untiled sections of similar and adjoining fields. Complaints were made that serious handicaps were placed upon the business by the tile-layers, who will rush the work through without having it laid out and inspected by competent engineers, with the result that the system is not half effective. An instance was told of one case where the layer started to cover the tile when it was insisted that the work be first inspected. He demurred loudly, but finally consented to the uncovering and proceeded to relay a hundred rods, setting it a foot lower, without waiting for the inspection. It was predicted that ultimately the fields will all be tiled at twenty to thirty feet apart, and it was stated that tiles

allow earlier sowing in the spring through warming the soil and drawing the frost by the circulation of air.

Next came a talk by G. A. Welch, of Minneapolis, on "Does It Pay to Advertise Common Brick in the Newspapers?"

A. C. Ochs supplemented the address, telling of an attempt at advertising well brick which had brought in no returns, the advertisement merely stating, "Well brick for sale." But when the same paper was used and the advertisement told of the value of brick for well curbing, as a filter and a means of keeping the water free from surface supply, the result was prompt and the brick were all sold quickly.

T. E. Simpers, with the Westinghouse Company, spoke on "Economic Power Distribution," especially in connection with the use of electric motors, which could be used on individual machines, saving the loss of friction in shafting and economizing when only part of a plant was to be operated.

The report of the committee on nominations started a little debate and difference of opinion. The committee had reported in favor of assembling the officers from Minneapolis for the benefit of getting quick results on consultations, but when this report was read there was a protest from Minneapolis members on the plea that the officers should be wider distributed. The committee report was as follows: President, Edward H. Cobb; vice-president, Ira C. Jones; secretary, Axel Anderson; treasurer, L. A. Boyce. The offices of vice-president and treasurer were changed with the consent of the committee, and the officers elected were as follows:

President—Edward H. Cobb, Minneapolis.
Vice-President—A. C. Ochs, Springfield, Minn.
Secretary—Axel Anderson, Minneapolis.
Treasurer—R. B. Hinkly, Luverne, Minn.
Executive Committee—Rufus P. Morton, Brickton, Minn., and J. P. McLean, Menominee, Wis., with the officers ex-officio.

The final session was devoted largely to Prof. John R. Bell's address, "Trade Schools, and How They Might Benefit Brick Manufacturers." This was practically the same address which he delivered at the national association meeting at Louisville, which was covered in the report of THE CLAY-WORKER of that meeting. Answering a question, Prof. Bell declared that his school could train a bricklayer to do practical work, such as would be satisfactory on any building, in a year to a year and a half better than the training of the apprentice, who has had a four-year training under the usual conditions.

Following Prof. Bell there was quite a discussion of the various phases of trade education and its possibilities.

W. Siwart Smit, of St. Paul, speaking on "Publicity and the Use of Brick," outlined the work of the Building Brick Association of America, and related comparative costs of a building in Massachusetts, as reported in THE CLAY-WORKER for February. He suggested a local publicity bureau to work in conjunction with the national association.

President-elect Cobb was called upon and stated briefly that he appreciated the honor of election to the presidency and that he looked forward to a big year in the brick business, and he wanted all to work hard for the advancement of the business.

The report of the resolutions committee was favored generally with the exception of one which suggested the erection of a model brick house on the State Fair Grounds as a means of publicity for the use of brick in dwelling construction. The question was raised as to whose brick would be used, and whether it would not result in some feeling between the competitive concerns in the selection of brick. The resolution was laid on the table and the remainder were passed as published in the March issue of THE CLAY-WORKER.

There was quite a discussion over the method of figuring dues. It has been figured on the basis of the output of yards, so that the very heavy outputs would run high. It was thought that this was fair, but still, in order to make the situation fairer, it was decided, after debate, to make the dues \$3.00 on yards making less than 5,000,000 and \$5.00 for yards making over that amount, while dealers and machinery men would pay \$5.00 as before.

A hurried reading of questions and a few scattering answers, because of the lateness of the hour, concluded the session and the meeting adjourned.

T. WIN.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Cost of Brick Buildings.

Editor THE CLAY-WORKER:

The last issue of your very superior journal has this to say: "It is still not so much the cost of the brick as the cost and worry of getting it up into the walls that serves as a drag to much more rapid progress in its use."

In this vicinity a brick mason gets \$5.00 per day. A carpenter gets \$2.50. A mason has a kit of tools that can be bought for less than \$5.00. A carpenter frequently has \$250 invested in tools. The mason is not necessarily as skilled a mechanic as the carpenter.

It is not for me to say whether the one is paid too much or the other too little, but the difference in wages has much to do with the difference in cost of brick and frame construction.

However, much of this difference will be paid by the builder willingly when brick is properly advertised.

Yours truly,

Columbus, Kas.

E. D. WHITESIDE.

Advantages of Burning Kilns with Outside Furnaces.

DEAR SIR:

Some days ago I wrote you respecting certain improvements in the burning of brick in open top kilns with and without outside furnaces. For the benefit of your many readers will say I have just completed remodeling by adding the outside furnaces to one kiln for the Callahan Brick Company, Callahan, Fla. The furnaces are of improved pattern. This kiln, which was 32 feet, was finished on Saturday, February 18, and contained 220,000 ordinary building brick; width of kiln 32 feet, and the cost sheet was as follows:

Fires started 8 a. m., February 20.

Finished burning 5 p. m., February 23.

Fuel used: Pine, 75 cords, at \$2.50 per cord. or .8550c per thousand.

Labor cost, \$18.25 for firing, or .0865c per thousand.

Total cost per thousand in labor and fuel, .9415c.

Total time in burning, 81 hours; temperature, 2,000 degrees Fahr.

This is a decided improvement over the old system, which would run about as follows:

Average time taken in firing under arches, 162 hours.

Fuel, pine, average 100 cords at 50c, cost per thousand, \$1.1314.

Labor, average cost per thousand, 50c.

Old system, total fuel and labor, \$1.6314.

New system, total labor and fuel, .9415c.

Total saving in one burn alone of \$152.07.

These figures are arrived at by carefully measured fuel and actual labor used in firing.

The wood being placed conveniently for the burners and the burning superintended by myself, no charge for my time was made in the figures given.

In this district the outside furnaces have proved so far the best in fuel and labor saving and the quality of the brick greatly improved.

The total cost to remodel a twelve-hole kiln in labor and grate bars is approximately \$150, and will require about 18,000 bricks, with five barrels of lime. The cost of brick, of course, to be figured according to district.

Will be glad to give further particulars to interested parties.

South Jacksonville, Fla.

Yours truly,

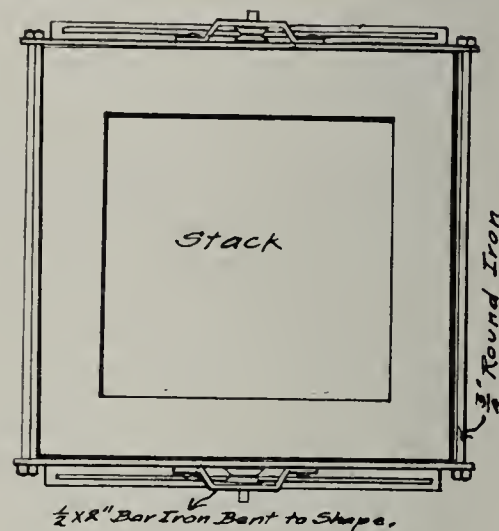
D. COBB.

A New Method of Dampering Kilns.

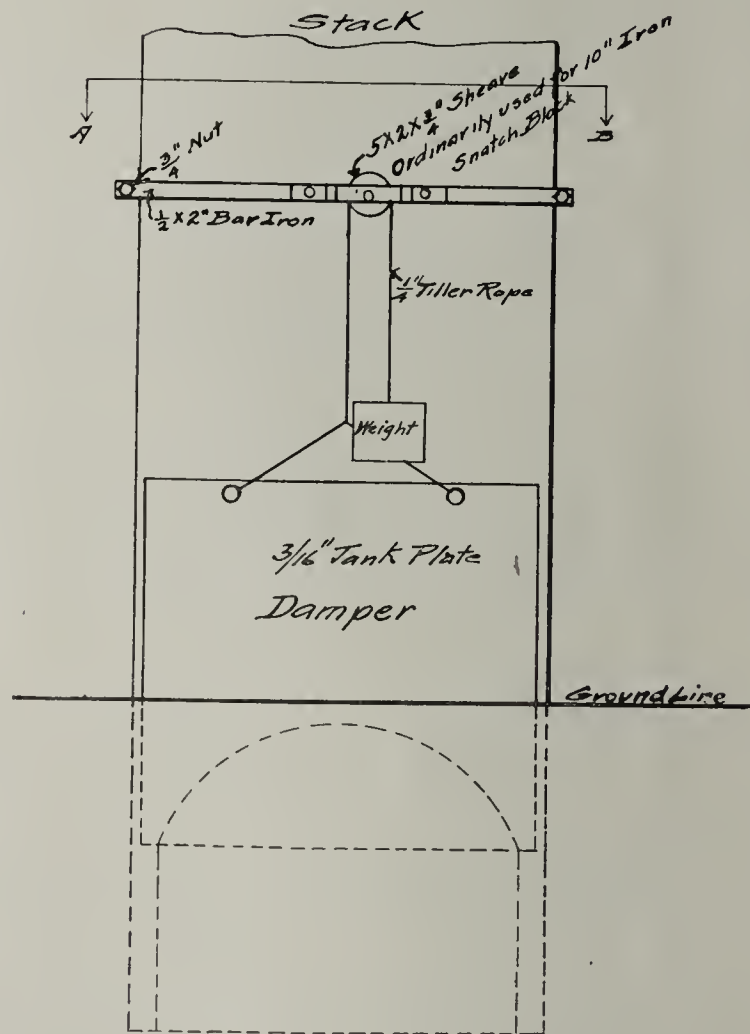
Editor THE CLAY-WORKER:

The sketch of the damper here shown is offered as a means of relief for those who are in the habit of lifting their dampers in and out of place by hand. This was formerly the case at the plant where this scheme is now being used.

At the plant in question one stack 40 feet high and 5 feet



Section AB



square takes care of two kilns, hence there are two dampers for each stack. These dampers are rather cheap to install and are certainly a vast improvement over the former method of lifting in and out by hand. At the same time they afford a more convenient means of regulating the draft. The following figures cover the cost of the installation of eight dampers:

Material	\$35 00
Labor	12 47
Total	\$47 47

This represents an outlay of \$5.93 for damper. This price

can no doubt be improved upon, as some experimenting was done before the scheme here shown was hit upon.

The scheme is briefly this: Two pieces of $\frac{1}{2}$ x2-foot bar iron are cut, each 6 feet longer than the width of the stack, thus allowing 3 feet on either side of stack for bolt holes. These are bolted to each other and held in place by means of two lengths of $\frac{3}{4}$ -foot round iron threaded on each end and running at right angles to the bars. A piece of the same bar iron is then bent in shape and riveted to the bar to accommodate the sheave wheel. The balance of the scheme is perfectly obvious from the sketch. The tiller rope is preferable to any other kind, as it is very pliable.

G. L. ROGERS.

To Prevent Dampness in Kiln Bottoms.

Editor THE CLAY-WORKER:

I have just been reading the last number of THE CLAY-WORKER, and, in my opinion, there is no better paper published. As I know it reaches almost every clayworker in the country, I want to give you an experience we had in the building of kilns. Last May my brother and I started a small terra cotta plant, and unfortunately the ground is very damp where we built our kiln, which is of fifteen-ton capacity of the down-draft muffle type. This dampness caused us a great deal of trouble, as it would come through the bottom of the kiln. We tried everything we could think of to remedy this, and finally, a month or so ago, we sprinkled broken glass under the floor of the kiln about two inches in depth. After burning off the next kiln I found the glass had melted, forming a crust about one inch thick, which the dampness cannot penetrate, and we find our ware greatly improved. It is possible some one else may have had this same trouble, and I would advise them to try our remedy.

Pennsylvania.

GEORGE G. MORRIS.

New York and Vicinity.

Editor THE CLAY-WORKER:

The market has fluctuated remarkably since the opening of navigation. Even with far more coming down the river than last year or the year before immediately following the opening of navigation, there has been less of a tendency for prices to fall than before. The reason for the undue consumption is not quite clear, but may perhaps be found in the fact that dealers have stocked up in anticipation of a good market when the building season opens. Prices have run from \$5.62 $\frac{1}{2}$ down to \$5.12 $\frac{1}{2}$, with \$5.50 the outside price for special makes when the low figure prevailed. Manufacturers will say that none of these figures, not even the highest, represents a profit. Sales have been heavy, but they say if no money has been made what have the sales been worth? And there are many who concur in this view of the matter.

There are approximately 300,000,000 brick up the river as this is written. Manufacturers must be commended for their restraint in not sending quantities down which would have a tendency to overload the market and reduce prices below what they have been so far. The range has been low enough as it is without the reduction which might follow a free shipment from the immense quantities held in storage.

It will be recognized by those familiar with the situation that conditions are unusual and any attempt to force the market will result in suicide. Sometimes there is an attempt to dispose of more than seems proper, but the effort has been checked thus far this spring and all interests have benefited proportionately.

Building interests haven't been confident of the season thus far, but they are said to be coming to the conclusion that much will be done after all. The conditions can be understood in the number of draftsmen and others out of employment. More than 1,500 were laid off during the close of last year and the opening of this. Comparatively few have gone back to work. Architects seem to have little on the boards and firms which were driven all last year are finding difficulty in keeping busy so far this year. But possibly with

the return of spring and the improvement in business which always accompanies it there will be better conditions. It is pointed out that there must be, otherwise the business will drag and very little will be accomplished this season.

BURTON.

OBITUARY.

WELL-KNOWN CHICAGO BRICK MAN SUCCUMBS TO CANCER.

THE DEATH of Sylvester Marshall, for many years prominent in the building activities of Chicago, is a source of great sorrow to all of his intimate friends, and even those who knew him less intimately feel the loss of his personality in the business world, in which he played always an active, upright and vitalizing part. Mr. Marshall was the victim of cancer of the mouth, from which he had suffered for several years, and which finally overcame him in spite of his brave fight against it, on April 3, 1911, at his home.

Mr. Marshall was born December 13, 1852, at Jamestown, Pa. During most of his life he has been prominently connected with varied lines of building material business. At one time he was in the stone business and was president of the National Association of Quarry Owners. Always in step with the progress of the times, however, he deserted the stone business when the architectural possibilities of brick became evident and for fifteen years had been active in the brick business, being associated during most of that time with Charles Bonner, head of Bonner, Marshall & Co., of which Mr. Marshall was the junior member at the time of his death.

Mr. Marshall is probably best known in Chicago as the man whose enthusiasm, faith and untiring energy made the Oriental brick the well-known building material which it is in the Middle West, and indeed over much of the country. Mr. Marshall has been recognized in many ways as an active citizen, whose large influence always could be counted upon for the best interests of the community. In 1893 he was named by Mayor Carter H. Harrison as a member of the Finance Committee of the Chicago Labor and Relief Committee, which took charge of the painful social and economic condition in Chicago during the never-to-be-forgotten panic winter. Mr. Marshall was a leading member in a number of clubs, being particularly prominent in the Lakota Club and the Colonial Club.

He is survived by his widow and a sister, who was the wife of the Rev. H. H. McMaster.

SCRIPT.

THIRD LARGEST CHIMNEY IN THE WORLD.

The Orford Copper Company, of Bayonne, recently finished its second great chimney, a twin to one built eleven years ago. They stand side by side and tower 365 feet in the air, the highest chimneys in New Jersey. The new chimney is built of perforated radial bricks and was erected by the Alphons Custodis Company, of New York. It stands on 400 piles, driven 14 feet deep and solidified with concrete 40 feet square. The diameter at the top is ten feet and the stack is circular. The quantity of brick used corresponds to 2,000,000 of the common, but these are of special size and shape and weigh from 15 to 18 pounds each. The gases which ascend the chimney render it necessary that it should be acid proof. Consequently acid-proof brick and mortar were used, and to make it safe it is banded every six feet with steel bands. It is built to withstand a gale of 100 miles an hour, much stronger than has ever been known in Bayonne. The stack above the foundation weighs about 4,000 tons and it cost \$40,000. The twin chimneys at this plant are the third largest in the world. The tallest is at Great Falls, Mont., 506 feet high and 50 feet in diameter. The next is at Rochester, N. Y., 366 feet high and 10 feet in diameter. There is one in Newark 350 feet high and 8 feet in diameter.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



SPRING BUILDING operations are now in full swing in this city and there promises to be a big movement of brick and terra cotta in this territory within the next two or three months. Building permits issued at the City Hall indicate a larger amount of building under way this year than ever before. Permits for January and February broke all records, as did also the permits for April. For that month a total of 828 permits were issued for buildings, valued at \$1,214,790, as against 771 permits for the same period a year ago, when they were valued at \$1,192,204, an increase of 2 per cent. The permits this year show an unusually large number of fireproof buildings under way in which brick is being used more extensively than ever.

A distinct change in building methods is taking place in Cleveland, as in other cities. The craze for concrete for all purposes is giving away. There have been so many failures with concrete that builders are skeptical concerning its use. They are turning instead to steel and burned clay products. A vast amount of hollow clay tile and hollow brick are now being manufactured. A number of common brick plants in Cleveland have been converted into factories of this sort, and the new product is meeting with great success. Bradley & Barkwell, brick distributors for Cleveland, have installed a new and attractive display of this hollow tile in their space at the Builders' Exchange, where it is causing considerable comment.

As an indication of the way the public is fooled with concrete, an investigating committee has just reported an investigation it made at the state sanitarium for tuberculosis at Mt. Vernon, Ohio. It was found that in the new dairy barns the concrete, which had been used extensively, was crumbling and was little better than mud in some sections. This although the barn is not yet ready for occupancy. The commissioners declare that somebody will have to hustle before the barn is accepted by the State and paid for. The committee also reported that it found several other instances of inferior cement work.

A project of unusual importance, even for Cleveland, was launched here during the past week when announcement was made of plans for a \$4,500,000 hotel, office building and interurban passenger station to occupy the entire block lying to the southwest of the Public Square. The project, according to its promoters, has been fully financed. Plans for the building had been prepared by Daniel H. Burnham, famous Chicago architect. They call for a sixteen-story office building, a twelve-story hotel structure, containing about 600 rooms, and an interurban waiting room and station. The buildings are to be of steel, concrete and brick, and will be of the highest type of construction. A committee of citizens, headed by N. L. Dauby, of the May Company, and Victor Sincere, of the Bailey Company, are at the head of the company which has the matter in charge. About \$2,000,000 of the money needed is to be furnished through the D. H. Burnham Company, of Chicago, and the remainder by Cleveland banks and capitalists. It is likely that considerable brick and white terra cotta tile will be employed.

Another big building project, involving the erection of a \$1,000,000 hotel building, has also been announced during the past week. A syndicate of Cleveland and Pittsburg capitalists has secured the southeast corner of Euclid avenue and East 14th street, a triangular tract about 180 feet in dimensions, and will erect thereon a twelve-story fireproof hotel structure containing between 500 and 600 rooms. It will be of white terra cotta for the first two floors and brick to the cornice, which will also be of terra cotta. Window sills and other ornaments are to be of terra cotta.

The Pennsylvania railroad is preparing to spend several

hundred thousand dollars during the coming summer on a new freight station and a new passenger station near the intersection of Euclid avenue and East 55th street. Owing to the railroad being compelled to raise its right-of-way to a level of fifteen or twenty feet above the present roadbed, the stations now in use are of no value. A new and fireproof warehouse costing \$150,000 will be built east of the tracks for freight purposes, while a commodious brick passenger station will be erected west of the tracks.

Work has begun on the new \$400,000 Technical High School to be built on the West Side. The building is to be ready for occupancy by next fall or by January 1 at the latest, according to the present plans. The exterior is of dark brown brick. It will accommodate 1,000 students when completed.

Another twelve-story building is to be erected on the Public Square, according to Architect Frederic W. Striebinger, who represents J. A. Sanders. Sanders will build on the site adjoining the present American Trust building. It will be fireproof throughout, with a brick and terra cotta front. Work will begin some time this summer, according to present plans.

Work is to start early next month on the collecting of funds for the erection of the big exposition hall which it is hoped will be ready for use early next winter. The entire project calls for an outlay of about \$800,000, of which about half a million will be spent for the structure itself. The fund is to be raised by a committee of business men, who have already secured subscriptions amounting to several hundred thousand dollars.

County commissioners announced during the past month that they were preparing to spend \$1,000,000 on new rural highways in the vicinity of Cleveland during the coming season. The roads to be paved are Fairmount, Gardner, Broadview, Wooster, Union and Canal. A number of roads which were started last summer are to be completed this year. Several other counties in the vicinity of Cuyahoga, of which Cleveland is the county-seat, are preparing to proceed with brick paving operations this year to correspond with the work done in this county. Among these are Summit, Lake and Lorain counties.

The city has started letting contracts on thirty miles of brick pavements, which are to cost \$1,200,000. For sewers the city will spend \$550,000, a goodly portion of which will go to the makers of clay products.

A new six-story tile and brick building is to be erected for the Crowell & Hubbard Company at the intersection of Euclid avenue and East 13th street as soon as the company's lease on its present quarters expires. The building will have a frontage of eighty feet on Euclid avenue and will be about two hundred feet deep.

Hirsch & Gavin have been selected as architects for the new Truman building, a six-story structure, to be built by the Commercial Building Company on Euclid avenue east of East 9th street. It will have a frontage of about 90 feet and will be over 200 feet deep. The front will be of glistening white terra cotta tile, with brick used extensively throughout the interior. The building is estimated to cost about \$250,000.

The Colonial Builders' Supply Company, of Cleveland, has been incorporated with a capital of \$10,000 by Cyrus Edwards, L. A. Bajano, E. S. Edwards, C. L. Gates and P. S. Knight.

The Standard Clay and Glass Products Company is a new firm incorporated during the past month. Its home is at Mogadore, Ohio, and the chief incorporator is Charles Bertsch.

The Ceramic Improvement Company, of Alliance, Ohio, is evidently prospering, for during the past month it increased its capital from \$10,000 to \$25,000.

BUCKEYE.

The offices of the American Terra Cotta and Ceramic Company have been moved from the Chamber of Commerce building to the twentieth floor of the People's Gas building, where they will be pleased to welcome their friends.

Written for THE CLAY-WORKER.

CLAY NEWS FROM ILLINOIS.

THE WEST SALEM Hollow Brick and Tile Company, of West Salem, which recently was incorporated with a capital stock of \$2,400, which later was changed to \$50,000, expects to do a large manufacturing business. Its principal products will be 4 to 36-inch drain tile, but plans include making hollow blocks, flue linings, hollow brick and fireproofing and various kinds of glazed ware. Encouraging reports were made by ceramic experts to whom had been submitted clay and shale for tests. The officers chosen are: President, William Harrison; vice-president, G. Schwarzloze; secretary, Paul Grace; treasurer, C. L. Hainz, and directors, W. O. Mallinson, J. H. Blood and William Friederichs.

James M. Mitchell, 80 years old, for five years a brick manufacturer at Jacksonville, died April 4 at his home in that city.

Improvements at the plant of the Richards Brick Company at Edwardsville, Ill., include a gravity railroad system from the clay beds to the storage sheds and an electric railway 1,700 feet long from the sheds to the plant. Electric power for the railway will be secured from the Illinois Traction Sys

Lankford is interested was incorporated, its charter was made to allow the adoption of brick manufacture.

The Alton Brick Company, of Alton, has increased its capital stock from \$200,000 to \$250,000, notice having been filed with the Secretary of State at Springfield.

The Manteno Brick and Tile Company, at Manteno, has built new kilns and the storage sheds will be enlarged.

S. P. RING.

AN IOWA TILE PLANT.

The plant of the Algona Brick and Tile Works, at Algona, Iowa, is the oldest factory in the county, and they are turning out the best grade of tile. The clay bed is located about half a mile from the plant on the river bottom, and the clay is very plastic and dries very slowly. The vein of clay is nine feet thick, and is hauled to the factory in dump carts drawn by two horses. It keeps two teams going steadily to get the clay to the plant fast enough. The company is now thinking of putting in a track and cars, which would materially reduce the cost of hauling. The clay is dumped into a bin and run through a No. 1 Wellington disintegrator, after which a double-beaded flight roller chain conveyor carries it to a 9B Brewer tile machine. The tile are cut on a Bensing automatic tile table, after which they are placed on



General View of the Plant of the Algona (Iowa) Brick and Tile Work.

tem. A switch has been laid to the mine of the East Side Coal Company, solving the fuel problem. Another press has been installed at the plant and a daily capacity of 40,000 bricks is expected this summer.

An arrangement has been effected between the Illinois Traction System and the Sheldon Brick Company at Urbana whereby the interurban will haul shale from the fields near Danville to the company's plant. As a result of the joint expenditure of between \$20,000 and \$25,000 the electric line is able to reach the brickyards with six to eight cars of shale daily and remove the finished product, saving team hauling. A track is also being laid to the plant of the Western Brick Company at Danville, which will cost \$10,000.

In order to reach a capacity of 75,000 paving brick a day the Streater Paving Brick Company has decided to install a 200 h.p. Corliss engine, and the plant has been shut down for improvements.

The Sheffield Shale Tile Company, of Sheffield, has increased its capital stock from \$45,000 to \$75,000.

Samuel Lankford, of Georgetown, Ill., is said to be interested in plans for a brick plant to be established on the line of the Illinois Traction System near the plant of the Sharon Coal Company. When the mining company in which Mr.

a tile elevator and carried to the different floors for drying. They have two dryer sheds, one 32x80 feet, with three floors, with steam pipes running under the bottom and second floor, in which it takes from ten to fifteen days to dry the tile. They built a new dryer this year, which is 32x120 feet, with concrete floor for drying. The tile are set on a slatted floor 16 feet above the concrete, and it takes only three to five days for the tile to dry in this dryer, and they have less cracked ware than is the case where the brick are dried more slowly in the other dryer.

Two boilers are used of 50 h.p. each, one a Frost and the other an Atlas. A 70 h.p. automatic engine, made by the Atlas Engine Works, furnishes the power.

They make drain tile only—four to eight inches—nearly all of which is taken by the local trade, only three cars being shipped the past season. They closed down November 3 with a fairly good stock on hand, all of which is sold for delivery this winter.

The accompanying photograph gives a fairly good idea of the appearance of the plant. Wm. K. Ferguson is president; E. A. Wolcott, vice-president; E. V. Swetting, treasurer; W. A. Dutton, secretary, and C. R. Madson is manager. "Once a patron, always a customer" is the motto on which the company conducts its business.

Algona, Iowa.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



LOOKING over the situation in Wisconsin one is struck forcibly by the fact that brick is again looming up as the most desirable material for paving, and asphalt, bitulithic, concrete and the other modified forms of cement are steadily receding. A number of Wisconsin cities have learned their lesson by the use of cement paving, a brilliant idea of some contractor, who reaped a good harvest while the idea was untested and the results still to be found. In one city several blocks of cement paving which has laid only two years is now being torn up and replaced with brick. The cement work was of the same type as the ordinary sidewalk and driveway work, with the exception of being somewhat heavier, and the squares were double in size. This stuff was fine until heavy wagons rumbled across it several times, and then the street looked like ice breaking up in the river. It would have been a good idea for some enterprising motion picture film manufacturer to send Eliza across this street followed by the bloodhounds, for it was remarkably well adapted for such an illusion. The great squares of cement sticking up here and there were a realistic reminder of the episode in "Uncle Tom's Cabin."

It is noticeable, too, that in most of the smaller cities brick is the most popular paving material. Especially when the property owners are permitted to select the material is brick the leader. In some cases, however, the municipal authorities take it upon themselves to do the choosing, and some inferior material is foisted on the public for reasons not known and only to be guessed at. At Monroe, Wis., recently a mighty fight arose over the material for paving North Jefferson street. Bids were called for on several kinds of material, notably brick, asphalt macadam, using both Bermudez and Sarcolithic, and concrete. Strange to say, there was a difference of only a few cents in the prices quoted for each kind of pavement by the contractors who responded to the call for bids. The property owners were then called upon to select the material and the verdict was unanimously in favor of vitrified brick. Naturally, the Common Council adopted the recommendation of the property owners.

One of the leading Monroe newspapers advocated "modern paving" in preference to brick, but says editorially, "The Council did not deem it expedient nor wise to waste time and money in investigating and experimenting with other kinds of paving."

It is the same story in other cities. Brick paving, tried and true, is desired in preference to materials of doubtful worth.

The contract for the Monroe paving was awarded to T. W. Quinn, of Madison, Wis., whose bid on vitrified brick, with Barr block and cement filler, was \$1.79 per square yard. The Barr block was chosen.

The Grand Ledge Clay Works, of Grand Ledge, Mich., received a nice little municipal contract at Milwaukee early in April when its bid for furnishing 63,000 lineal feet of clay conduits for the use of the fire and police departments was accepted.

Several large sewer contracts were awarded by the city of Sheboygan, Wis., recently. All contracts were for furnishing and laying ten-inch vitrified clay pipe. Three were awarded to A. Vowinkel at prices ranging from 60 to 74 cents per foot, and one to Huebner & Co. at 70 cents per foot.

Without doubt the tallest brick smokestack in Wisconsin is that recently completed at the big plant of the Wausau Sulphate Fibre Company at Wausau. It is 204 feet high and circular in construction.

The Anderson Machine Company, at Marinette, Wis., is building a complete brickmaking plant for a company at

Rudyard, Mich. The plant is a new design by Mr. Anderson, who commenced operations in the former Marinette Iron Works about a year ago. The apparatus has been tested and gave a good account of itself, and Mr. Anderson has been working to capacity to supply orders.

The Brillion Brick and Tile Company has been incorporated at Brillion, Wis. The capital is \$9,000, which will be increased as the company grows. The incorporators are: John Meyer, R. C. Zorn, J. Hesser and C. H. Kuehl.

Residents of South Main street, Fond du Lac, Wis., have petitioned the Common Council to pave this thoroughfare with brick instead of cement, as desired by the municipal authorities. Fond du Lac is one of the Wisconsin cities that has experimented with cement and concrete much to its sorrow, and it is doubtful if residents will permit any more of the stuff to be laid.

The Senate committee on public welfare and education has killed the bill introduced in the Legislature recently with the aim of permitting the Wisconsin Clay Manufacturers' Association to print 1,000 copies of its annual report and proceedings of the annual convention at the expense of the State.

Appleton, Wis., will spend about \$50,000 for street paving this summer, and at least a part of this will be for brick. A block or two will be covered with cement pavement, and asphalt will be liberally used. Friends of brick paving succeeded in having this material used on several streets, and hope to prove that their selection is the wisest.

Milwaukee brick and tile jobbers are reaping a harvest at this time, due to the immense amount of small building being done in Milwaukee and other cities of the State. A large number of combination store and flat buildings, generally of solid brick, and at least of brick veneer, are going up. The building season is one of the briskiest ever known.

A. BADGER.

BRICK NEWS FROM THE SOUTHLAND.

BUILDING AROUND Memphis is very good, with prospects for its continuation all summer. Louisville, Nashville and Chattanooga report an activity.

Olson & Lesh have the contract for the new \$70,000 Memphis Country Club. The building will be situated on the site of the old Country Club.

Permanent organization has been effected at Memphis for the Memphis Building Material Dealers' Association. W. W. Fischer is president, L. S. Akers is vice-president, Austin Carey is secretary, and R. B. Clinton is treasurer.

Preparations are being made at Memphis for the rebuilding of the 'Frisco stock yards buildings. The buildings are the property of H. T. Bruce and will cost about \$10,000.

The Knights of Pythias at Memphis have bought a site on Third street for a five-story building at Nos. 138-142. The building contemplated is brick and stone and will cost about \$75,000.

The Camden Brick and Tile Company, of Camden, Tenn., has commenced business. They will manufacture brick, tiling, etc. The company is headed by County Trustee Granberry Greer.

Frazier & Richards, of McKenzie, Tenn., are completing a two-story business house office building at McKenzie, Tenn., for Mrs. Snead.

E. T. Lewis & Co., brick manufacturers and general contractors at Nashville, Tenn., have the contract for clearing the approach for the Capitol boulevard, that city.

The Tullahoma brickyards at Tullahoma, Tenn., have been sold to R. H. Nabring, of Upland, Ind. The former owner was J. W. Lupher.

Prominently identified with the growth of Mayfield, Ky., is the recently established Standard Brick Company under the direction of X. B. Wickersham, lately of Jackson, Tenn.

This company controls 50 acres of land, with a capacity of 20,000 brick daily. Brick are shipped from Mayfield to New Orleans and Cuba.

D. S. Hildebrand, at Asheville, N. C., has been awarded the contract to furnish more than 5,000,000 brick to be used in a \$1,000,000 cotton mill in Greenville, S. C., being erected by J. Edgar Smythe and associates. DIXIE.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

THE HACKENSACK district manufacturers will hardly operate to their full capacity this year. The Mehrhoff Brick Company, of Little Ferry, has a capacity of 30,000,000 per year, but will reduce that output 5,000,000 this year. While none others will reduce as much as that through the rest of the district, it is probable that few will run up to what they might if they pushed their plants. The figures given out are understood to be about as follows:

Mehrhoff Brick Company, 25,000,000; Felter Bros., 10,000,000; N. Mehrhoff Brick Company, 10,000,000; G. W. Givers, 7,000,000; Gardner Bros., 7,000,000; Hackensack Brick Company, 5,000,000; Philip Mehrhoff, 5,000,000; Edward Schmultz, 4,300,000; total, 73,300,000.

These people will put in very little new machinery. Indeed, most of them are credited with the intention to make only such repairs as may be necessary for the safe operation of their plants. Most of the plants are in good condition, however, and will easily go another season without extensive repairs. They expect to begin operations about April 20, if the weather permits, but it has been very cold so far, and only the cleaning up about the yards and work of that character could be performed. When the cold does break, however, they will be in position to begin immediately with brick-making.

Practically everything left in the sheds has been sent down the river since the opening of navigation. The holders who still have a few brick left are preparing to get rid of them without delay. They are in position now to lay up arches as soon as the brick they may put on the yards later dry sufficiently to warrant it.

In South River some of the yards are in operation now, though not much business has been done because of the long-continued cold weather. The nights have been freezing cold all the spring and it has been impossible to do much, even since the yards were supposed to open.

At Sayreville some work has been done, but the cold weather has prevented any important operations.

At Trenton makers have been a little better favored, but the general effect has been to retard business, and making has not yet got under way.

At Plainfield there have been some moves made, but so far no important operations are named. The section does not suffer so much from the cold as some, but the freezing weather at nights has prevented operations from assuming any serious proportions as yet.

The price at Hackensack and in that district has been \$5.50 flat at the yards. Some good sales have been made to the local trade, but the quantity left for shipment to New York was still as large as the manufacturers care to see at this season. There seems to be an impression that a good deal of work will be done in Paterson this season, which is only seven miles away, and this will be relied upon to draw upon the Hackensack district to some extent. Shipment is easily made by train from the yards direct to the required locality in Paterson.

The Ostrander Fire Brick Company and the Perth Amboy Fire Brick Company, of Fords, are both planning extensive operations. The sales last year warranted the increased output which will be made this season. Both companies are

large manufacturers. The first has 150 hands at work, or will have, while the latter has 110 hands. Both find a ready market for their product.

The National Fireproofing Company will operate its plant at Keasby to the fullest capacity this season. More than 250 hands will be employed and the entire plant will be made to turn out as much stock as possible. There is a good demand for everything that can be made.

The Didier-March Company, of Keasby, will operate its full plant, employing something like 200 men. The conditions governing their trade are satisfactory and the outlook is reported sufficiently encouraging to warrant this liberal production.

The Raritan River Clay Company, makers of fireproofing, will work about 130 hands, with possibly a slight increase if business opens in good shape. The market has been good so far, though there has been little done yet in the way of getting out new material. The weather has been almost too cold to allow extensive operations.

The Kingsland Brick Company, of Kingsland, will run its plant to full capacity, working about 25 hands, or maybe a few more, should orders warrant it. The company is well equipped and will make no additions this year. Few repairs were necessary. Last year it found a good local market for much of its product.

The Clifford Brick Company, of Cliffwood, will work something like 360 hands. Common brick are turned out and the quantity is only limited by the capacity of the plant. Last season the output of the plant was increased somewhat by the addition of new machinery, but nothing of importance in that line will be done this year. They hope to work their plant to its full capacity without making many additions or changes. BURTON.

SAWYER BELTING COMPANY GETS INJUNCTION.

A perpetual injunction, restraining George R. Curtis doing business as the Curtis Machine Company, Hettro Belting Company and National Supply Company from advertising, causing to be advertised or causing to be published in any newspaper, periodical, booklet or catalogue, in any manner whatsoever, Sawyer Belt, and also restraining him from representing to any person, firm, corporation or individual that he will sell the Sawyer belt or Sawyer belting, has been granted the Sawyer Belting Company, of Cleveland, Ohio, manufacturers of stitched canvas belting.

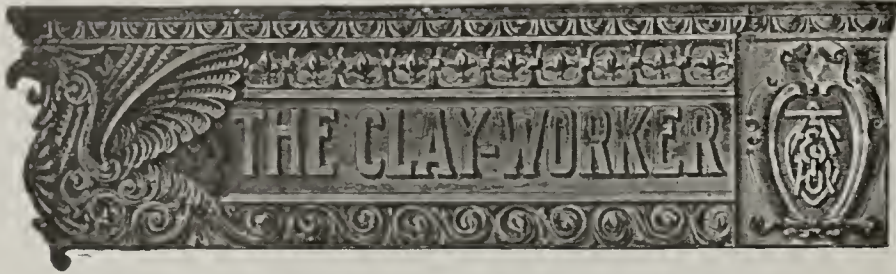
This decree has been made perpetual in United States Circuit Court, Toledo, Ohio, January 11, 1911.

A CHANGE IN MACHINERY CIRCLES.

It is announced that Arbuckle & Co., of Rushville, Ind., have acquired the plant at that place from Scott-Madden Iron Works Company, and will continue the manufacture of stiff-mud brick and tile machinery there as formerly when owned by Madden & Co. The officers of the new company are: Nathan Arbuckle, president; Stephen Kelly, vice-president; W. R. Hill, secretary.

The Scott-Madden Iron Works Company will make headquarters at Keokuk, Iowa, where they have built dry press brick machinery for some years, and will also build a steam shovel and dredge. They will continue to sell the stiff-mud and tile machinery made at the Rushville plant.

A motion that the Bradley Brick Company, of Mooresville, Ind., be declared bankrupt has been entered in the Federal Court by Levi S. Pierson, of Indianapolis, a creditor of the firm. Mr. Pierson alleges that the firm is indebted to him in the sum of \$3,800 and states that he was forced to pay a number of notes and debts on which he had served as surety for the firm. Mr. Pierson alleges that the firm has paid a number of other creditors in preference to him and avers that the firm is insolvent.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
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Six copies, " " " " " "	10.00
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Subscribers when ordering a change of address should give both the old and new address.

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Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LV.

APRIL, 1911.

No. 4.

CURRENT COMMENT.

Success and economy in the use of fuel often depends as much on the style of the man behind the shovel as it does on the style of power house equipment or kiln arrangement.

* * *

It looks like we may get a little Canadian reciprocity this trip and that the big argument will come afterward, when Congress wrestles with the tariff question.

* * *

From the wireless reports drifting in as the days warm up we judge that the crop of baseball fans will be fine this year and in excellent training.

* * *

The soft or salmon brick in a kiln is an unintentional cheap product that requires extra care in handling to keep from making it still cheaper.

* * *

The sand-lime brick business has recovered somewhat from the setback received during the days of the panic, but it has not yet reached again a production equal to that of 1907.

* * *

The price of building lumber is going up, the market recently having been characterized as wild. This should make more good opportunities to push brick in ordinary building operations.

* * *

It looks like the clay tile people have done too much resting on the laurels of superiority, and what we need now is more hustle and enterprise in the way of manufacturing and pushing clay roofing tile.

* * *

The machinery and supply dealers at a recent convention passed resolutions favoring one-cent letter postage. Some time or other this will likely be tried, but whether or not it

will result the same as experiments in three-cent street car fares, remains to be seen, and even if it does, the experiment is perhaps worth the trying.

* * *

With the coming of the first spring crops we hope that all the talk of high living will die a natural death. Anyway, it is refreshing to know that some of the very high notches are coming off.

* * *

The winter vacations are over. It is too early to start on summer vacations, and there is nothing for it but work. Fortunately, it looks like there is plenty of work for the brick manufacturers.

* * *

The drain tile man has had some busy times lately, and now let the paving brick man and the building brick manufacturer also hustle. For building operations look to the good all around.

* * *

The March winds while they last make fairly good clay dryers, but the trouble is the April rains come right after them and spoil it all. So the only safe plan is to use a scientific mechanical dryer.

* * *

Improved methods for handling brick on the yard are quite the order of the day now, but so far as known there is not offered any improvement for laying brick that gives promise of reducing the cost of construction.

* * *

Underground mining is always fraught with danger, and for this reason we should always be active in the study and application of safeguards, but, unfortunately, it takes an occasional appalling accident to keep us thoroughly alive to the necessity of properly safeguarding underground workers.

LOUISVILLE ORGANIZES A BRICK CLUB.

The Louisville brick manufacturers who were the genial glad-hand hosts to the National Brick Manufacturers' Association at its late annual meeting, caught the boosters' spirit during the annual meeting and since then have gotten together and organized a Louisville Building Brick Association, the purpose of which is to advertise brick as a building material and promote the welfare of the brick industry generally, especially in Louisville and the territory tributary thereto. The officers of the new Louisville Building Brick Club, who will be readily recognized by all those who were at the annual meeting, because they were in evidence as hosts, are: Joseph Nevin, president; F. D. Schmidt, vice-president; T. Bishop, secretary, and Isaac Tyler, treasurer.

THE BRICK AND CLAY PRODUCTS SHOW, CHICAGO, MARCH 5 TO 11, 1912.

The time, the place, and the show, of chief interest to clayworkers, is announced in the above heading. The plan outlined at the recent National Convention for a comprehensive exhibition of brick and other clay products has taken definite form, and the first strictly Clay Products and Permanent Homes Show in America will be held in the great Chicago Coliseum the week of March 5 to 11, 1912. The National Brick Manufacturers' Association and affiliated organizations will meet at the Annex during that week, where they will be afforded unexcelled facilities for their annual conventions. A company has been incorporated for the special purpose of inaugurating and managing the Clay Products and Permanent Homes Show, to be known as the International Brick and Clay Products Exposition Company. The Coliseum has been leased, and in due time prospectus and plans for the show will be announced through the trade press. Every clayworker desiring to do so will be given an opportunity to exhibit his

ware under the most favorable conditions, and it is anticipated that every clay industry in the land will be greatly benefited thereby. It is a great undertaking, but those in charge have the ability and the means to insure its success, which will be commensurate with the vast interests represented.

FUTURE PRODUCTS OF THE CLAY BANK.

No one can prophesy yet what other things than brick and similar products may be included in the future products from the clay bank. That there are minerals and various substances mixed in our clays we are all well aware, and there has long been a sort of alchemist dream of converting clay into other things than brick, tile and terra cotta. Some day some of these dreams may be realized, and we may find that the brick man can run some side issues to his business and maybe convert certain clays that do not burn as well as certain others into something even more valuable than brick. Whether or not something of this kind will develop as a side issue to the brick business or entirely independent of it remains to be seen.

We are moved to this reflection by a bulletin of the United States Geological Survey telling of aluminum as the coming metal. The bulletin announces a new report on aluminum by W. C. Phalen, in which some outlines are given of the progress of aluminum and some predictions are made of the future greatness of this metal. Also, it is said that while so far it has only been commercially recoverable from bauxite, there have been some recent patents taken out covering the process of obtaining aluminum from clay as a by-product of a process of producing elementary silica from clay.

This, it is pointed out, is the goal which has long been sought by many experimenters, and the inference or information suggested by Mr. Phalen's report is that we are nearing this goal and that some time in the near future we may be deriving from our clay banks other articles than brick and the present well-known line of clay products.

THE BUSINESS OUTLOOK.

If anything near all the building projects being talked of and figured over with architects and anything near all the municipal improvements that have been talked of are put through during the year there will be plenty of work for everybody connected with the manufacture either of building or paving brick.

Indeed, the outlook all around is excellent. There is not as much boom excitement about building operations and street improvements as has been known in the past, but the movement seems to be of the solid, substantial, conservative kind and the new projects coming forth instead of mushroom type, partake of the character of deliberately planned undertakings. Moreover, many of them are being put into execution right along, and while the actual amount of work in hand now varies in different parts of the country, the general situation the country over is mighty good, both for building and street improvement.

Some people hesitate a little because of Congress being in session and tariff matters in the air. Others profess a little uneasiness about what the railroads may do about the government stopping them with further advances in rates, and still others see bugaboos around the trust-busting efforts and what may result from court decisions on cases now pending.

All these things perhaps serve as weights to steady and balance the ship of business and prevent it taking on too much sail and going wild generally and apparently just hold business down to a steady stride, so that it looks like an excellent volume of business this year on a mighty substantial basis. It is, withal, to judge from the way the spring season is starting off, one of the most desirable of years for practi-

cally all business enterprises, and in this the clayworking industry is no exception. There has been quite a lively demand for drain tile, sewer pipe, and the prospects for building brick, paving brick, terra cotta and for fire brick look mighty good. It looks like there is going to be enough to keep everybody busy all summer, and that everybody should find it a prosperous year unless some peculiar misfortune overtakes operations in some places.

DRAINAGE BY WELLS.

In connection with a series of papers on the underground water supply the United States Geological Survey has touched on the question of land drainage by wells. This subject received special treatment at the hands of M. L. Fuller, and it is said that the paper should be of great practical value in areas where there is difficulty experienced in removing surplus surface water, including bogs, marshes and low places where surface drainage through gravity is not practical.

Land drainage by wells is founded on the theory that you can empty a bucketful or barrellful of water into a well without permanently raising its level. So, the report shows you can drain an acre or several acres or possibly a swamp of 50 or 75 acres, the water running off through underground channels and percolating to the underground sand or gravel strata. The practical possibilities of this theory, of course, depend materially on the conditions of the land. If one can sink wells and pits without great expense or going to any excessive depth and reach a strata of sand or gravel that will carry off surplus moisture, it should be practical to do quite a lot of what might be termed self-contained drainage. It would not, of course, appeal to one who has a system of surface drainage available, but there are undoubtedly many localities where recourse to well drainage would be worth while and would materially simplify the problem of drainage, and also it might often enable one to reclaim marshes and what is termed crawfish land without going to any great expense or having to depend on outside leads for drainage.

The paper on drainage by wells is one of the eleven papers that make up the United States Geological Survey water supply paper No. 25S, copy of which can be had free on application to the Director of the United States Geological Survey.

PUSHING PAVING BRICK.

It has been thoroughly demonstrated that quality is a strong lever for pushing paving brick forward. This means not merely the talking of the quality of the paved brick street as compared to other methods of paving, but it means talking quality and using quality on the part of paving brick manufacturers in their product.

Every paving brick manufacturer should guard the quality of his brick as he would guard his own reputation. For it is only by producing a proper paving brick that the reputation of the paved brick street can be kept up and its progress made dependable. Therefore, every paving brick manufacturer should look well to the work at home, see to it that he has quality to stand on and to argue from.

Then individually and collectively the paving brick manufacturers are in position to cultivate the city fathers and the boards of works in the different cities and talk to them with the right kind of an argument about the building of permanent good streets with the best paving material that can be offered. Then, whenever a contract is secured it is to the interest of paving brick manufacturers, after starting the guardianship over the quality business right in their own plant, to extend it to the work of street paving itself and counsel with the boards of works and contractors about how to lay it to obtain the best results.

It is only by getting the best brick paved streets that the paving brick manufacturers have a strong lever to push their

business further. Every poorly paved street that is poorly paved with brick, whether the defects are in the brick or in the methods of laying, is a handicap to the progress of paving brick. Therefore, we should avoid them as we would avoid a pest and have quality the war-cry and the lever with which to push paving brick. Quality, both in the brick and in the method of laying, and then preach quality first, last and all the time, and ultimately the city fathers are bound to specify and demand brick streets.

BUSINESS GOOD FOR NEW FIRM.

The new machinery concern, Arbuckle & Co., which takes over the Rushville business of the Scott-Madden Iron Works Company, report business as being fine. Although they have only been incorporated about three weeks, they report shipments of one of their largest tile and block machines to Minnesota, one to Michigan and two to Indiana points, and a large disintegrator to Minnesota, and one of their clay feeders to Minnesota, and one to an Indiana point.

CLAY TODAY.

We were pleased to receive lately the second issue of "Clay Today," a bi-monthly magazine published by the H. Brewer & Co., of Tecumseh, Mich. The chief feature of interest in this issue is the article on pug mills. H. Brewer & Co. are manufacturers of a complete line of clayworking machinery and have made an enviable reputation in their field for high-grade, durable machinery.

DOINGS AT GALESBURG.

The Purington Paving Brick Company's plants are again running to full capacity, making on an average nearly 300,000 brick and block a day.

The Frost Manufacturing Company, with the ever-popular Andrew Harrington at the helm, is turning out its full quota of engines and dry pans (see illustration on page 701). In fact, in order to keep up with their spring orders, they were obliged to run overtime.

The Monmouth Mining and Manufacturing Company, of Monmouth, Ill., has purchased Yard No. 3 of the Purington Paving Brick Company, at Galesburg, Ill., formerly known as the Galesburg Brick and Terra Cotta Company plant. This plant had not been operated by the Purington Company for more than a year, and the money acquired by its purchase will be used by them for the purpose of enlarging their Yards 1, 2 and 4. The Monmouth Mining and Manufacturing Company will manufacture sewer pipe as well as brick at the plant, and expect to have same running to full capacity in a very short time.

AN ATTRACTIVE CATALOG.

The Taplin-Rice-Clerkin Company, of Akron, Ohio, manufacturers of clayworking machinery for the manufacture of sewer pipe, drain tile, conduits, stoneware, brick and other clay products, have recently issued an unusually well-compiled catalog styled Catalog No. 29. It contains 105 pages of interesting illustrations and descriptive matter telling of the merits of their various makes of clayworking machinery and appliances, including dry and wet pans, elevators, feeders, engines, sewer pipe and drain tile presses, steam presses, pulleys, cars, trucks, rockers, wheelbarrows, drums, screens, horizontal cut-offs, haulage machines, trimmers, disintegrators, pug mills, cutting tables, flower-pot machinery, brick and tile machines. etc. Write the Taplin-Rice-Clerkin Company, of Akron, Ohio, for this up-to-date catalog. It is interesting and valuable to all of our readers.

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“GETTING THE MOST FOR A DOLLAR” has been given as a definition of good engineering such as is done by
The Richardson-Lovejoy Engineering Company.
[See page 670.]

FOR SALE, WANTED, ETC.

FOR SALE.
One nine-foot dry pan, iron frame.
T. B. TOWNSEND BRICK AND CONTRACTING COMPANY,
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FOR SALE OR LEASE.
Unlimited deposit of fire clay and shale, with 20-inch strata of coal.
O. H. SMITH,
4 1 c Montrose, Mich,

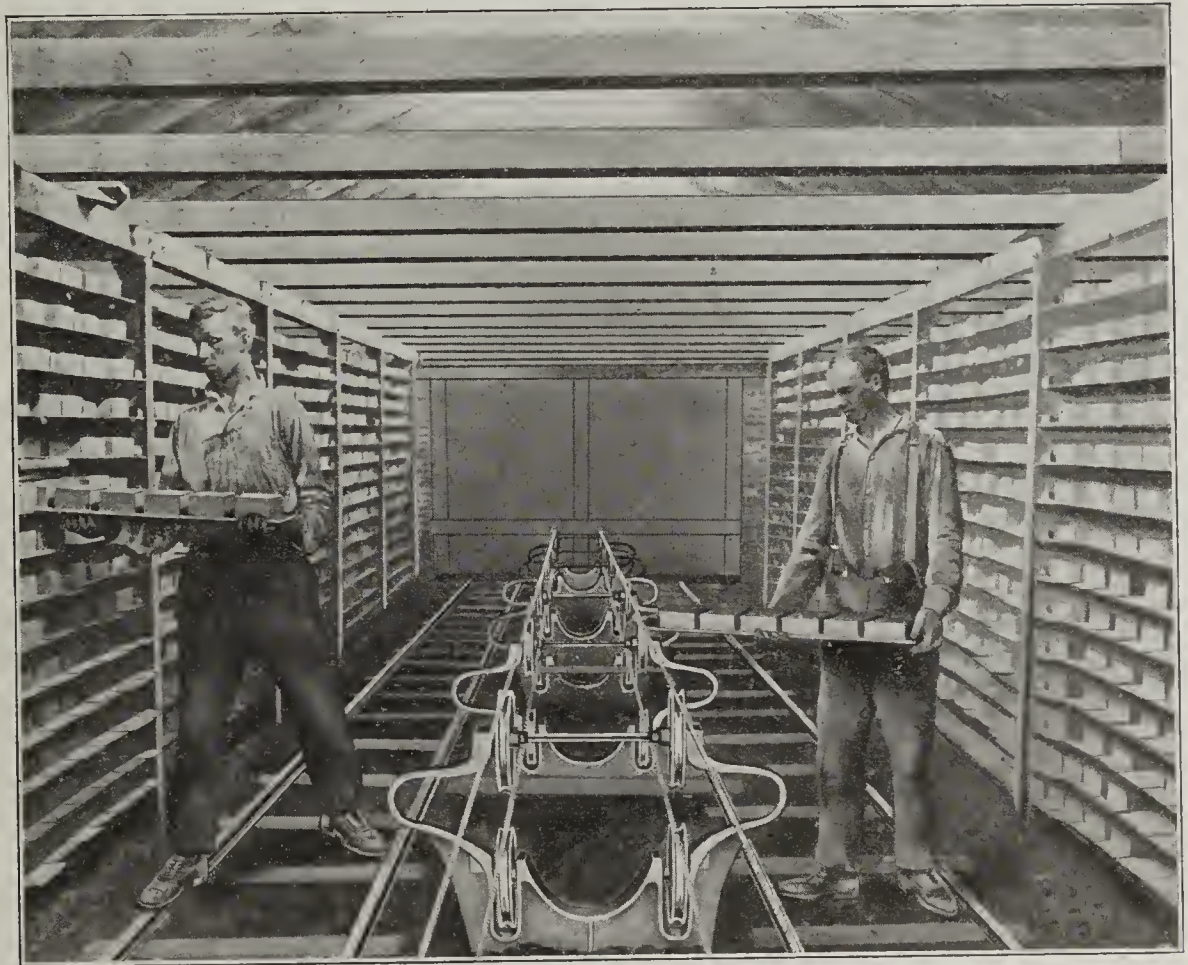
WANTED.
Position as superintendent by a thoroughly competent man, well versed in all details of the manufacture of front and face brick and high-grade building brick. Am now employed, but would consider a position with reliable Eastern firm. Address
BOX 3, G. J. B.,
3 1 d Care Clay-Worker.

"A Quality Above All Others in Clayworking Machinery."

THE KEYSTONE OF SUCCESS IN Steam Pipe Rack Dryers

We have a number of vital patents on the Steam Pipe Rack Dryer which are the Keystones of Success in the operation of this type of dryer so far as efficiency and economy are concerned. Those who are using our improved dryer are loud in its praise. It is at once a model of neatness, comfort, light and convenience and in its operation will distribute the heat to a better advantage

and at less cost than any other dryer of the kind on the market. This dryer has been selected by those careful to investigate and has won out in competition with all others. One user says: "We have used your dryer long enough to convince us that its success is complete and its operation will be a decided economy. Brick made one day



are set in the kiln next day uniformly dry throughout entire holding capacity of dryer, which means a considerable saving in burning. We dry with exhaust steam during day and finish with 5 to 10 lbs. live steam during night. Cost of drying with our hot air dryer was 65 cents per thousand. With your dryer it is 25 cents. We believe you have the best dryer on the market."

Let us figure with you on one of these dryers or any other Clayworking Machinery or appliances.

Send for Pipe Rack Dryer Catalogue Just Out.

The American Clay Machinery Co.,

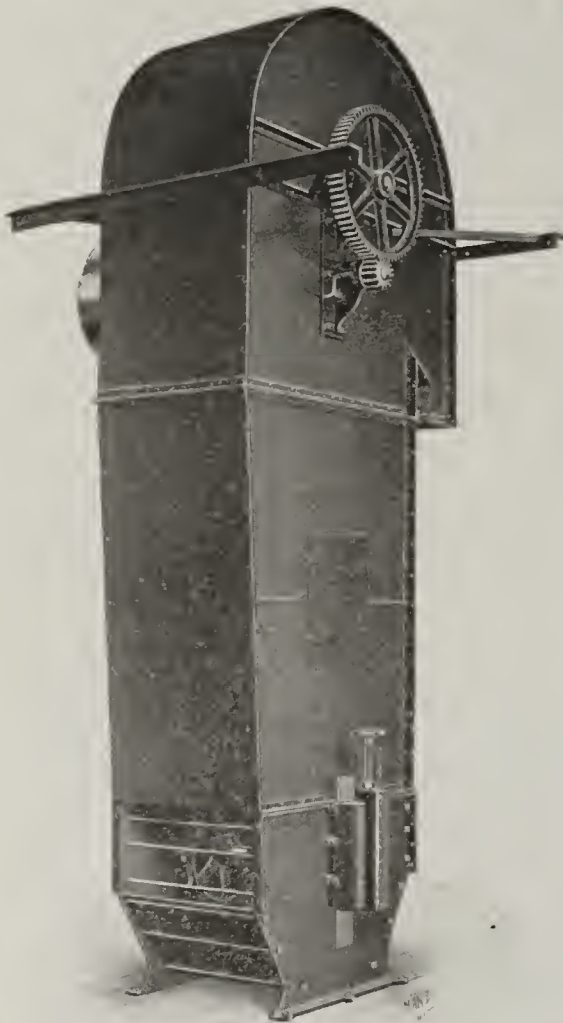
Bucyrus, Ohio, U. S. A.



Much the Largest Manufacturers of Clayworking Machinery in the World.

"A Quality Above All Others in Clayworking Machinery."

ELEVATOR HOUSING



Where desired we furnish a steel housing for our elevators. This housing is made of sheet steel substantially riveted to angles and makes the elevator both dust and fire proof. The housing is shown in the accompanying illustration. It is made up of head pulley section and the boot section, together with as many sections in between as are required to secure the height of elevator desired. As will be noticed the sections are provided with a door for convenience in operation.

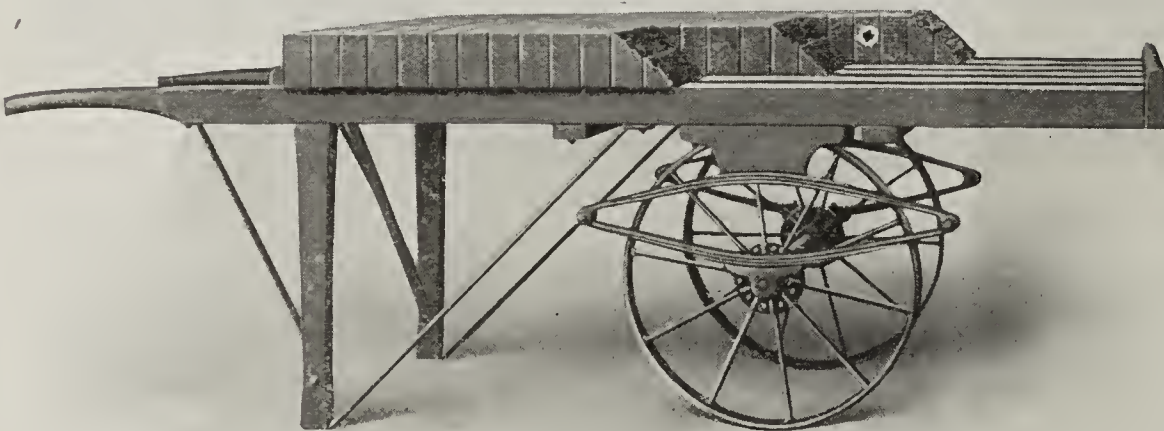
The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



SLATTED DECK TRUCK NO. 594

This truck was designed especially for use in assorting burned pressed brick in the kiln when taking them to storage piles. Into this truck have been incorporated most of the valuable features of our No. 1 and No. 9 Platform Spring Trucks.

The deck consists of six slats arranged to receive three courses of brick placed on edge.



NO. 594 SLATTED DECK TRUCK

The deck slats are $1\frac{3}{4}$ inches by $2\frac{3}{4}$ inches set on edge and mortised into the end crossbars which extend $1\frac{1}{2}$ inches above the slats. The deck slats are further strengthened by two crossbars secured to the under side of the six slats. These crossbars serve to distribute the load from the handle bars and to keep all slats uniformly spaced. The length over all is 87 in.; width over all is 28 in.; height 26 in.; capacity 84 bricks. The wheels are 22 in. in diameter; 2 in. face bore $1\frac{1}{8}$ in. and placed inside of springs; tread of wheels 22 inches. The truck is so proportioned that when loaded the weight is in proper balance. It may be used for handling dry pressed brick from the press, but is designed especially for burned brick.

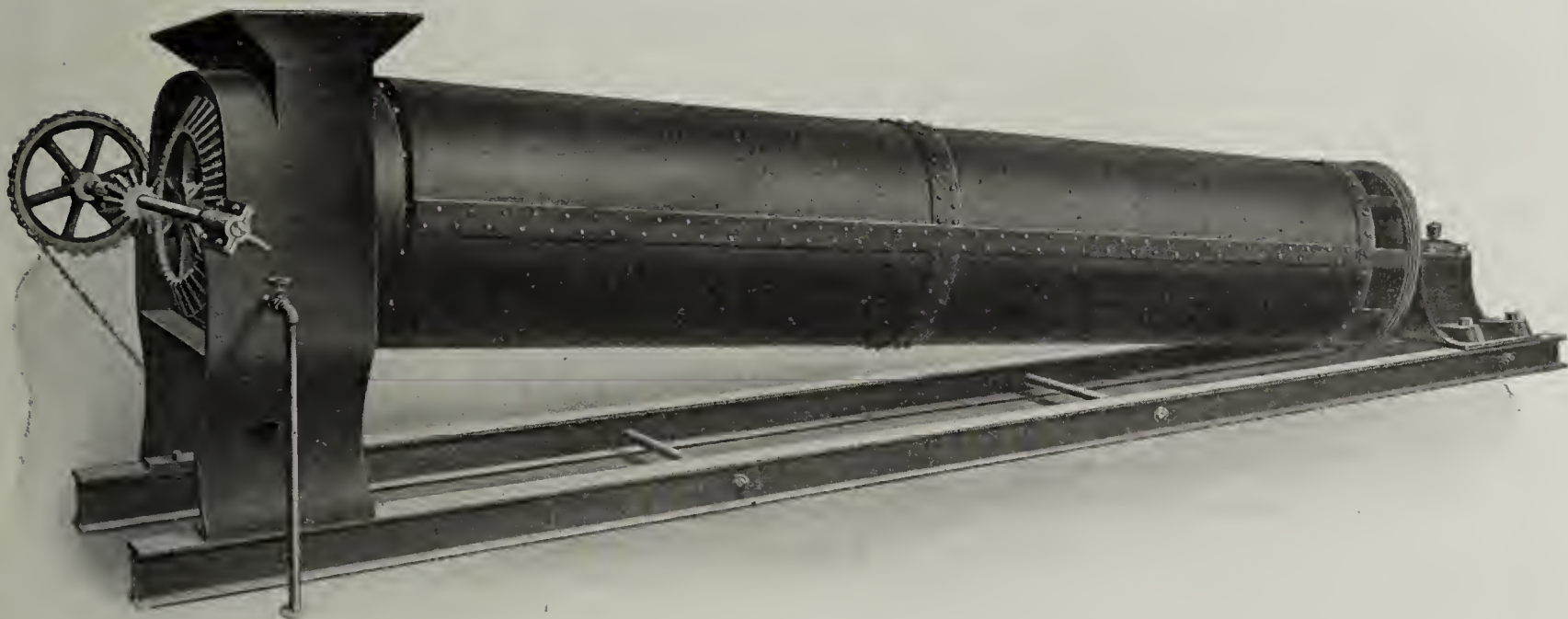
The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



Much the Largest Manufacturers of Clayworking Machinery in the World.

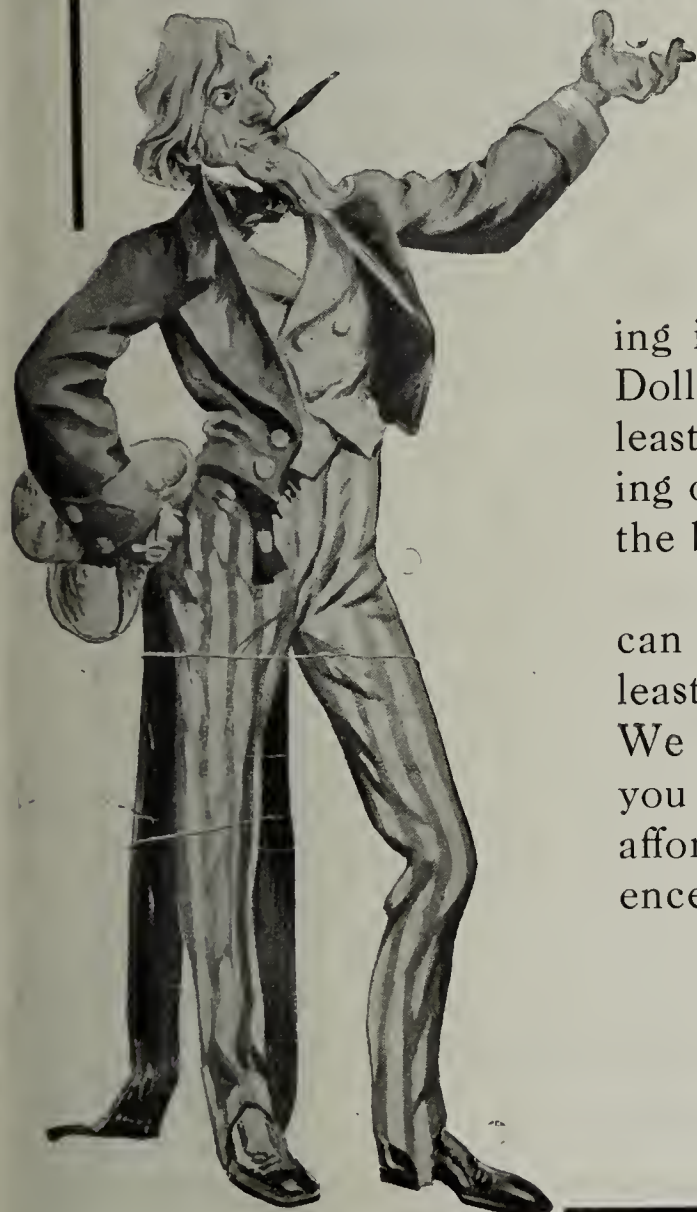
"A Quality Above All Others in Clayworking Machinery."

Horizontal Clay Steamer No. 179



In the manufacture of Dry Press Brick, the Clay Steamer is important. Our No. 179 Clay Steamer is exceptionally well built as can be seen in the accompanying cut. This machine will materially assist the pug mill and will improve the quality of brick. A full description for the asking.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



Some Sense to This

We can add a lot more cents to every dollar you are spending in the burning of your product. Ordinarily an American Dollar is worth 100 cents, but we can make it do the duty of at least \$1.50. There is less real thought and system given to burning on the average brick yard today than in any other branch of the business.

It does not necessarily mean that you need a new kiln. We can take your present kiln, without radical change, and save at least a fourth of your fuel. In many cases we have saved half. We want to talk the matter over with you. There is no cost to you unless you agree to our plan. If we make good you can afford to divide a part of what we save for you. Correspondence solicited on this or any other clayworking problem.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

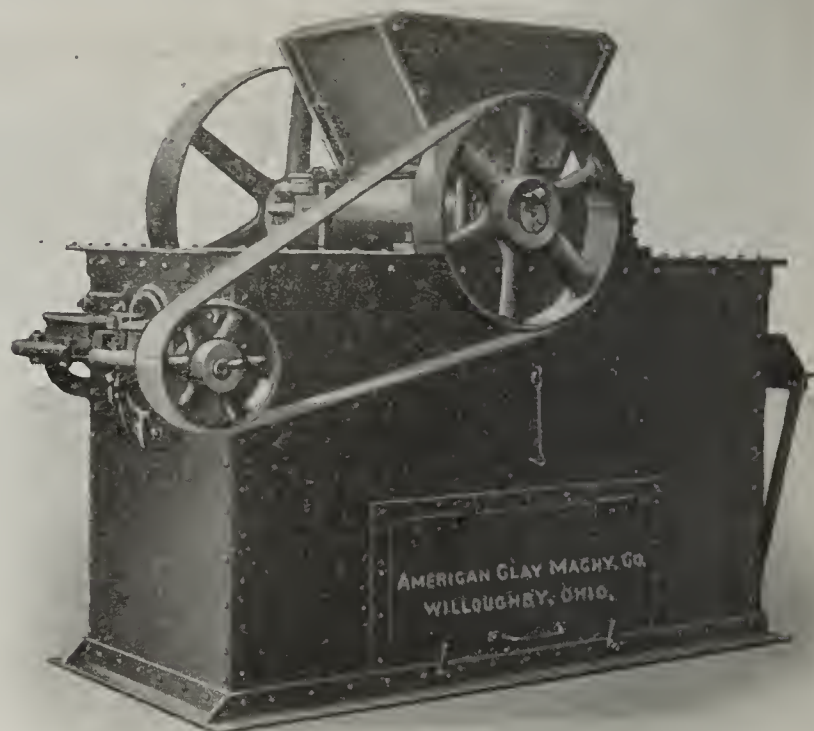


Much the Largest Manufacturers of Clayworking Machinery in the World.

"A Quality Above All Others in Clayworking Machinery."

Molding Sand Crusher and Screen No. 554

This combined sand crusher and screen was designed for preparing moulding sand for sanding moulds in soft mud brick plants. In design and construction it is in keeping with the high quality of our other machinery in this department, being made throughout of iron and steel. It is shipped set up, as illustrated, ready for operation. The sand is fed to the crushing rolls through an iron hopper. The rolls are adjustable and set close together. The crusher is mounted on a steel housing. The rolls are driven by a 4-inch pulley. They are fitted with twin gears so that they revolve at the same speed. After passing between the rolls the sand is discharged upon a vibrating screen inside the casing. The screen consists of No. 12 mesh No. 19 wire cloth attached to a substantial steel frame. It is vibrated by a crank shaft located at the opposite end of the casing. The tailings are discharged outside the casing to be returned to the rolls. A clean-out door is provided.



No. 554 Molding Sand Crusher and Screen

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



The American Standard Brick Testing Rattler No. 122

This machine is built for testing the wearing qualities of paving brick and determining the per cent of loss by abrasion and the wearing qualities of pavers. After long continued use for testing paving brick the American Rattler has been adopted as the best and most satisfactory test yet devised for the purpose. In a single hour this machine will show how much wear a brick would receive during its natural life. The machine is so constructed that there is no excessive violence, but merely the natural stress of use.

SINGLE BARREL RATTLER

The barrel is built with a four-inch trunnion on each end, which does away with any interior shaft. A pulley sixteen inches in diameter by four inches face transmits the power through the gear and pinion, speed of driving pulley ninety revolutions per minute. The barrel is a regular polygon with fourteen sides. The heads are made of gray cast iron, not chilled or case-hardened. The stave plates are of gray cast iron or steel, as preferred and specified by the purchaser.

Spaces one-fourth of an inch wide are left between each of the staves to provide an escape for dust and other waste.

DOUBLE BARREL RATTLER

Where desired, we build a double barrel rattler in order that two tests may be made at one time. In such cases the cylinder is divided in the middle with an iron partition. Each division is the standard size.

THE SHOT CHARGE

The standard abrasive charge of a rattler is used.

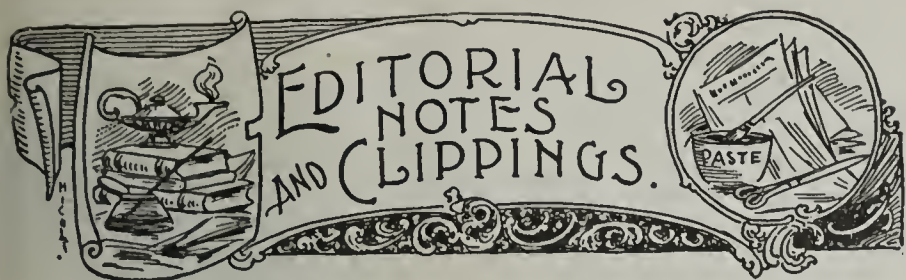
Our friction clutch pulley can be put on this machine if desired. It is a strong feature of advantage, as it obviates any creeping and slipping of the belt and removes the danger of a sudden starting of the machine by the belt crawling from the loose to the tight pulley.

In material, design and workmanship the American Rattler is in accordance with our practice of building the very best machines possible and the rattler is sure to give long and satisfactory use.

The American Clay Machinery Co.
BUCYRUS, OHIO



Much the Largest Manufacturers of Clayworking Machinery in the World.



C. C. Frampton and H. A. Clapp will organize a company at Corpus Christi, Texas, to manufacture brick and tile.

T. H. Smith, Hot Springs, Ark., is in the market for dry press brick machinery, and will be glad to receive catalogues, etc.

A. E. Stephenson, of San Benito, Texas, contemplates the erection of a plant for the manufacture of hollow clay building block.

M. W. Berry, of Columbus, Ga., has purchased a half interest in the brick plant of W. M. Conine, at Camp Hill, Ala., which has a daily capacity of 50,000 brick.

The plant of the Arkansas Brick Company, Little Rock, Ark., was badly damaged by fire recently. W. W. Dickinson, the president of the company, estimates the loss at \$15,000.

The Underhill Brick and Tile Company, of Rockport, Ind., has been incorporated with \$25,000. M. F. and C. D. Underhill, J. G. Rimstadt, C. C. Mason and G. J. Bence are interested.

Fire at the plant of the Hydraulic Press Brick Company, Toledo, Ohio, resulted in \$2,000 damages. The first started in the boiler room, and both the boiler and engine rooms were destroyed.

The Memphis (Texas) Press Brick Company has placed an order with the Chicago Brick Machinery Company, Chicago, Ill., for a full equipment for a press brick plant of 20,000 daily capacity.

There is a movement on foot to organize a co-operative brick company at Fayette, Ala., utilizing a deposit of clay near the town. Mayor J. E. Chandler can give information in regard to the project.

By the recent purchase of the Concord Brick Company's plant the Natchez Brick Company, Natchez, Miss., has more than doubled its capacity, and is now turning out 40,000 brick per day. A. G. Rickman is manager of the concern.

The Claremore Buff Brick and Product Company, of Claremore, Okla., has been incorporated with a capital stock of \$25,000. The incorporators and directors are: W. E. Goff, of Girard, Kas.; J. D. Tarkington, McCune, Kas., and O. C. Wing, of Claremore.

Articles of incorporation have been filed by the Vermont Brick Company, of Putney, Vt., with \$30,000 capital stock. The incorporators are: Christopher Steadman and Wm. Harbutt, of Putney; Henry O. Robinson, of Green Ridge, N. Y., and H. E. Whitney, of Brattleboro, Vt.

The brickyard of Henry Smith & Sons, Baltimore, Md., was badly damaged by fire recently, which destroyed the engine room, clay shed and machinery room. The plant had been closed down for some time, and the fire is supposed to have been started by boys, who had been playing about the plant.

The Freeman Fire Brick Company, of New Cumberland, W. Va., has been incorporated with \$30,000 to mine clay and coal. The incorporators are: A. S. Freeman, Steubenville, Ohio; Wm. Barfield, Follansbee, W. Va.; W. S. McCauslen, and F. E. Powers, of Steubenville, and G. L. Bumbrick, New Cumberland.

Ashtabula, Ohio, is to have a new brick concern known as the Ashtabula Shale Brick Company. A plant will at once be erected to have a capacity of 50,000 paving brick a day. N. C. Ralph, of Conneaut, Ohio, and F. W. Rose, of Greenville, Pa., are promoting the industry. Both men have had wide experience in the manufacture and sale of shale brick.

After a shut-down of some three months work has been resumed at the factory of the New England Steam Brick Company, at Barrington, R. I. In another week the furnaces at the Nayatt branch of the factory will be started. About 175 hands in all will then be employed. It is the usual custom of the plant to shut down during the coldest weather of the year.

The Buckeye Fire Brick Company has taken the first step toward enlarging and improving its already splendid plant at Scioto Furnace, Ohio. A contract has been awarded for a new two-story dry house, which, when completed and put to use, will double the capacity of the plant. The new structure

is to be started in a few days and the contract provides that it shall be completed in sixty days.

Guy L. Crook, Ravenswood, W. Va., would like to correspond with manufacturers of roofing tile machinery.

George T. Tidden will manufacture drain tile at Moorefield, W. Va., and would like catalogues and price lists on drain tile machinery.

The Drake Brick and Tile Company, of Drake, S. C., has been organized by W. B. and J. A. Drake, of Bennettsville, and J. P. Tart, of Blenheim, S. C.

The Marshall Brick Company, of Marshall, Texas, of which W. H. Pugh is general manager, is in the market for a second-hand engine of 150 to 200 h.p. capacity.

The Bonnot Co., Canton, O., recently sold an outfit to the Entress Brick Co., Pittsburg, Pa., consisting of No. 12 combined machine, rotary automatic cutter and 12-foot pug mill.

The American Brick Company has been incorporated at Trenton, N. J., by H. Nicholson, Scranton, Pa.; O. Fuller and C. S. Aiken, of Trenton. The company is capitalized at \$50,000.

The Richlands Brick Company, Richlands, Va., will put in a waste heat dryer and is on the market for 200 steel dryer cars for stiff-mud brick. Second-hand equipment will answer if in good condition.

Benjamin F. Waughop has purchased the brickyard of Charles H. Mattox, at Manchester, Iowa. Mr. Waughop is an experienced brickmaker and will at once put the yards in shape for continued operation.

The plant of the Kreischer Brick Company, Kreischerville, N. Y., was slightly damaged by fire recently, which started in the dryer. The plant had been in operation about a month after having been closed down all winter.

The plant of the Mountville Brick Company, Mountville, Pa., was purchased at receiver's sale by Frank S. Barr, agent for A. B. Kready and other stockholders of the company. The plant will be overhauled and put in condition to operate at once.

The Pawhuska Vitrified Brick and Tile Company, of Pawhuska, Okla., has increased its capital stock from \$30,000 to \$50,000. The directors of the company are: A. R. Woods, R. L. Hall, H. H. Brenner, R. F. Booner, W. T. Mosier and J. B. Tolston, all of Pawhuska.

The property of the Clarendon Clay and Mining Company, Clarendon, Vt., was purchased at auction by John S. Buttles, of Rutland. The company mines a clay peculiarly adapted to the manufacture of paper, and the product is nearly all contracted for by the Ticonderoga paper mills.

A. P. Green has purchased the plant of the Mexico Brick and Fire Clay Company, at Mexico, Mo., for \$85,000, under an option given more than a year ago. He is an experienced brick man and has greatly improved the plant since he took charge, and will construct a number of new kilns.

Albert L. Tidmarsh, superintendent of the Mason City Sewer Pipe Factory, Mason City, Iowa, died at his home in that city March 17, 1911. He had been in poor health for some time. Mr. Tidmarsh had been connected with the clay-working business for many years. A wife, two daughters and one son survive.

The Wichita Falls Brick and Tile Company is now turning out at its two plants at Wichita Falls, Texas, 150,000 brick daily, its second plant having recently been completed at a cost of \$75,000. The officers of the company are: M. W. Standiforth, president; C. W. B. Bean, vice-president, and Montague Standiforth, secretary and treasurer.

Mr. Thomson P. Perine, 76 years old, known as one of the oldest potters in the country, died recently in Baltimore, Md., after an illness of more than three years. Death was due to the infirmities of age and complications. Mr. Perine was born in Baltimore, and since his early youth had been connected with the firm of M. Perine & Sons, 1009 West Baltimore street. A wife, one son and two daughters survive. The son, E. David Perine, will continue the business.

The factory department of the National Glass Brick Company, Connellsville, Pa., was destroyed by fire recently. The fire is supposed to have originated through the bursting of a glass tank, although this cannot be stated positively. The loss was considerable, partly covered by insurance. The machinery, including glass tanks, fan and crusher, was destroyed. Steps will be taken immediately to rebuild the destroyed plant. The factory is put out of commission by the destruction of the factory department. The National Glass Brick Company is building another plant at Paulsboro, N. J., near

(Continued on page 656.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

Philadelphia, but this will not be ready for operation for some time.

W. Scott Wilson, 51 years old, president of the Denton Pressed Brick Company, died March 21 at his home in Fort Worth, Texas.

E. A. Edwards is at the head of a movement to organize a brick company at Evangeline, La., where there is a growing demand for high-grade brick.

The Athol Brick Company, of Killingly, Conn., has filed a certificate with the Secretary of State of an agreement of the stockholders to dissolve the company.

Harry F. Cobb has filed suit against the Carlisle Clay and Coal Company, at Carlisle, Ind., for \$5,000 for injuries received last December in an explosion in the mine.

J. H. Atherton, of Boyne City, Mich., has bought a quarter interest in the Bold Bros. brickyard at Big Stone City, S. D. New machinery will be added and other improvements made.

The South Side Brick Company, of Richmond, Va., has been incorporated with \$50,000 capital stock, and a plant having a daily capacity of 25,000 bricks will be erected at once.

W. A. Dodds has his rebuilt brick plant at Hickman, Ky., well under way and hopes to have same in full operation by the first of the coming month. New machinery has been installed and the plant materially improved in every way.

The North Lawrence Clay Products Company has been incorporated to manufacture brick and other clay products at North Lawrence, Ohio. J. P. Jones is president of the company.

The King Mountain Brick Company, of Abingdon, Va., has been incorporated with \$10,000 capital stock. J. W. Jefferson, of Bristol, Va., is president; Robert Goode, secretary, and James Cooley, manager.

The Sherbrooke Vitrified Brick Company, of Augusta, Me., has been incorporated with \$600,000 capital stock by Sanford L. Fogg, of Bath; E. M. Leavitt, Winthrop; L. A. Burleigh, E. L. McLean and others, of Augusta, Me.

The Buffalo Brick Company, at Buffalo, Kas., is arranging to install a new equipment consisting of Canton Special brick machine, extra heavy pug mill and large reciprocating cutter. This equipment was purchased from the Bonnot Company, Canton, Ohio, through their Kansas City representative.

Fire at the plant of the Claycraft Brick Company's plant at Groveport, Ohio, caused a loss of \$30,000, on which there was \$10,000 insurance. W. H. Hoagland, secretary and treasurer of the company, announced that the burned portion will be rebuilt at once. The main office of the company is located at Columbus, Ohio.

The Aldridge brick yards at Dutchess Junction, N. Y., established many years ago by Thomas Aldridge, have changed hands. A deed passing title to the property and business to new hands has been filed in the office of the county clerk at Poughkeepsie. The consideration named is \$100,000. The Thomas Aldridge Brick and Landing Company has taken over the business. The deed was given by Thomas and Aaron E. Aldridge, as executors of the will of Thomas Aldridge.

Articles of incorporation have been filed by the Dalton Bros. Brick Company, of Hopkinsville, Ky., succeeding the Dalton Bros. The capital stock is placed at \$50,000, of which \$26,000 is paid in. At no time is the indebtedness to exceed \$20,000. The incorporators are: George D. Dalton, Monroe Dalton and G. E. Dalton. They will continue to operate their big brickyard and do a general stone and brick contracting business. The business has been established for twenty-seven years.

The good will, business and tangible assets of the Western Clay Manufacturing Company, of Portland, Ore., were bought recently for approximately \$1,000,000 by the Western Clay Company, a new corporation, largely controlled by the Denny-Renton Clay and Coal Company, of Seattle. The property transferred includes the factory and site at the foot of Twenty-third street, in Portland, a tract of 34½ acres on the Willamette river, opposite Oswego, which was bought for a new factory site, and valuable clay deposits in various parts of Oregon.

John B. Church, who for many years has controlled and operated the Golden Pressed and Fire Brick Company, Golden, Colo., has disposed of his holdings to stockholders of the Fairview Brick Company, of Denver, and new officers are to conduct the business. The Golden property is valued at \$225,000. The new officers are: H. Stewart, president; James Knox, vice-president and general manager, and L. D. Morris, secretary and treasurer. The offices of the company will be

in connection with those of the Fairview Company in the Continental building, Denver.

At the recent quarterly meeting of the directors of the Illinois Brick Company, Chicago, the regular quarterly dividend of 2 per cent. was declared.

Clayton Weaver, of Wilkesbarre, Pa., desires an announcement made to the trade that the Weaver Brothers have not been in the brick business for two years.

Southern Building Material Company, Arcade building, Norfolk, Va., is in the market for large quantities of hollow building block, and would like to have manufacturers quote prices.

Ft. Scott Brick and Tile Company, of Ft. Scott, Kas., recently added three Canton represses and large pug mill, purchased from the Bonnot Company through their Kansas City representative.

Joseph Bailey, superintendent of the Georgia Kaolin Company's plant at Dry Branch, Ga., recently obtained letters patent on a new and useful improvement in drying cars which is now in use at the mines and mills of the company.

The Bonnot Co., Canton, O., recently sold the Alton Brick Co., of Alton, Ill., new equipment for their plant, as follows: Canton Special brick machine, large pug mill, reciprocating cutter, three nine-foot dry pans and four Canton represses.

Louis Geringter, for many years superintendent of the plant of the New York Pressed Brick Company, at Canandaigua, N. Y., died at his home in that city April 1, following a stroke of apoplexy. He leaves a wife and several children.

The Carbon Brick Company, with offices in the Oliver building, Pittsburg, has completed improvements and installed new equipment in its plant at New Castle Junction, on the Baltimore & Ohio railroad, which will increase the capacity of the plant to 35,000 brick per day.

C. E. Brandisch has completed negotiations for the lease of the plant of the Brownsville (Texas) Brick and Tile Company and announces that he will soon operate the plant for the manufacture of brick and tile under the name of the C. E. Brandisch Drain Tile Company. New machinery will be installed.

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The only publication in the world devoted to the interests of the Mantel, Tile, Grate and kindred goods industries.

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Full of interesting trade news. Address

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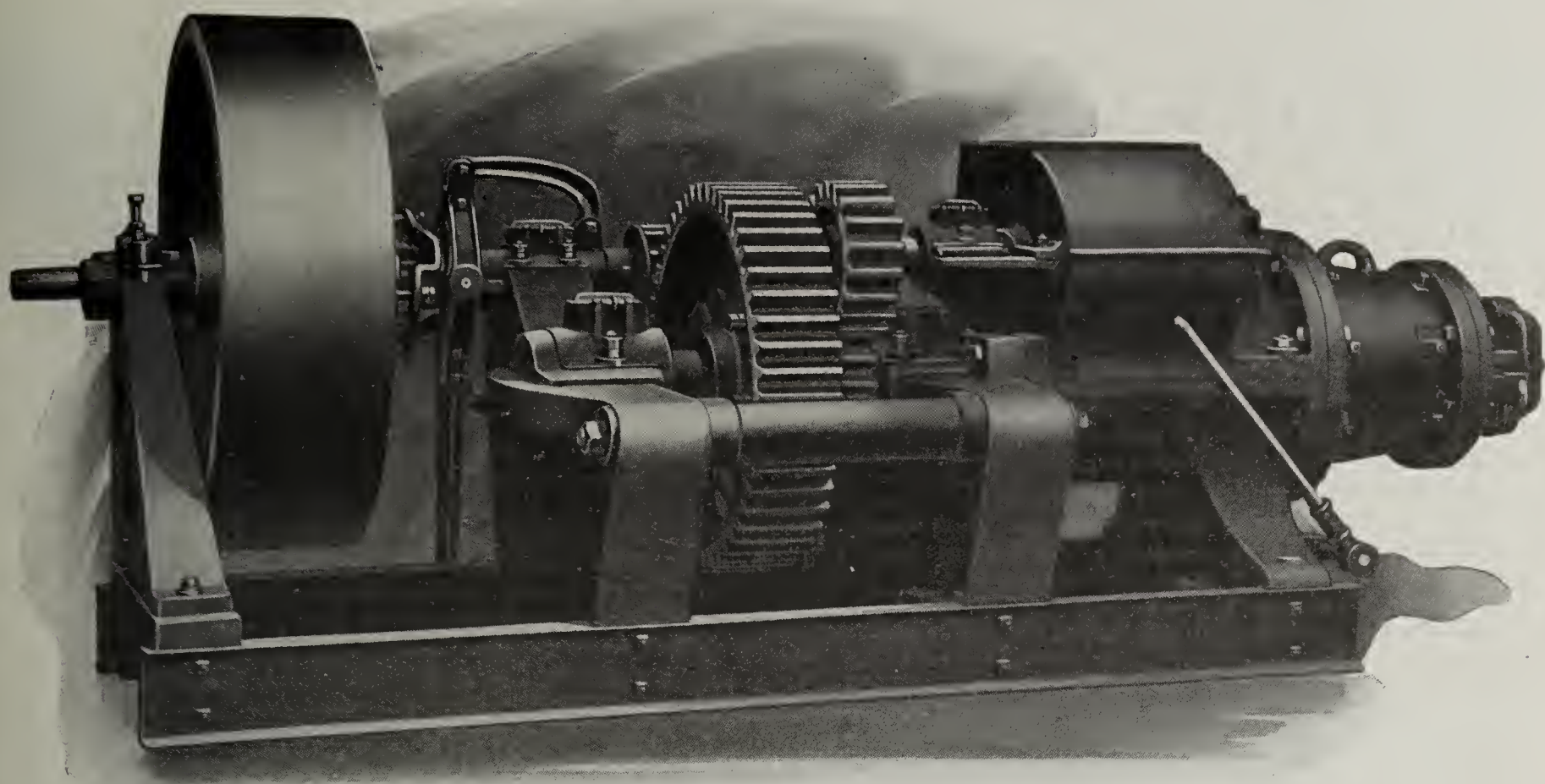
It's the best trade paper in the world to reach the dealers in Mantels, Tiles, Grates and kindred goods, as well as Architects, Contractors, Builders, etc.

For advertising rates address

THE BRAMWOOD COMPANY

State Life Bldg.

INDIANAPOLIS, IND.



Model "G A" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 696-698.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



VOLUME OF business in the San Francisco building trades has taken quite a jump in the last month, the valuation of buildings for which permits were granted in March being \$2,990,703, by far the best record since last July, and a little better than March, 1910, though the permits granted in the same month of 1909 totaled over \$3,000,000. In Oakland the total last month was \$1,027,756, making March the best month since April, 1910.

There is considerable activity in all the suburban towns around Oakland and San Francisco, and an unusually large amount of home building is planned for the coming summer. Since early last month weather conditions have been very favorable for building and a light rain this week has given assurance of heavy crops all over the State. Contracts have been closed on some large structures at Portland, Ore., and in southern California, and a number of important new jobs in San Francisco are now being figured.

There has been some increase in the production of common brick during the month in the district around San Francisco, operations being resumed on a normal scale at most of the outside plants. The demand, however, continues to increase and the market is in somewhat better condition than last month. The price remains at \$6.50 per thousand, but the market is very firm, and many manufacturers and dealers believe they will be able to get \$7.00 by the first of May.

The pottery plants are having the best season in several years. The demand for sewer pipe is now coming out in good shape, with a number of the larger city jobs still to be heard from, and most of the manufacturers are making large shipments to interior towns. There is also some demand for drain tile, etc., in connection with irrigation and reclamation work. Most of the large buildings being erected in San Francisco and Oakland are taking large lots of terra cotta, pressed brick, etc., an unusually strong demand being noted for material of superior quality and design.

The Port Costa (Cal.) Brick Works started up several weeks ago after being thoroughly overhauled and put in better shape than ever. The plant is now able to operate more economically than before, and the output has been increased and improved. The company starts with a large bunch of orders taken in advance by the United Materials Company, of San Francisco, and new business is coming in all the time.

A notable job in this city is for the First Presbyterian Church, whose large edifice at Washington and Sacramento streets is being rebuilt of brick. It will be faced with "rustic" brick, the local substitute for the Eastern "tapestry," and the contract for the material has been placed with N. Clark & Sons.

The Ione Fire Brick Company's plant will resume work for the season April 10, using a new mixture which experiments have shown highly satisfactory.

Gladding, McBean & Co., who have about completed the delivery of glazed and polychrome architectural terra cotta for the Hearst building, have taken an additional contract on the same building, amounting to \$24,005, for terra cotta partitions and furring.

The Oakland Paving Brick Company, which has been working for some months on a new plant in Alameda county, California, expected to start up its machinery March 15, but owing to damage done by the rain early in the month, was compelled to wait until March 24. The plant is said to be running in good shape at present, the first of the output to be used in the construction of new kilns, etc., at its own works.

The Vallejo Brick and Tile Company, Consolidated, is now making up a kiln of paving brick. It is using a new mixture of materials for this purpose, and Mr. Hidecker, manager of the concern, is confident that the results will be better than any formerly obtained. If the product is up to expectations quite a lot of it will probably be used for paving purposes this summer.

The Newton Construction Company has taken a contract

for laying 1,300 feet of eight-inch vitrified pipe for irrigating purposes on the ranch of R. F. Buller, near Covina, Cal.

The Golden Gate Brick Company, of this city, has ready for distribution a new illustrated catalogue in colors showing a large variety of brick and clay products, as well as several other lines of building material handled by the company, and samples of work done with its products. Its Golden Gate sandstone brick is being used in a new building for the Southern Pacific Hospital.

The Livermore Fire Brick Company, a new concern, which started operations near Livermore, Cal., a few months ago, closed down about the middle of March for repairs to the dryer, but is again in operation. The company expects to have a capacity run this summer, as there are a large number of orders already on hand, including one from the Southern Pacific Railroad for 35,000 brick. The company is getting out a catalogue of its products, which will be distributed among the consumers of fire brick all over central California.

J. B. Raine, who has for ten years operated a tile factory near Huntington Beach, Cal., and has supplied most of the drain tile used in reclaiming the peat lands in that vicinity, is retiring from the business and has sold out his works to Los Angeles parties. The identity of the purchasers has not been definitely announced, but they are said to be the Simons Brick Company interests, and it is announced that a pressed brick plant will be installed in addition to the tile works.

H. D. Lore, president of the Temescal Clay Products Company, which recently acquired large clay deposits near Corona, Cal., has selected the site for the plant. A three-story building, 300 by 170 feet, will be erected and a general outfit of clayworking machinery installed, the intention being to produce fire brick, tile, terra cotta, sewer pipe, etc.

The Sumas Fire Brick Company has been organized at Sumas, Wash., and has secured a site near that place for a brick and pottery plant, with an ample supply of raw materials.

The Cheney Brick Company has been incorporated at Olympia, Wash., with a capital stock of \$30,000, by M. Martin and F. A. Pomeroy.

SUNSET.



MAKING IMPROVEMENTS?

If so, why not let us
quote you prices on

PIANO WIRE SCREENS
DISC CLAY FEEDERS
ELEVATOR EQUIPMENT
CONVEYORS
BELTING
PULLEYS

SCREEN AND CUTTING WIRES

The Ceramic Supply & Construction Co.
Columbus, Ohio



Barrett's PAVING PITCH



This Couldn't Have Happened With Pitch Filler

The above illustration shows what may happen to a pavement where Pitch Filler is not used.

In this case the pavement had expanded and because the provision for taking up the expansion was inadequate the pavement has blown up.

The right filler to use between the joints of any block paving is Barrett's Paving Pitch. Pitch always remains plastic. It yields readily when the blocks expand and every joint is an expansion joint. In hot weather the pitch in the joints simply rises as the joints become narrower. When the weather cools the joints widen and the pitch simply sinks lower, never failing to maintain its adhesion to the blocks,

and always maintaining a continuous unbroken waterproof seal. Pitch gives to the foundation ideal protection against water and frost.

A pitch-filled brick pavement is quieter than one filled with cement, because there are no resonant hollow spaces underneath. Each brick rests on its own proper foundation and there are no arches. Cement-filled pavements arch over depressions of the foundation and then break under a heavy load, leaving long ugly cracks. A pitch-filled pavement cannot crack. If one brick breaks its neighbor is not affected. A pitch-filled pavement cannot bulge or blow up or break or crack and the pitch filler will last as long as the brick.

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Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

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FOR SALE—Steam shovel, used some in brickyard, but in good order. Standard gauge; 1½ yards capacity.
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4 2 c Russell, Lake County, Ill.

WANTED—A practical man is open for a position as superintendent or burner of dry press or stiff mud plant. Can furnish first-class references as to ability, etc. Address
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4 1 p Care Clay-Worker.

FOR SALE.

Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new.
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FOR SALE.

A new Eagle repress on which not over 100,000 brick have been made. Cost \$750.00; will sell for \$400.00. Machine in perfect condition. Address
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FOR SALE.

Brickyard, consisting of about three acres of land. Located on railroad at Blackstone. Real bargain to quick buyer. Address
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FOR SALE—One American Blower Company 100-inch ¾ housed fan, used less than one week.

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Position by a technical graduate, 33 years old. Experienced in construction, installation of machinery and operation. Address
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As I am going out of the brick business, I have the following items, which are in good order, for sale:

- 1 A Martin power brick machine.
- Pug mill and belt sander.
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- 2 large steam boilers.
- 1 60 h.p. Atlas engine.
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- 600 feet, 16 pounds to the yard, iron rails.

JOHN WILSON,
3031 Stillson Ave., S. E.,
2 tf d Cleveland, Ohio.

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The design and supervision of modern clayworking plants will be given careful consideration.

Some of the largest and most successful waste heat dryers in the country and their equipment, were designed and installed under the supervision of our Mr. J. O. Trautwein.

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Fine opportunity; proposition been thoroughly tried; good money-maker; entire equipment in first-class condition.

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FOR SALE.

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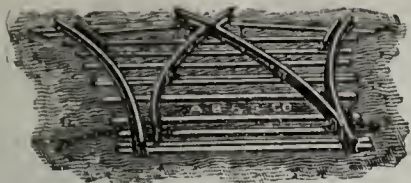
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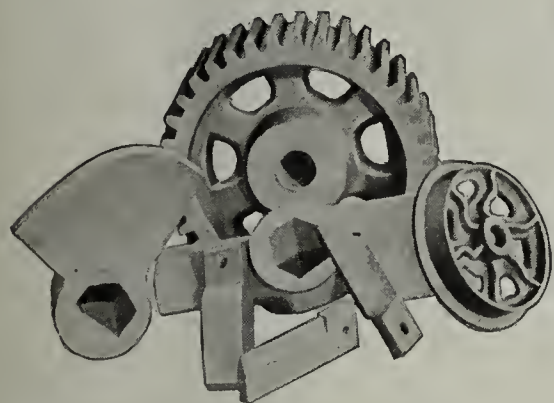
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Owner Of Plant Will Sell

Either all or part of his interest. Capacity, 5 to 10 Carloads Daily of Brick And Two or Three Cars of Coal Which is Mined With the Clay.

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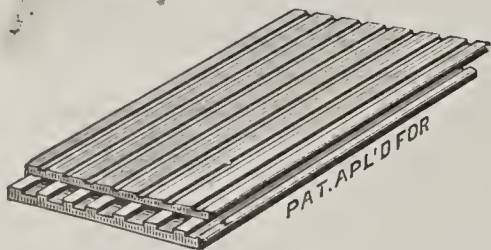
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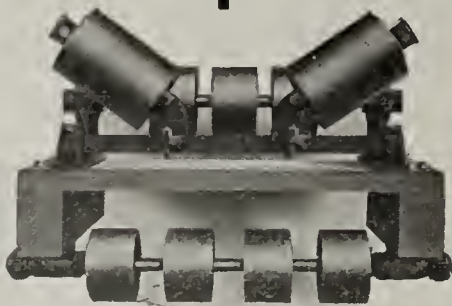
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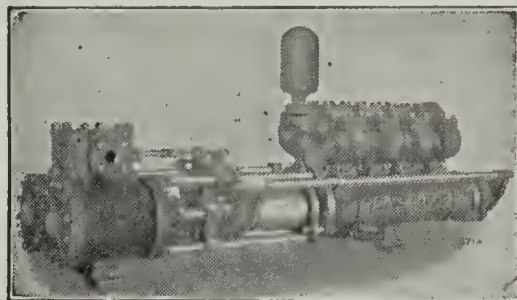
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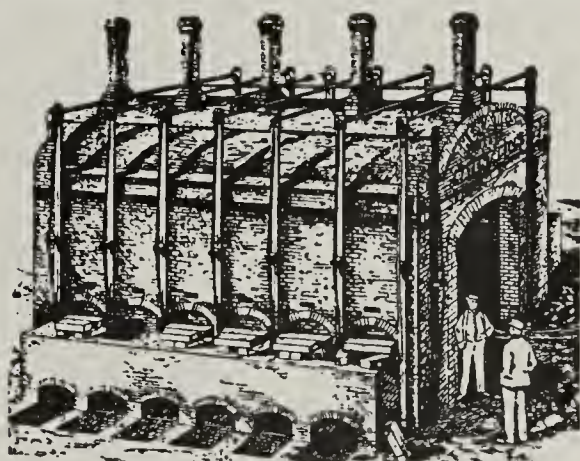
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References: Kane Brick Co., Kane, Pa.; Kush-
equa Brick Co., Kushquaque, Pa.; Queen City Brick
& Tile Co., Cumberland, Md.; Shawmut Brick
Works, Shawmut, Pa.; Corry Brick and Tile Co.,
Corry, Pa.; Johnsonburg Vitified Brick Co.,
Johnsonburg, Pa.; Shawnee Brick Co., Shawnee,
Ohio; W. S. Ravenscroft, Ridgway, Pa.; Alumina
Shale Brick Co., Bradford, Pa.

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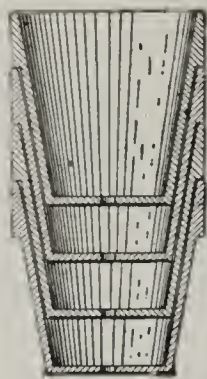
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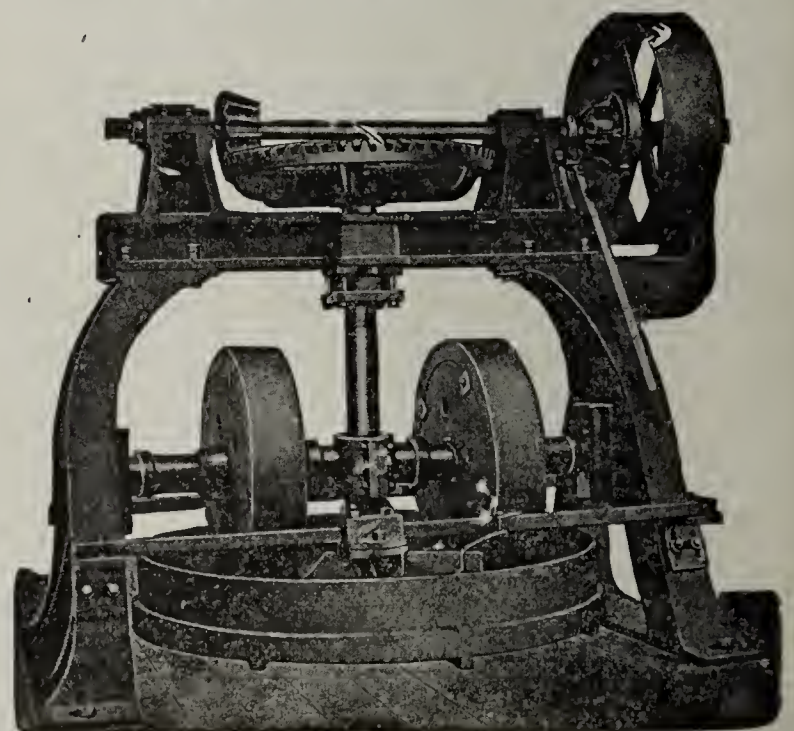
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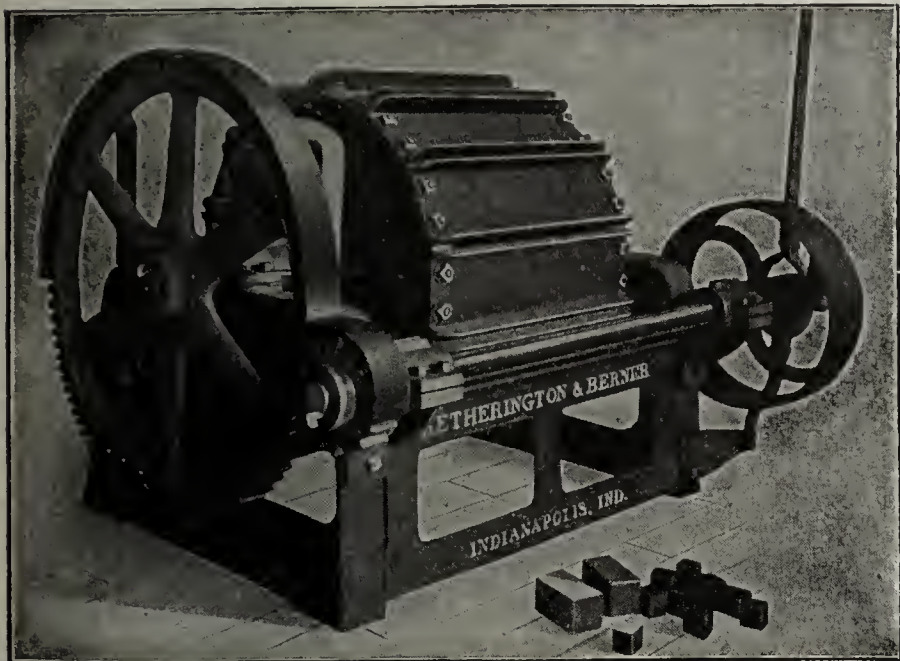
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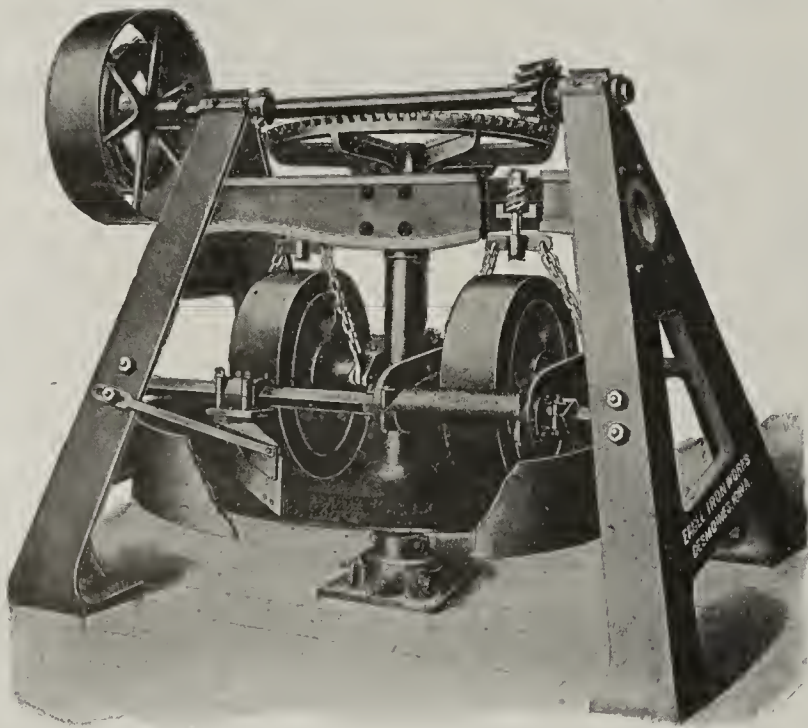
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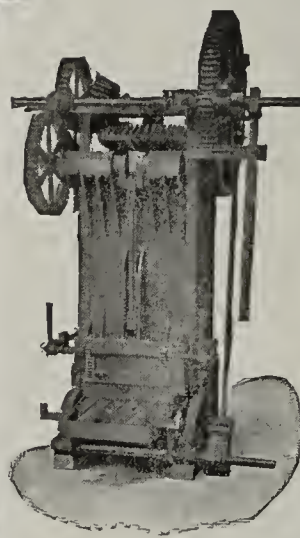
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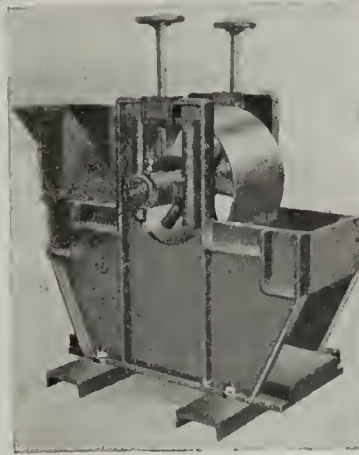
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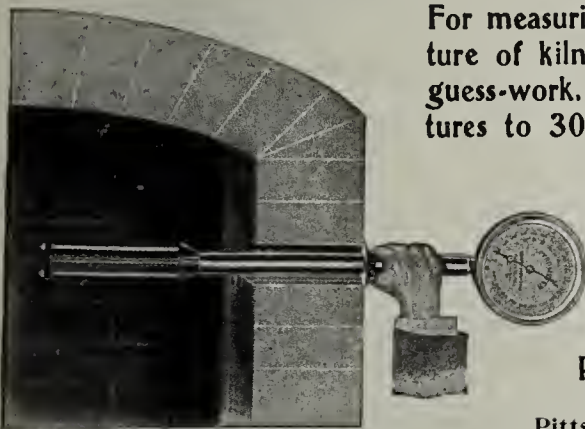
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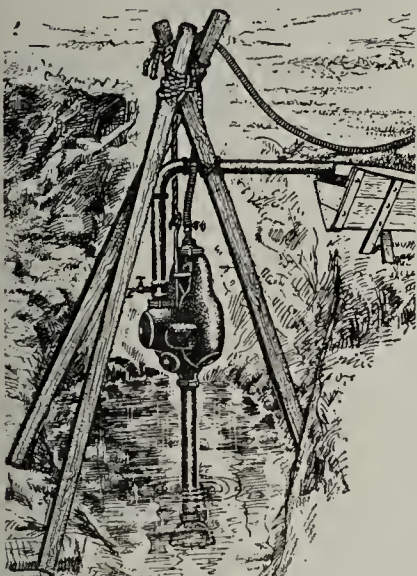
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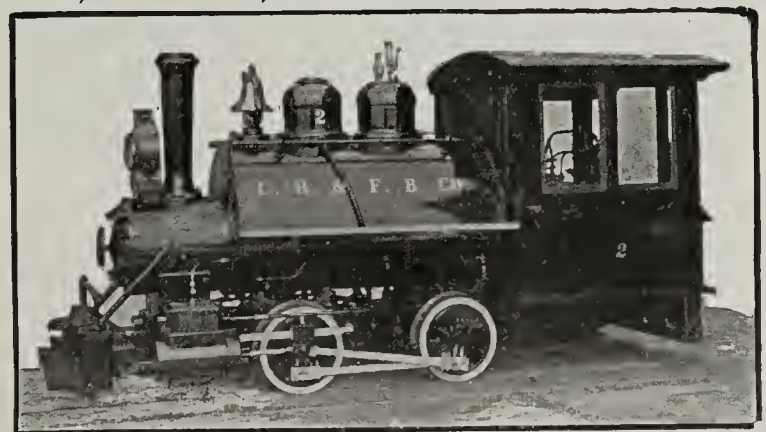
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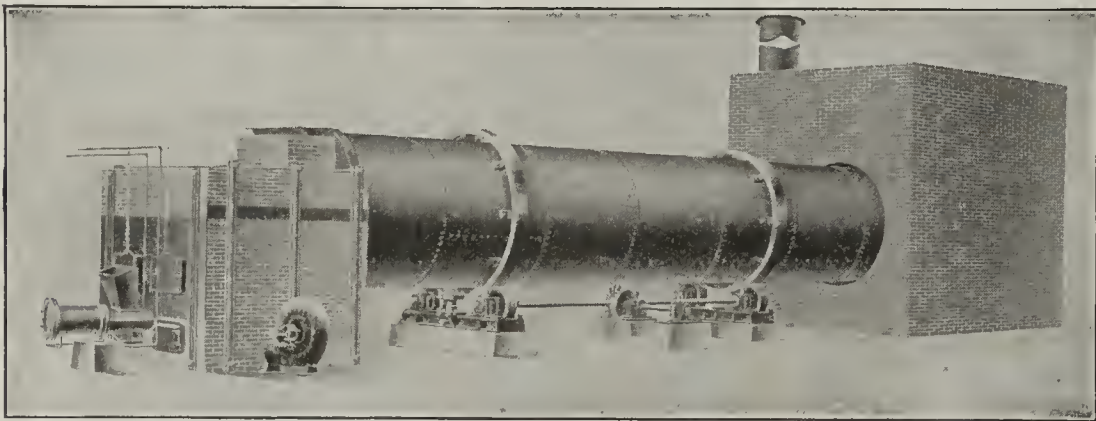
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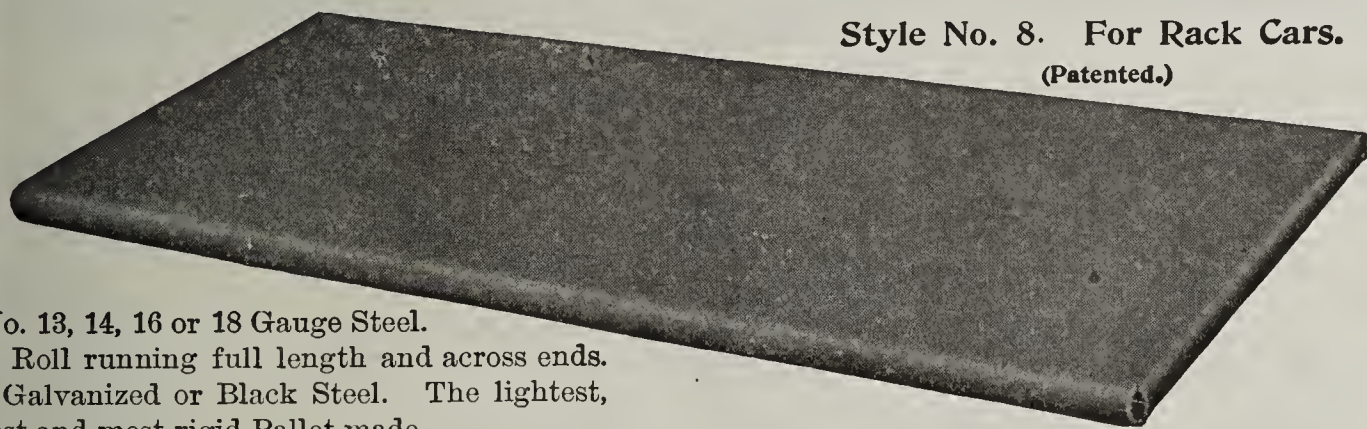
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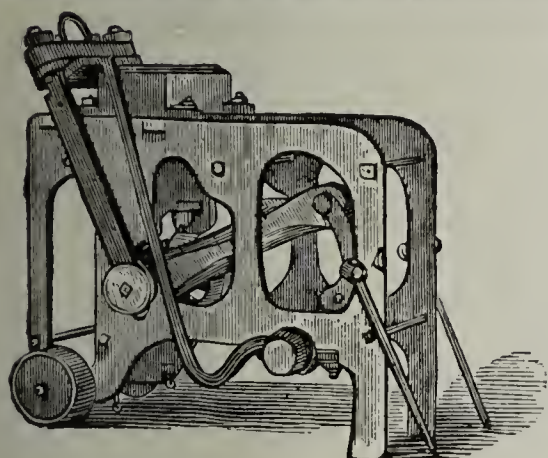
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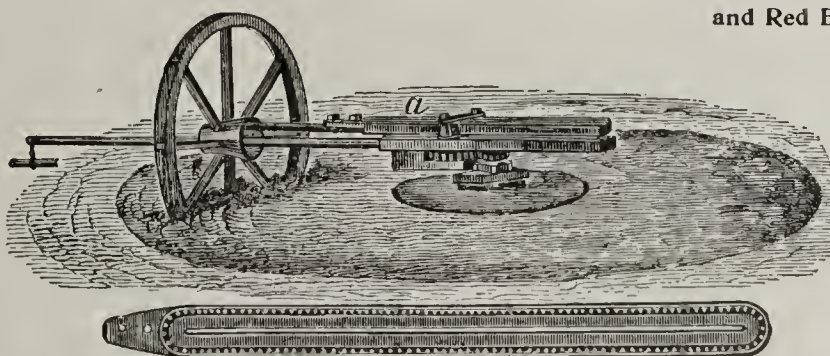
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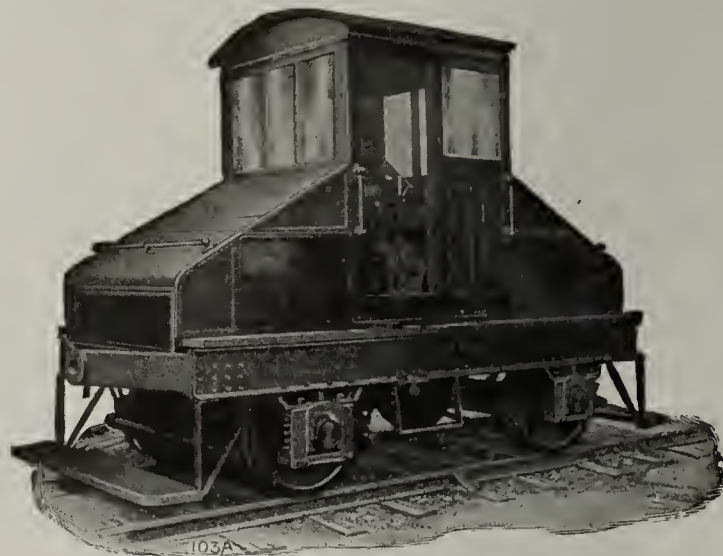
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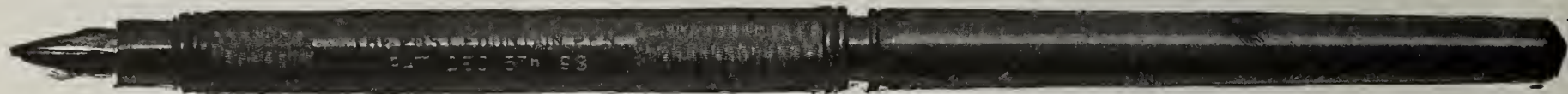
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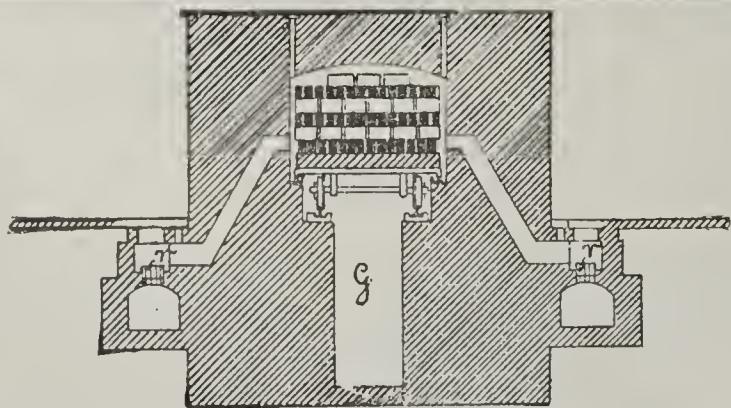
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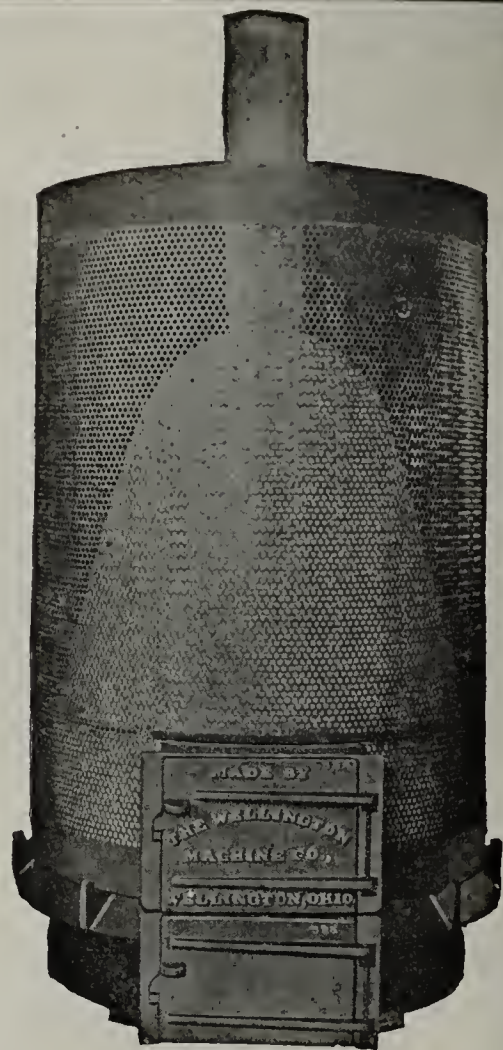


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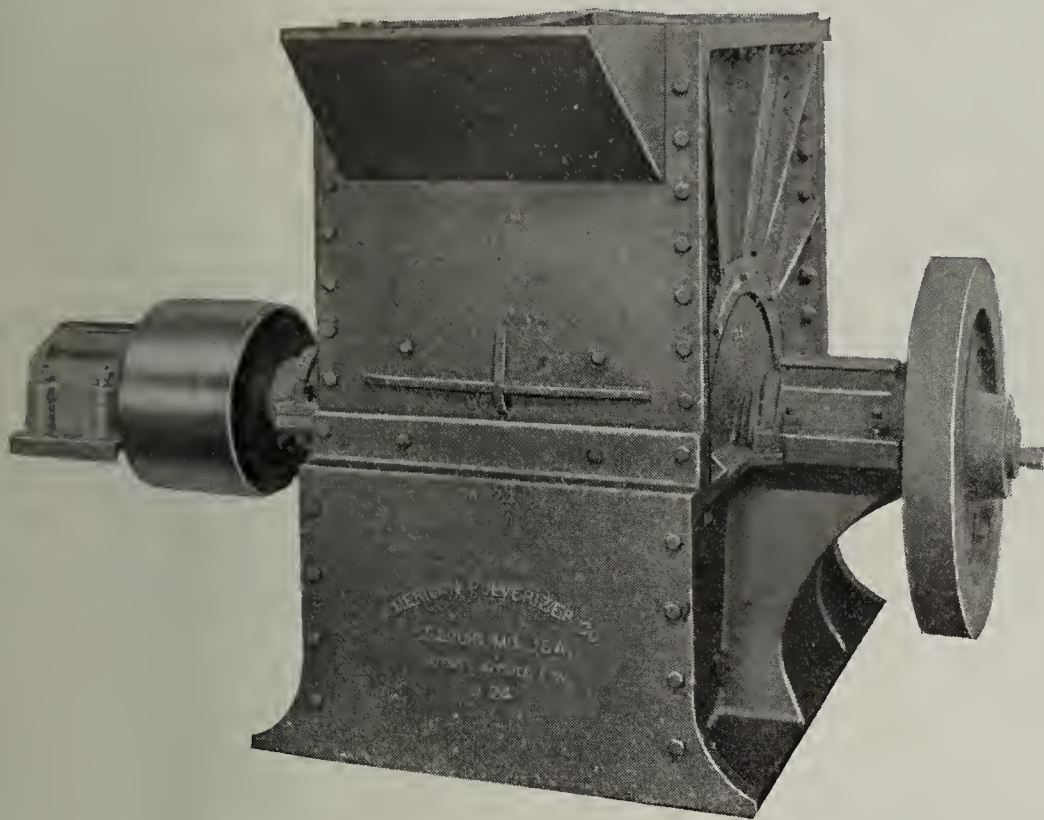
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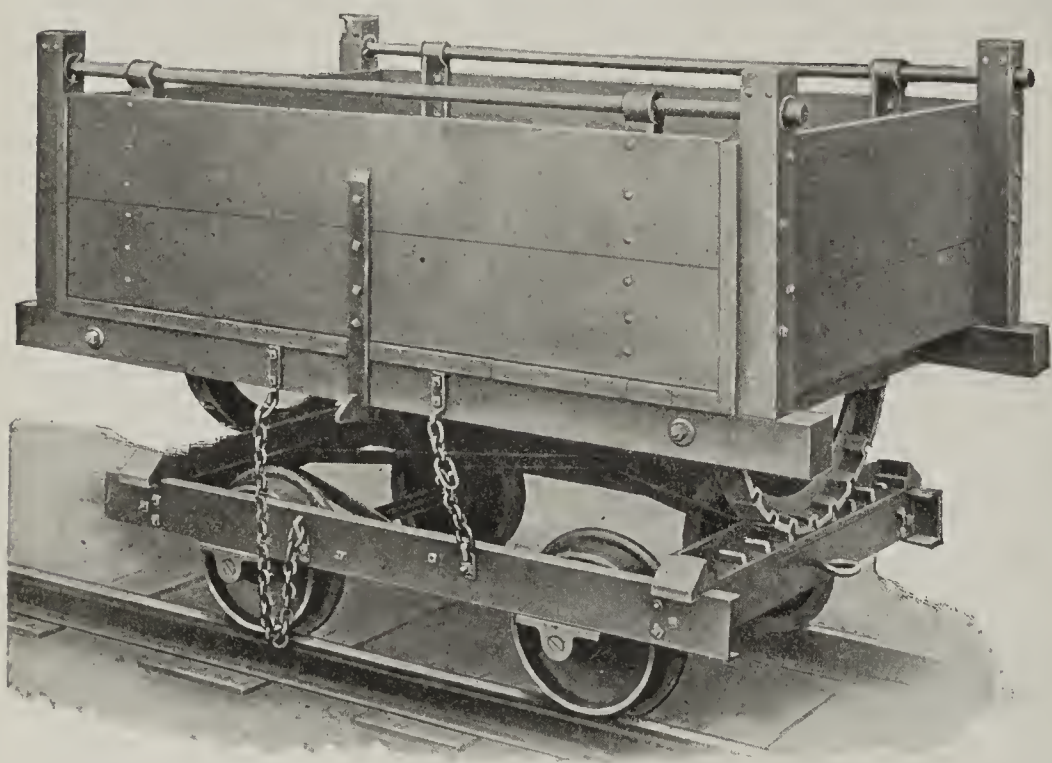
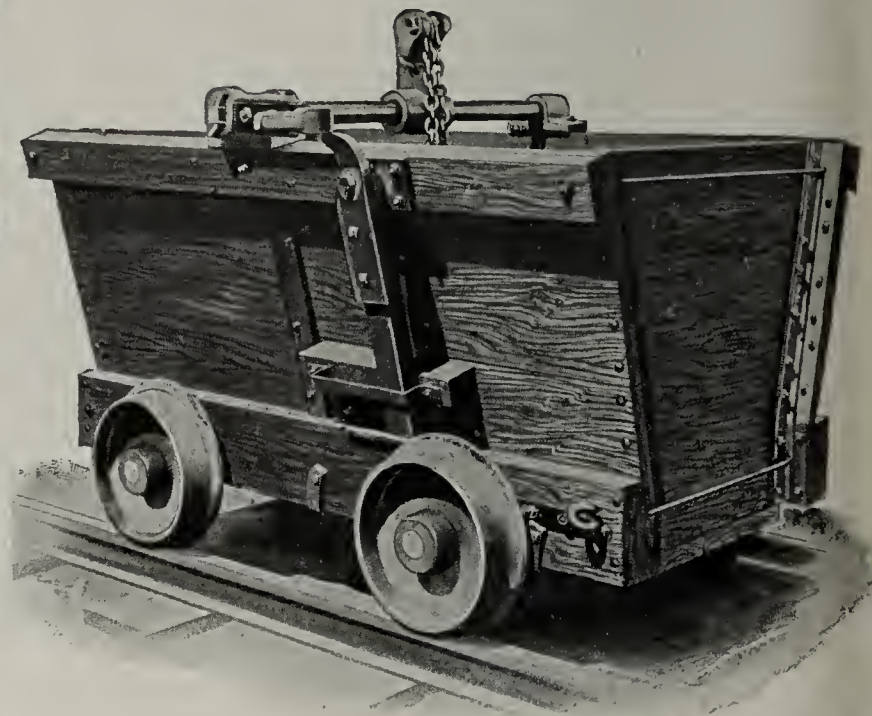
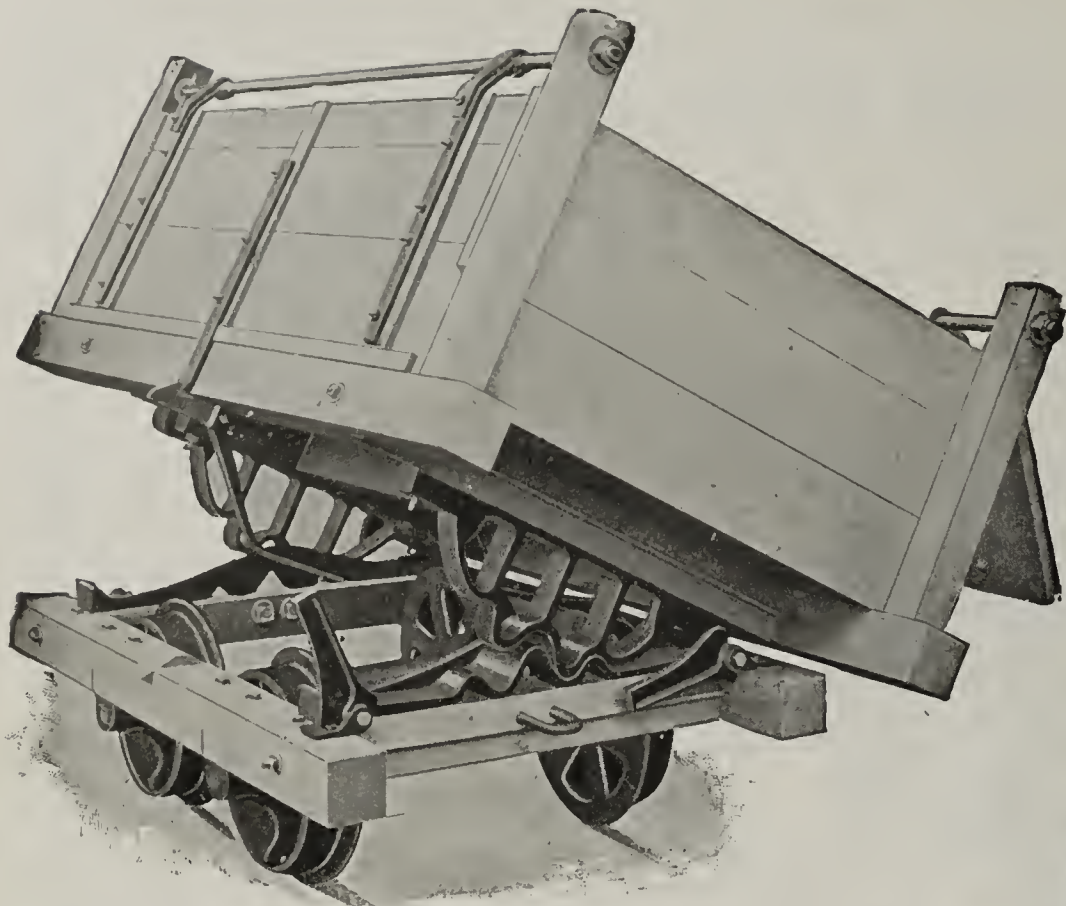
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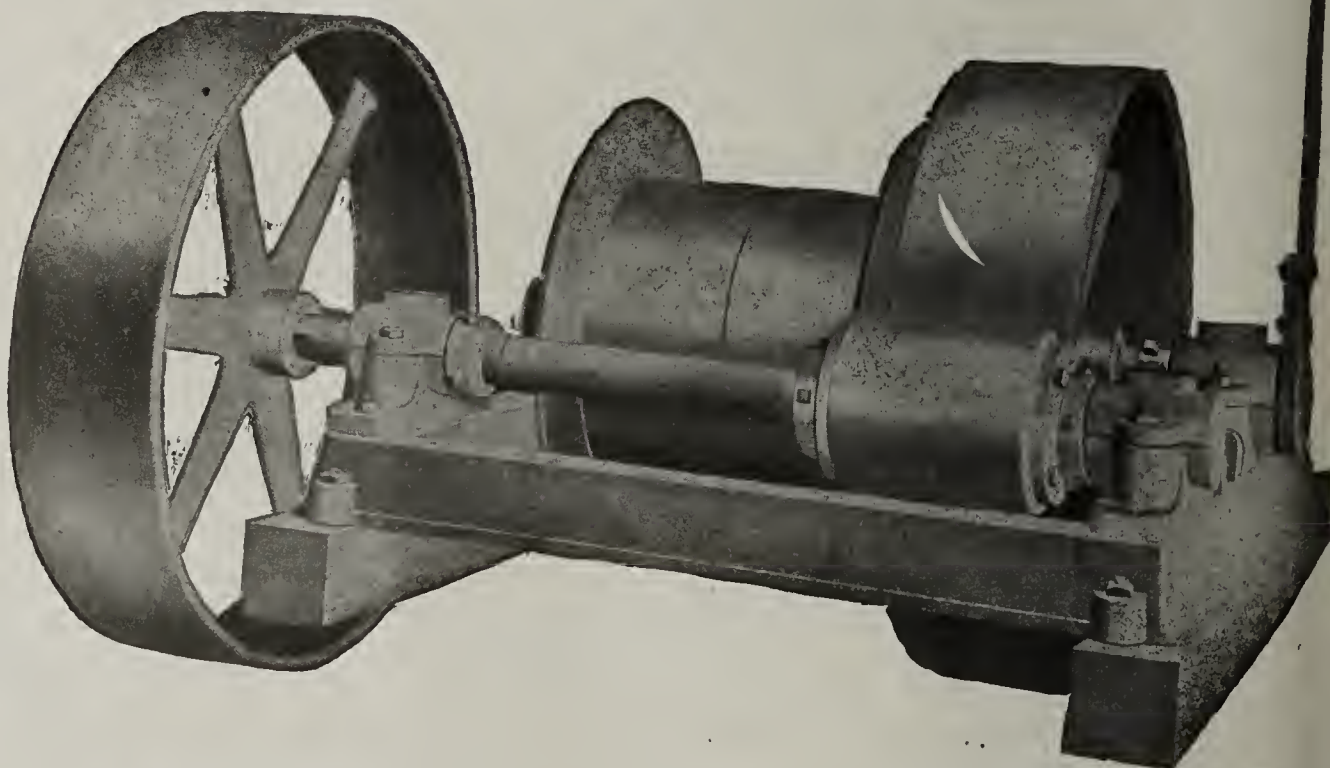
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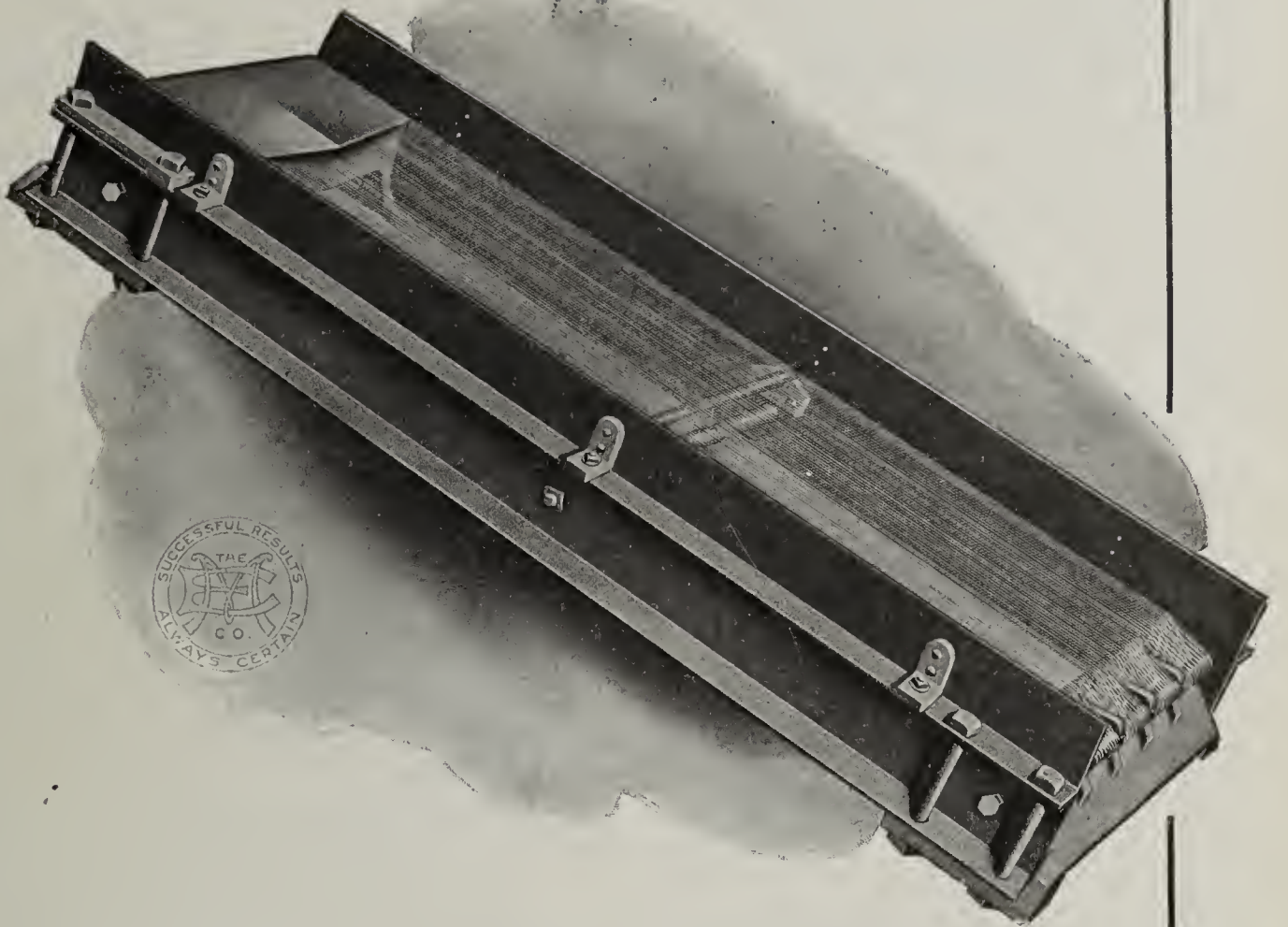
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It is properly designed and is the most substantially built Screen on the market today, and is so arranged that the wires can not spread and can be replaced without buying especially designed wires from the manufacturer at prohibitive prices. We guarantee the capacities for which the different size Screens are sold. Write for Bulletin No. 2, which briefly sets forth the merits of this Screen, and presents in an interesting manner the subject of screening clay by this process.



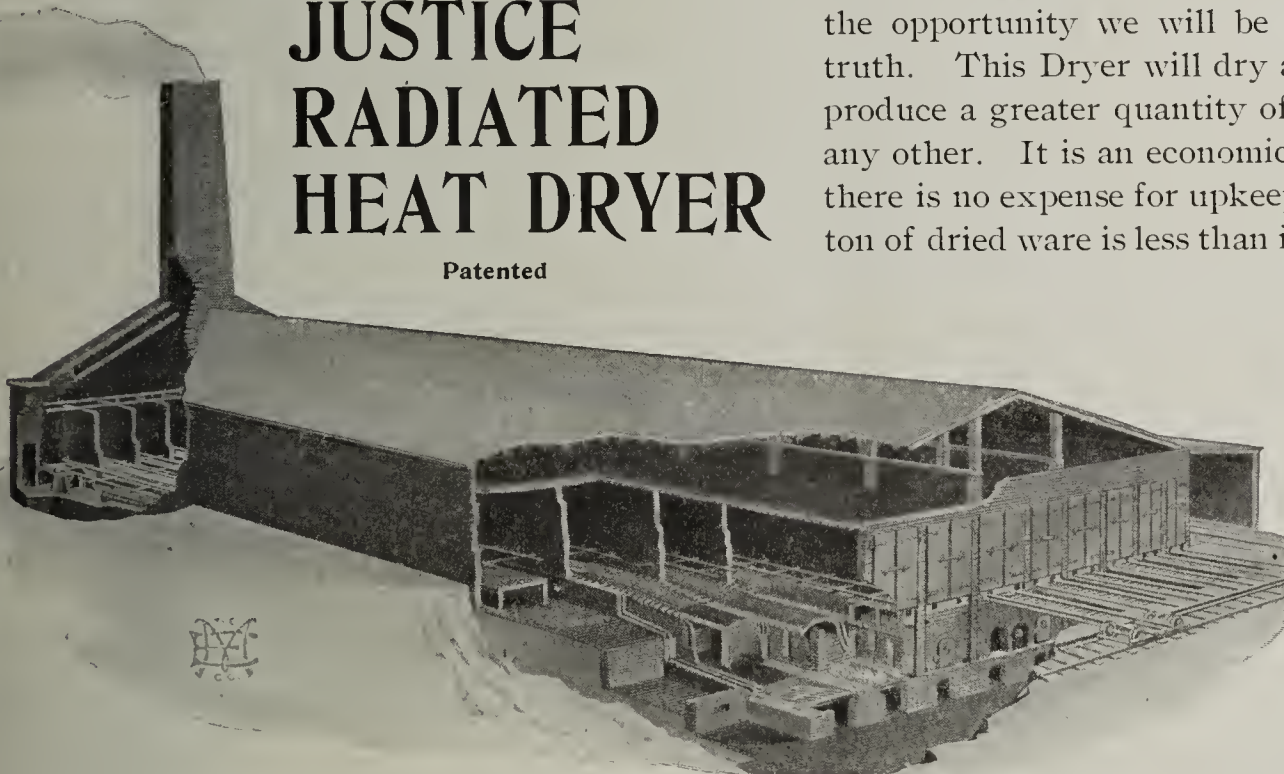
Every manufacturer of clay products is interested in the subject of drying clay wares. This is an inherent feature of the industry and it is certainly to the interest of every manufacturer of clay ware to install that system which will do the work at the least cost and with the most uniform success, both as to quality and quantity of the dried product. We have no hesitancy in saying that the only system that will meet the requirements of the most exacting is the

JUSTICE RADIATED HEAT DRYER

Patented

We know this is a rather broad statement, but if given the opportunity we will be able to convince you of its truth. This Dryer will dry a larger variety of clays and produce a greater quantity of uniformly dried ware than any other. It is an economical Dryer to install, because there is no expense for upkeep; the fuel consumption per ton of dried ware is less than in any other; only the mini-

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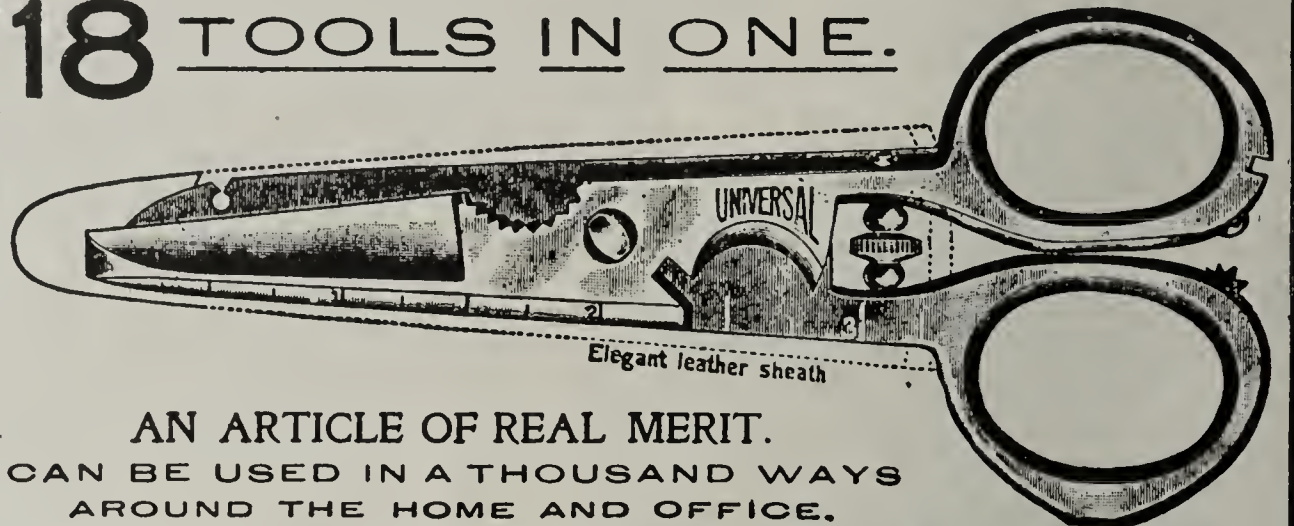
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18 TOOLS IN ONE.



AN ARTICLE OF REAL MERIT.
CAN BE USED IN A THOUSAND WAYS
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This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

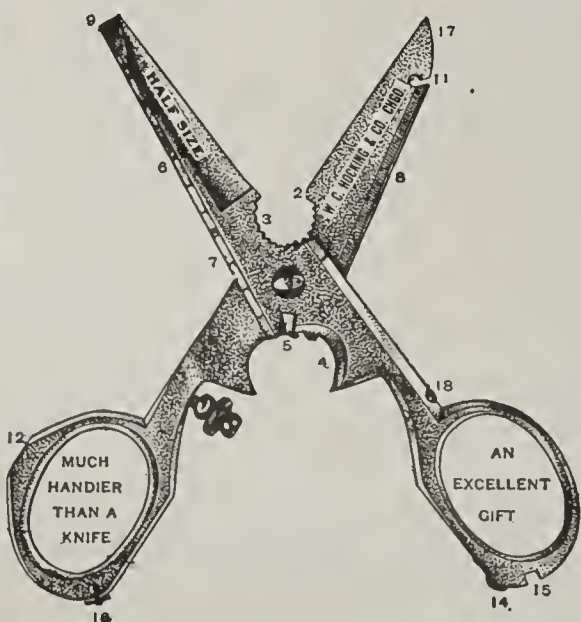
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every **new subscription** to The Clay-Worker.

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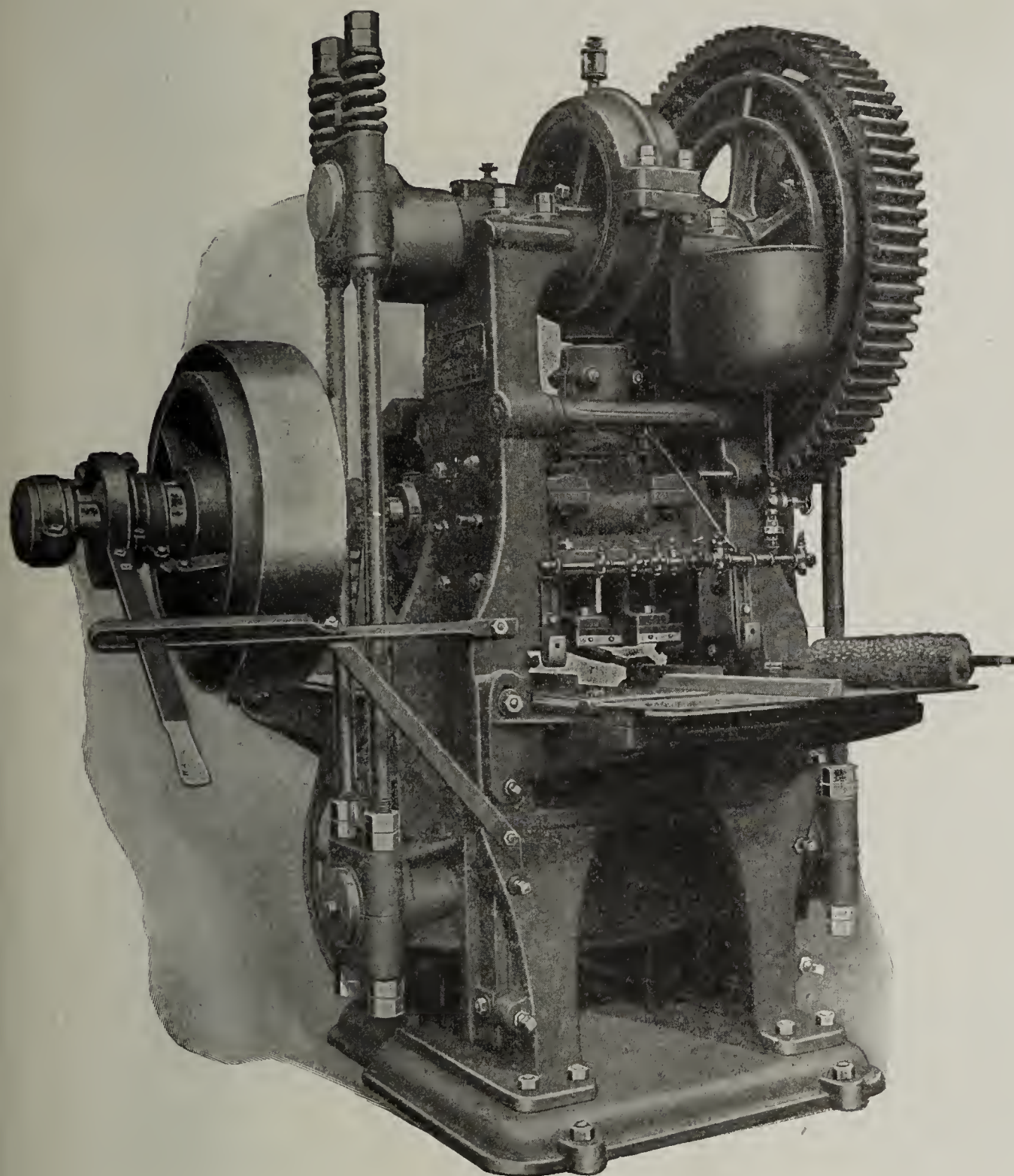
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in 10 hours.

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For ten years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

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Our 30 Ton Shovel with 1 yard or $1\frac{1}{4}$ yard dipper will handle any clay for outputs up to 200 M brick.

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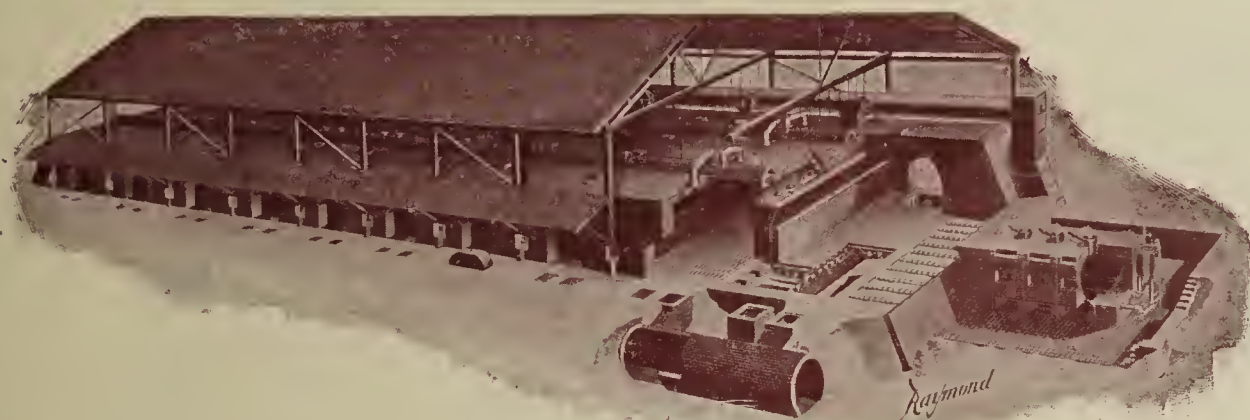
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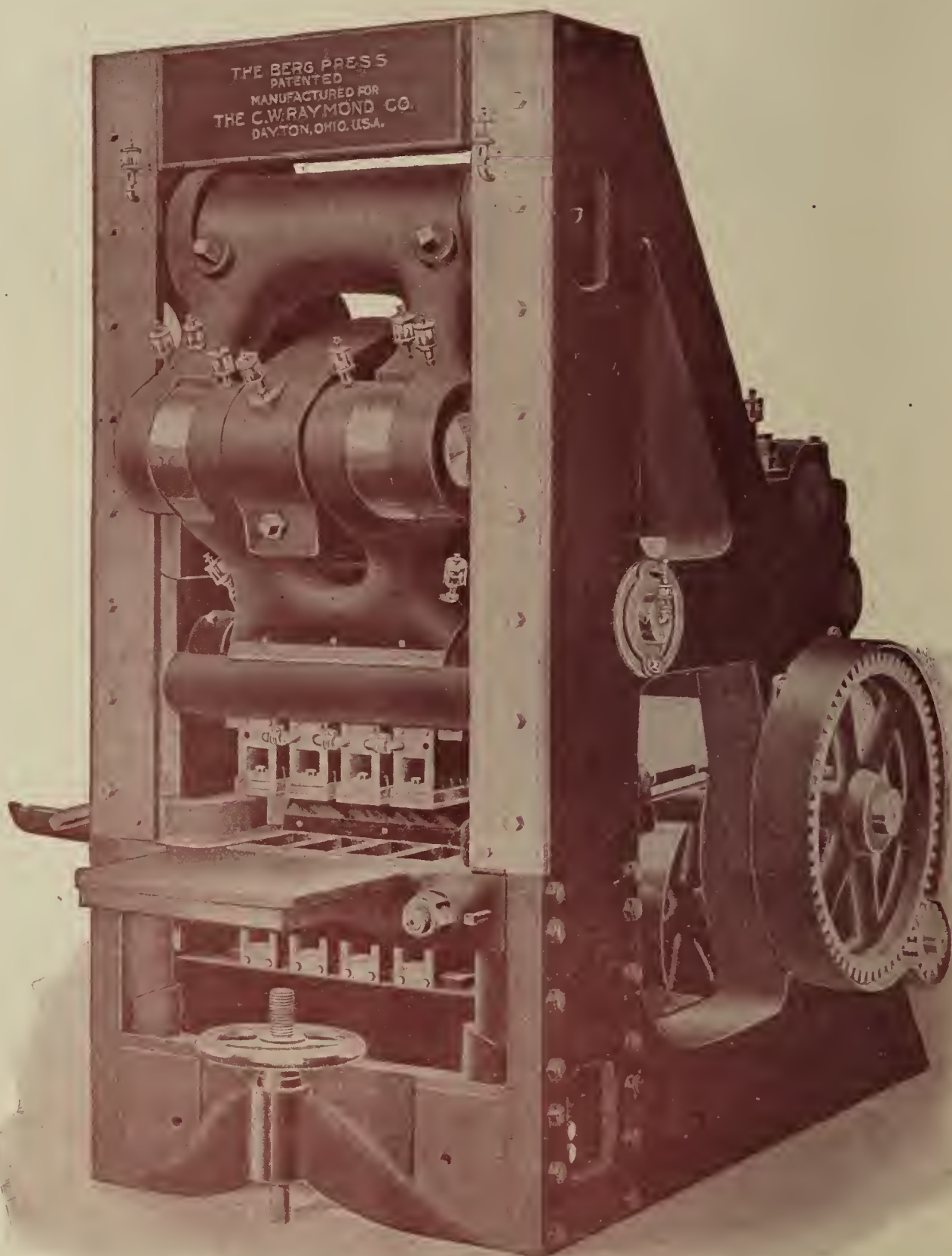
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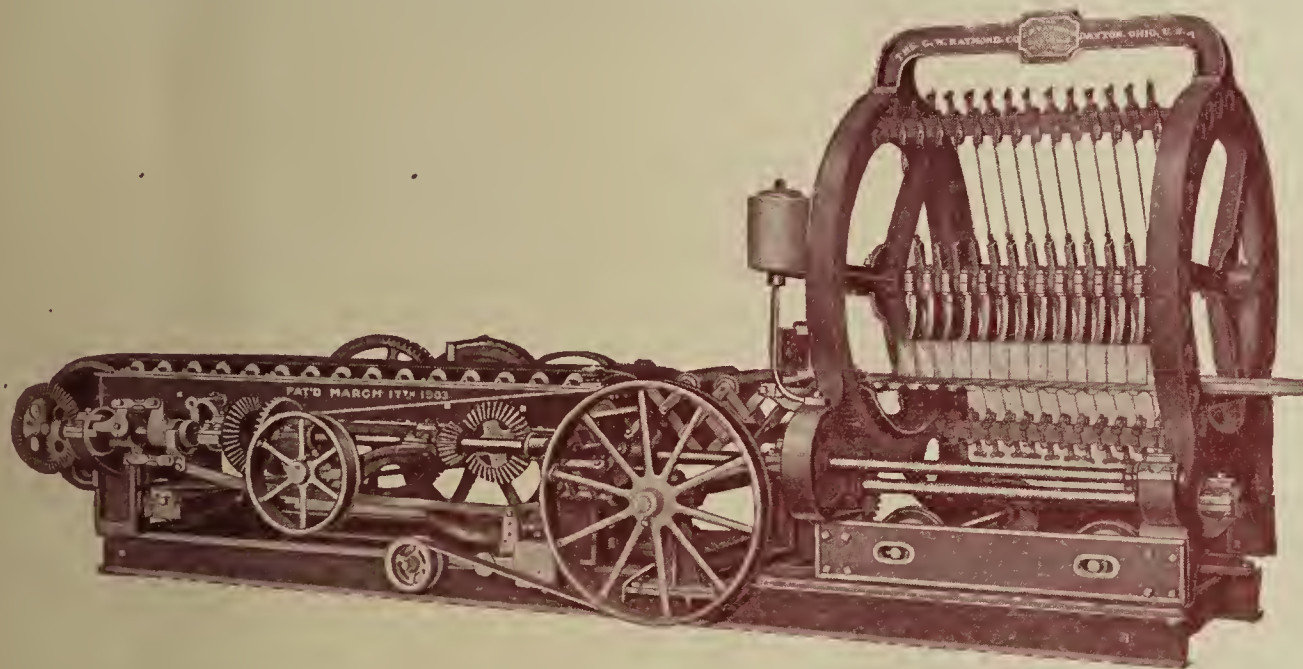
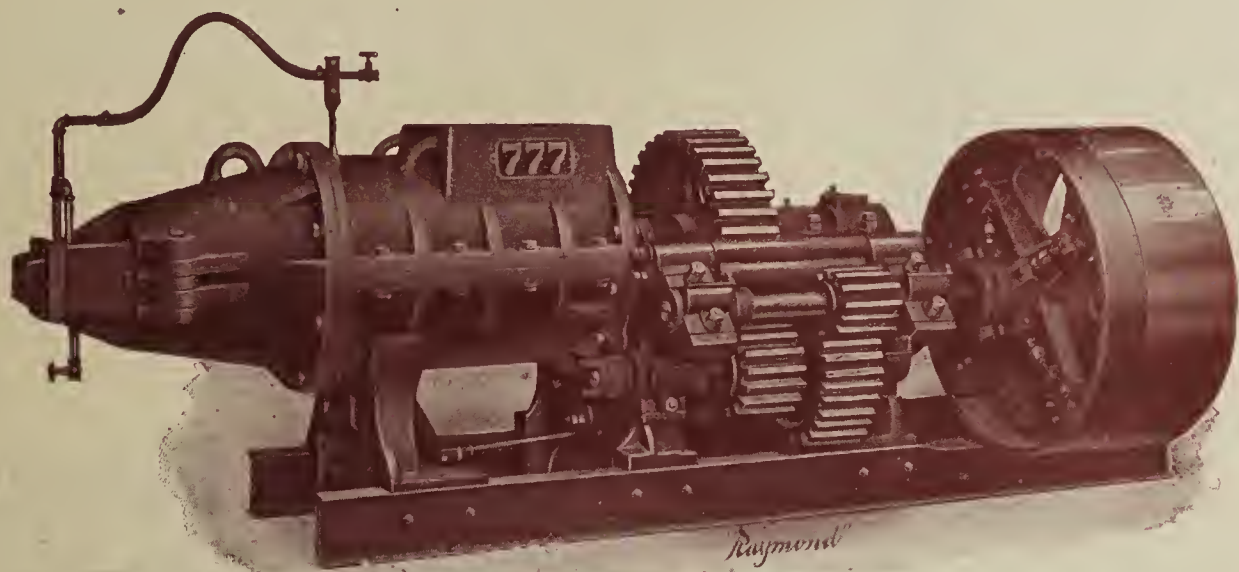
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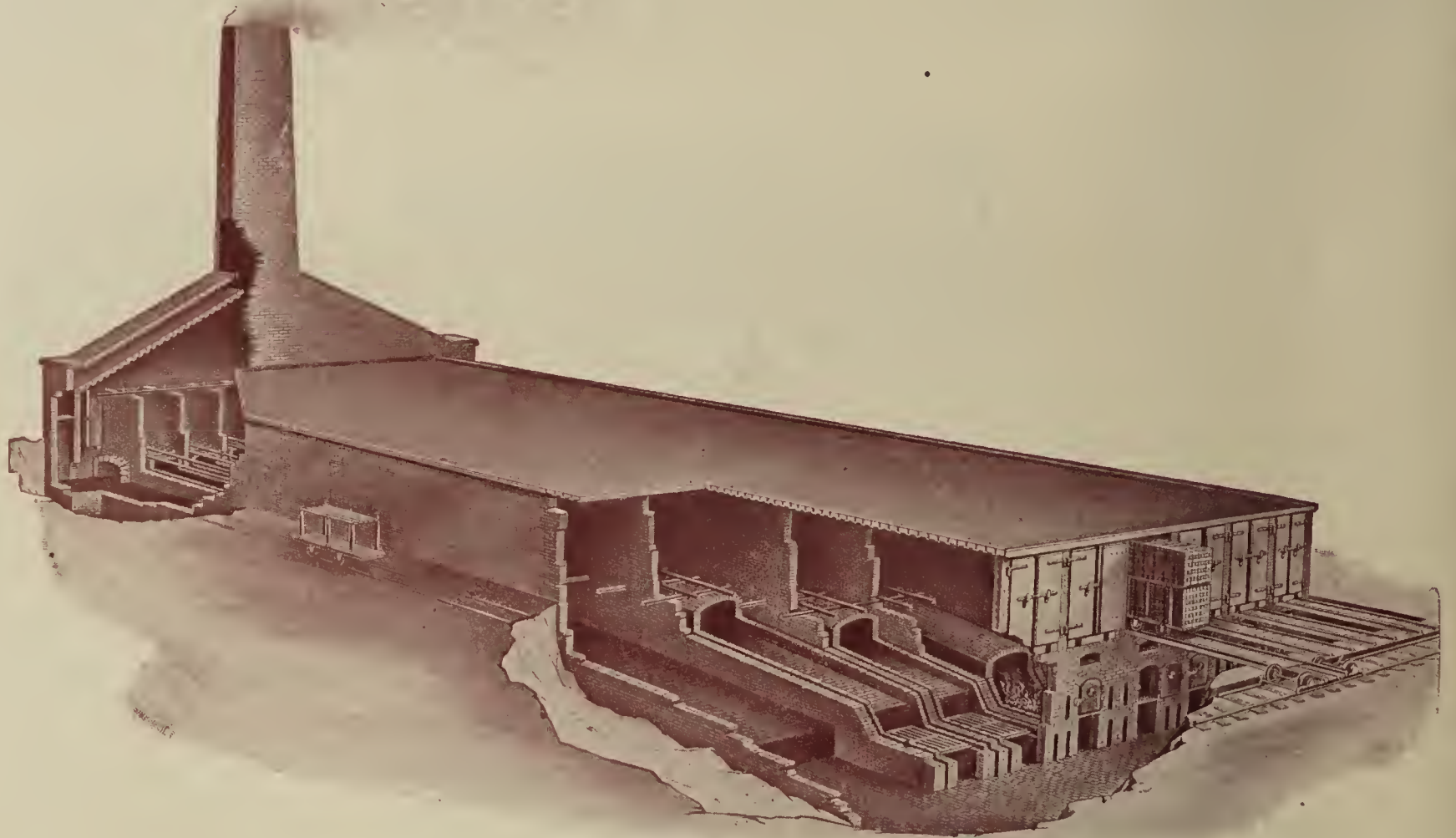
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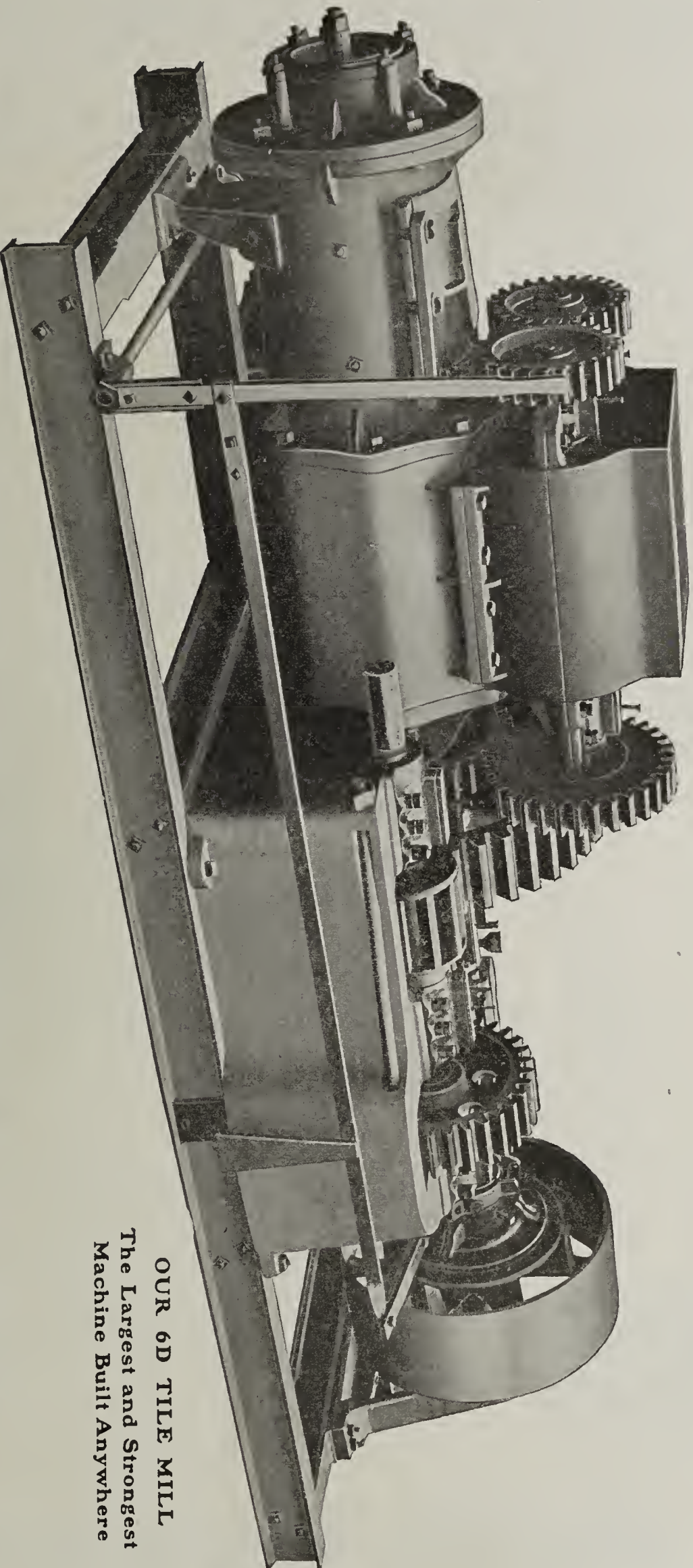
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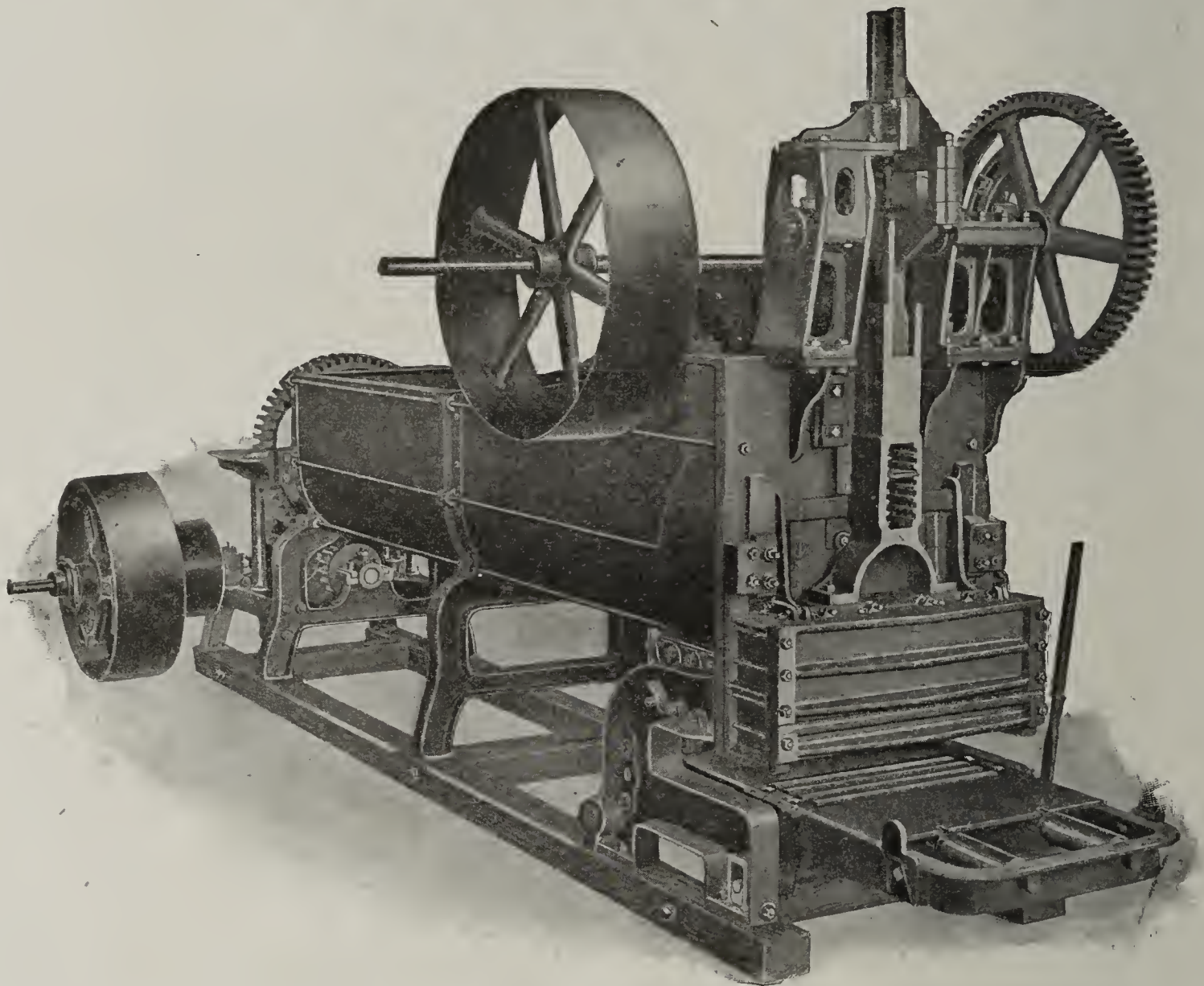
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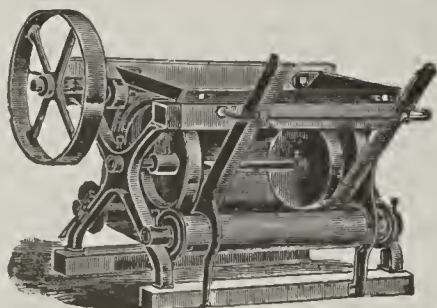
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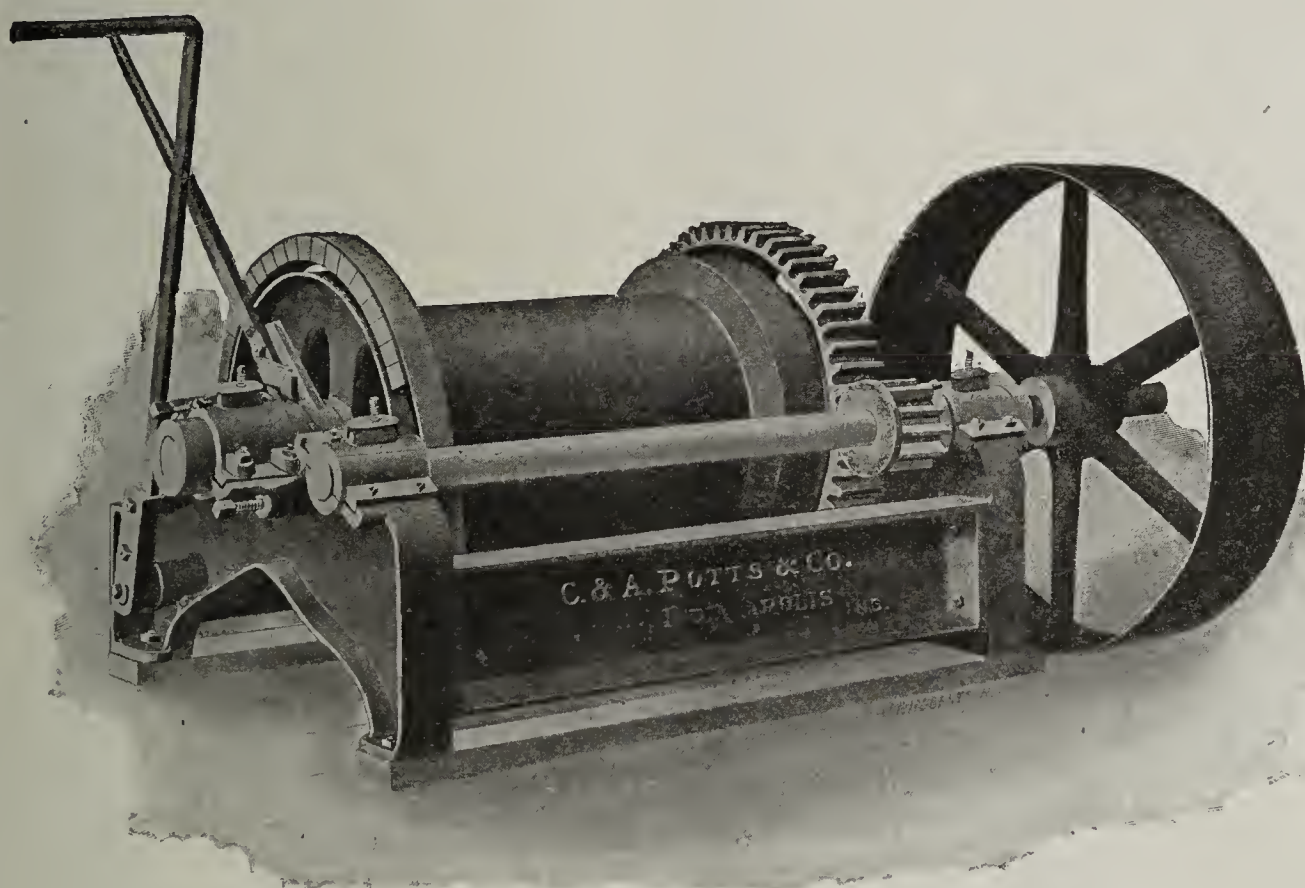
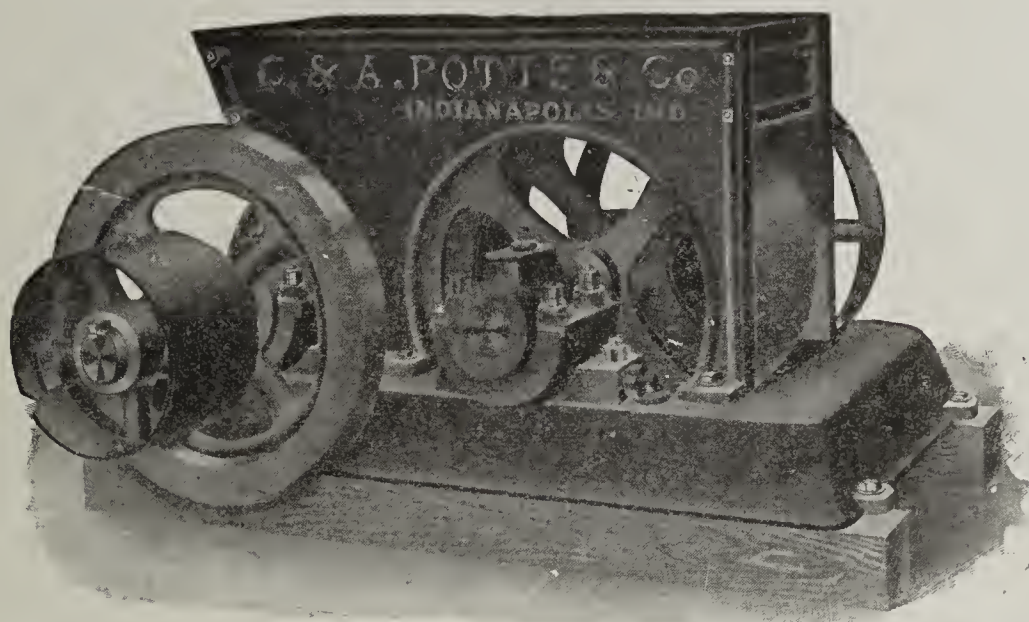
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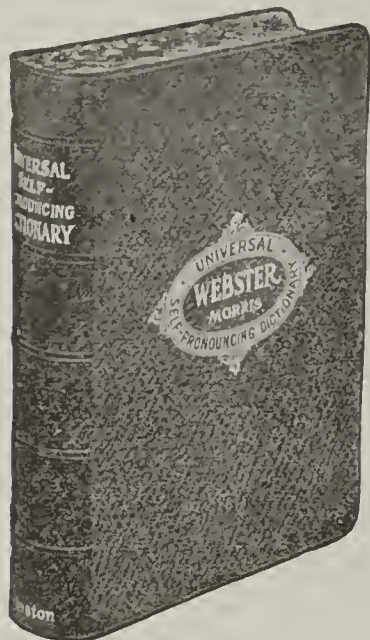
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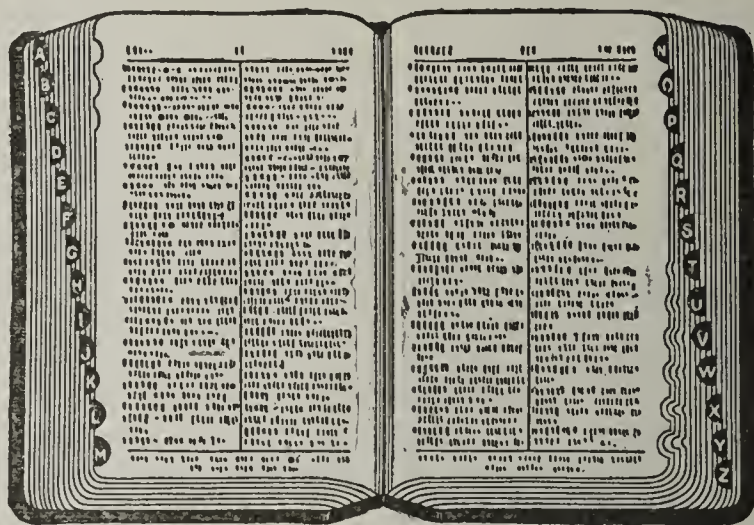
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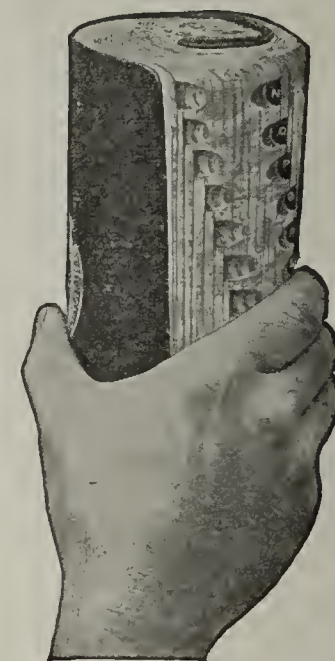
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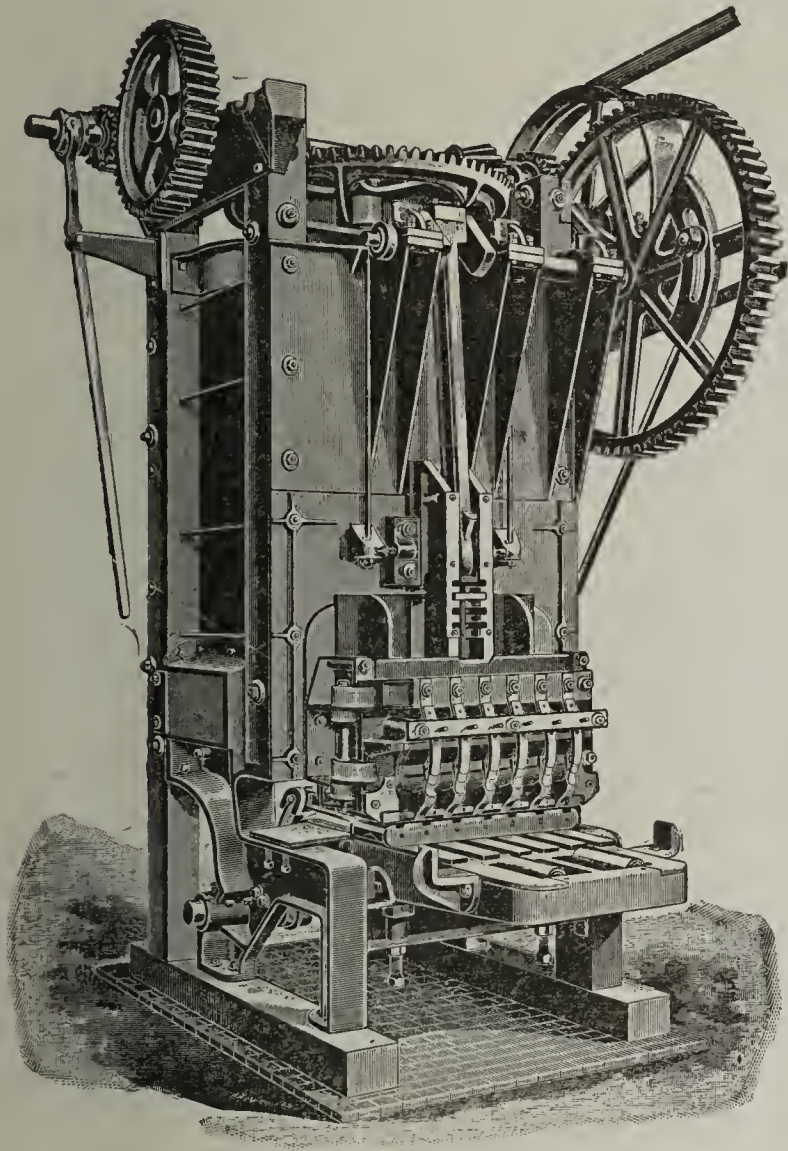
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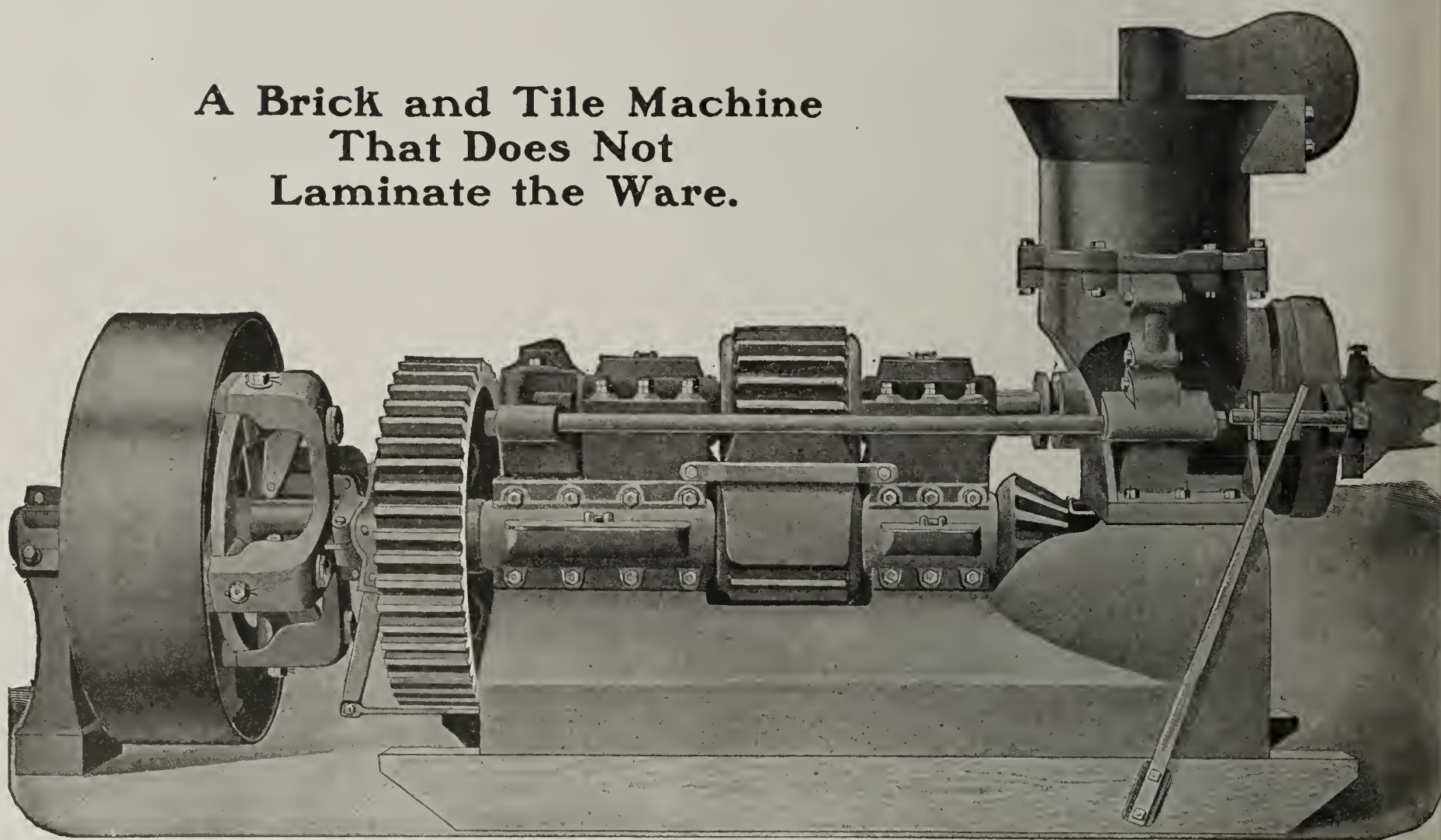
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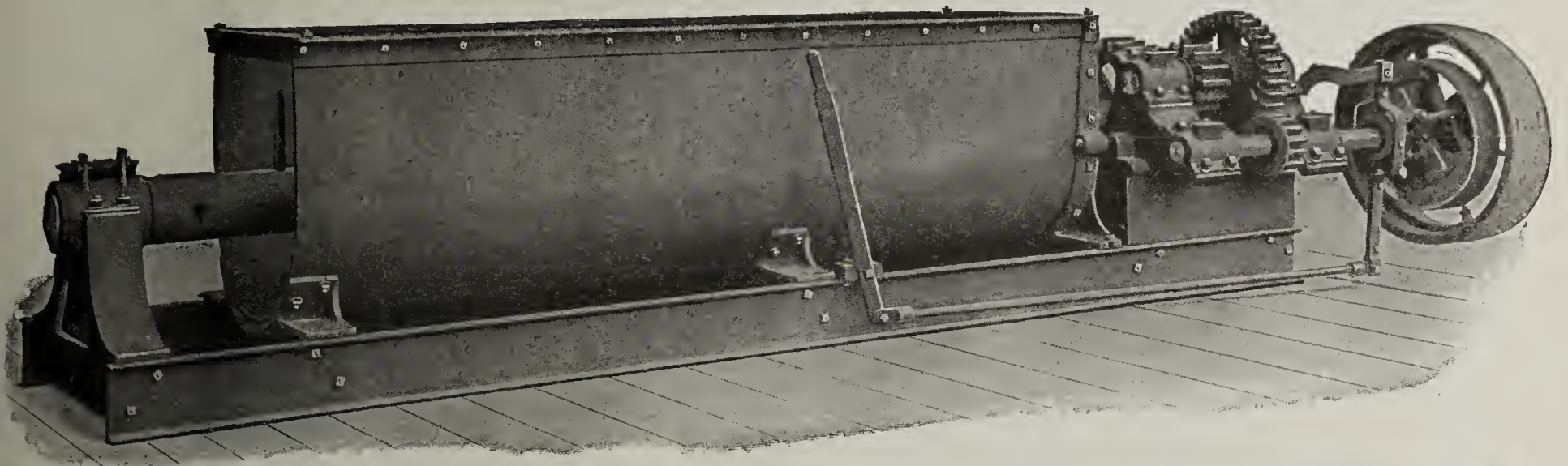
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FRANKFORT, IND.



PUG MILLS

Here are some pug mills which are different from the ordinary. They are different in their design, in their construction and in their operation. While of the open top, open front pattern, they possess all the advantages and none of the disadvantages of either the open or the closed mill. We have them in spur-gear and bevel-gear, single-gear and compound-gear, pushing and pulling patterns; large and small sizes.



THIS IS HOW THEY WORK

The top and front end are open but each knife being independently adjustable for pitch, a few front knives are set flatter than the others. This holds the clay in the mill a length of time proportional to the difference in pitch of the front and rear knives. You can set the knives so that the mill will run over at the discharge end if you want to.

The clay is delivered in a loose, granular form, easily fed to other machines; not in large irregular shaped chunks which clog the hoppers and chutes.

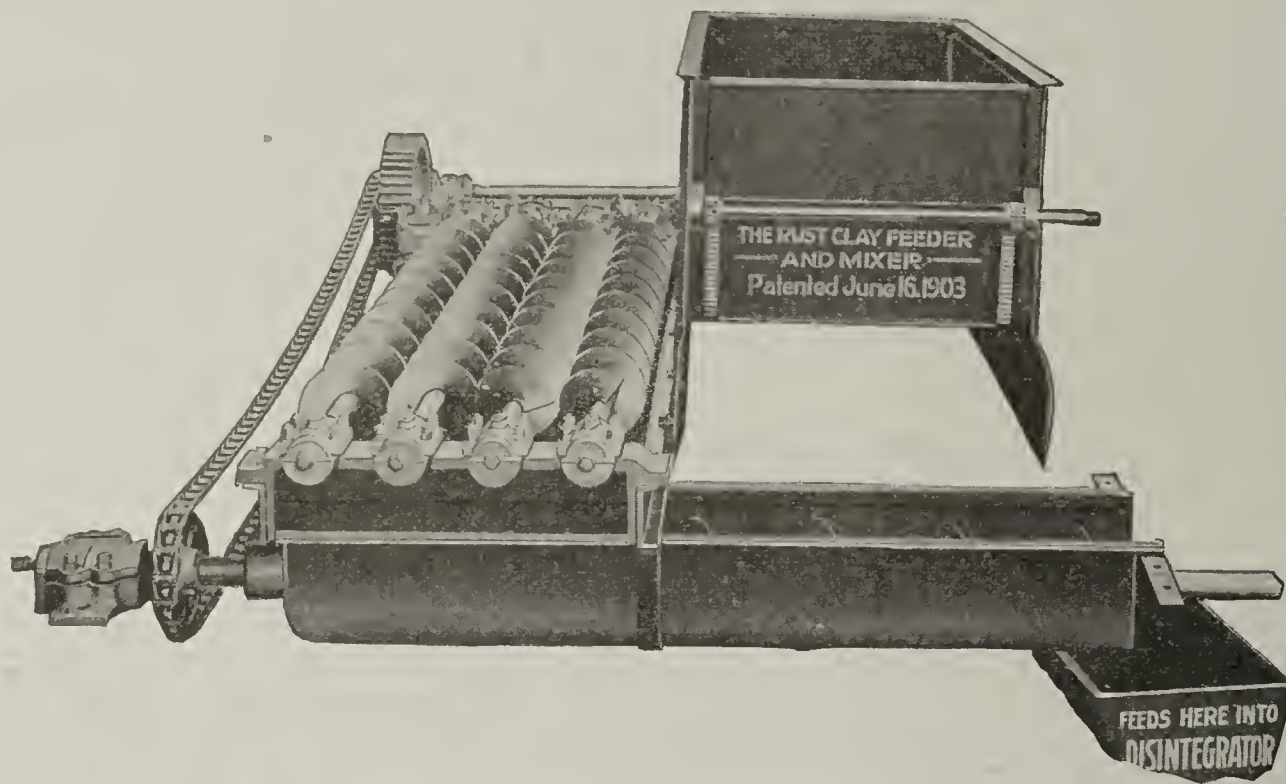
ASK FOR OUR CATALOGUE

It Explains These Pug Mills Fully

H. BREWER & COMPANY, Tecumseh, Mich.

Why Do Hundreds of Clayworkers Use The Rust Clay Feeder and Mixers?

There Are Many, Many Reasons. Here Are Some of Them



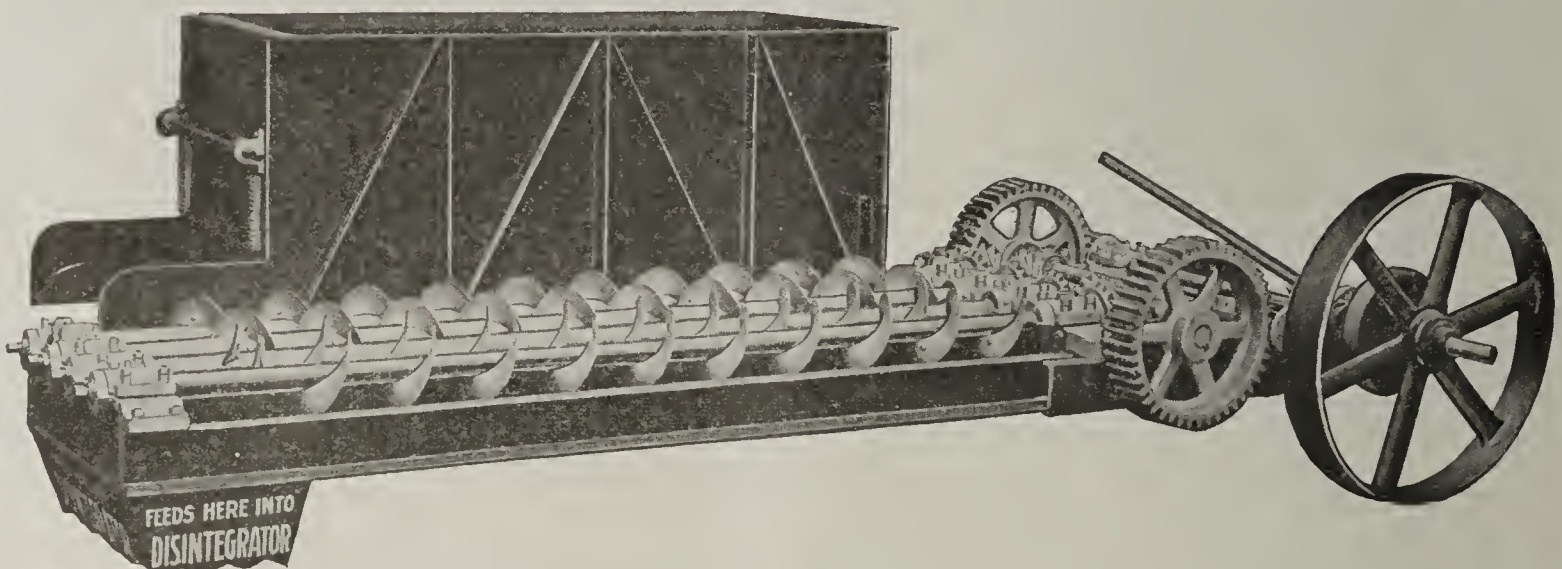
Type A, Extra Heavy Right and Left Side Delivery Rust Clay Feeder, Box Removed

The principal reason is because it will save them the labor of one to two men, and paid for itself the first year from the wages thus earned.

That is enough reason. But there are others.

The quality of the work is another reason. It mixes the clay perfectly and tempers it for further use to which it is put.

The feed is so regular that it does not vary ten bricks per hour, and the machine has a capacity of from 10,000 to 100,000 bricks per day, the quantity being regulated at will by raising or lowering the end feed gate, or by increasing or lessening the speed of the pulley. It requires only 2 H.P. to operate a full load, and this power is more than saved because of the steady and even feed.



Extra Heavy Right and Left Type A, Rust Clay Feeder and Mixer, Box Removed

The Rust Clay Feeder has been brought out in response to the demand for a better method of mixing and feeding clay in brick and tile factories and all clayworking plants. It has been in successful operation for seven years. The saving in labor, increase of production and improvement in product which it effects, makes it a necessity to the up-to-date clayworker.

WRITE FOR OUR LATEST CATALOGUE

Marion Machine, Foundry and Supply Co.

P. O. Box 156, MARION, INDIANA

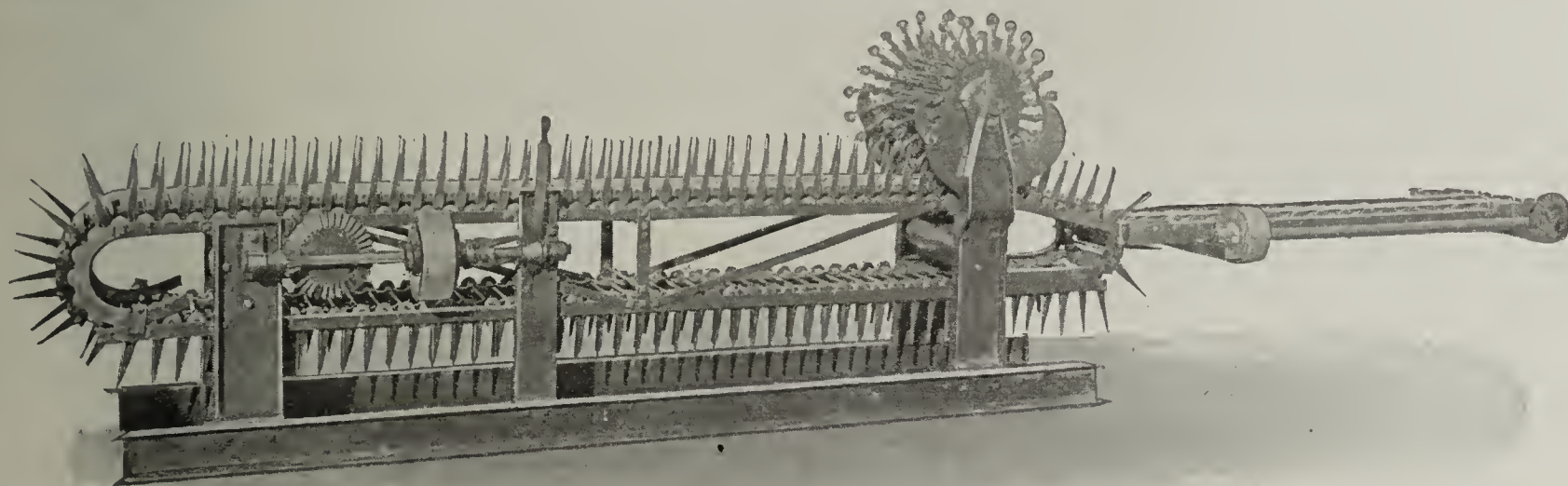
All Canadian Orders will be shipped from our Canadian Branch

Mention THE CLAY-WORKER.

Here is a Cutting Table Worthy of Your Consideration

It is without a doubt, the simplest automatic side brick cutter on the market. Note the simple friction device; any degree of friction can be had by simply moving the lever back and forth. Note the strong angle steel frame, which keeps the weight of the machine down so that it can be easily handled. Note the wire holding the device, which is built on the piano principle, allowing the wire to be stretched to high tension without danger of breaking. The machine can be directly connected, or can be fitted as per cut to run from a pulley. Capacity can be adjusted to conform to the output of your machine.

Note that the wire carrying frames being adjustable, the broken wires can be replaced without stopping the machine. This is a very important feature, and this feature alone places this cutter far in the lead.



NO. 25 MARION AUTOMATIC SIDE CUTTER.

An important feature of this cutter is that the length of cut can be changed to suit requirements.

Marion Machine, Foundry and Supply Co.

All Canadian orders will be shipped from our Canadian Branch

P. O. Box 156, Marion, Ind.

WE SAVE OTHERS MONEY—WHY NOT YOU?

If you will install our flue blower you will be assured that the flues will be cleaned in the right way, the simple, safe and economical way—the MARION WAY. The coal man is responsible only for price and quality of the coal you buy. In order to deliver every ounce of heat energy to the boiler you must clean the flues, and cleaning flues does not mean in the old way, the ineffective, dirty way, at the expense of temper, time and labor.

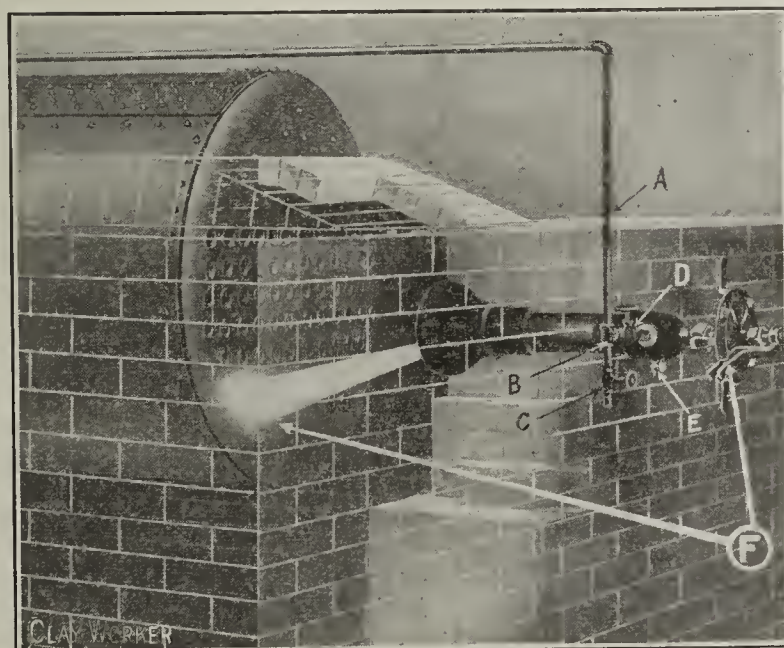
WHAT WE SAY:

The MARION FLUE BLOWER will remove every particle of soot from your boiler tubes without fuss or labor and do it at a guaranteed saving of 10 per cent.

You do not have to take anyone's word but your own, because we agree to send it to you on

30 Days' Free Trial

and if it fails to make good, simply send it back and we pay freight charges both ways.



WHAT USERS SAY:

We have just installed the flue blower we recently purchased of you, and we herewith enclose our check in payment of same. We feel that we will save the price of the blower each month in the saving of fuel.

H. Crocker, Mgr. Virginia Brick Co.

We are enclosing herewith order for a flue blower on your regular blank, left here by your agent some time ago. Two of our boilers are equipped with your blowers. The one we now wish to equip has had a blower of another make, and it has given us so much trouble that we are taking it out. We also enclose pencil sketch showing material used at back of boiler.

F. C. Amsbery, Mgr.
Champaign and Urbana Water Co.

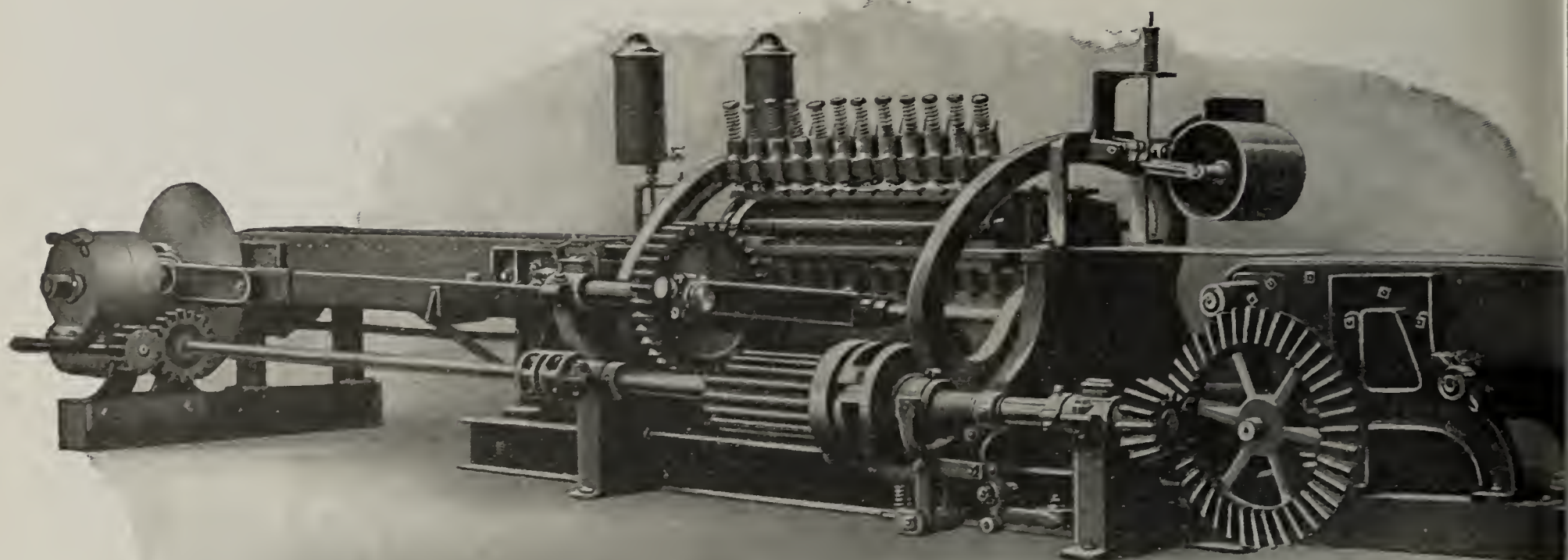
Our superintendent reports that the flue blower works very satisfactorily. Wish you would have your agent call when in our neighborhood and see if he can arrange to have a flue blower equipped for our other boiler and take the proper measurements.

Chicago Rubber Clothing Co.

Marion Machine, Foundry and Supply Co.

All Canadian orders Shipped from our Canadian Factory

P. O. Box 156, Marion Ind.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

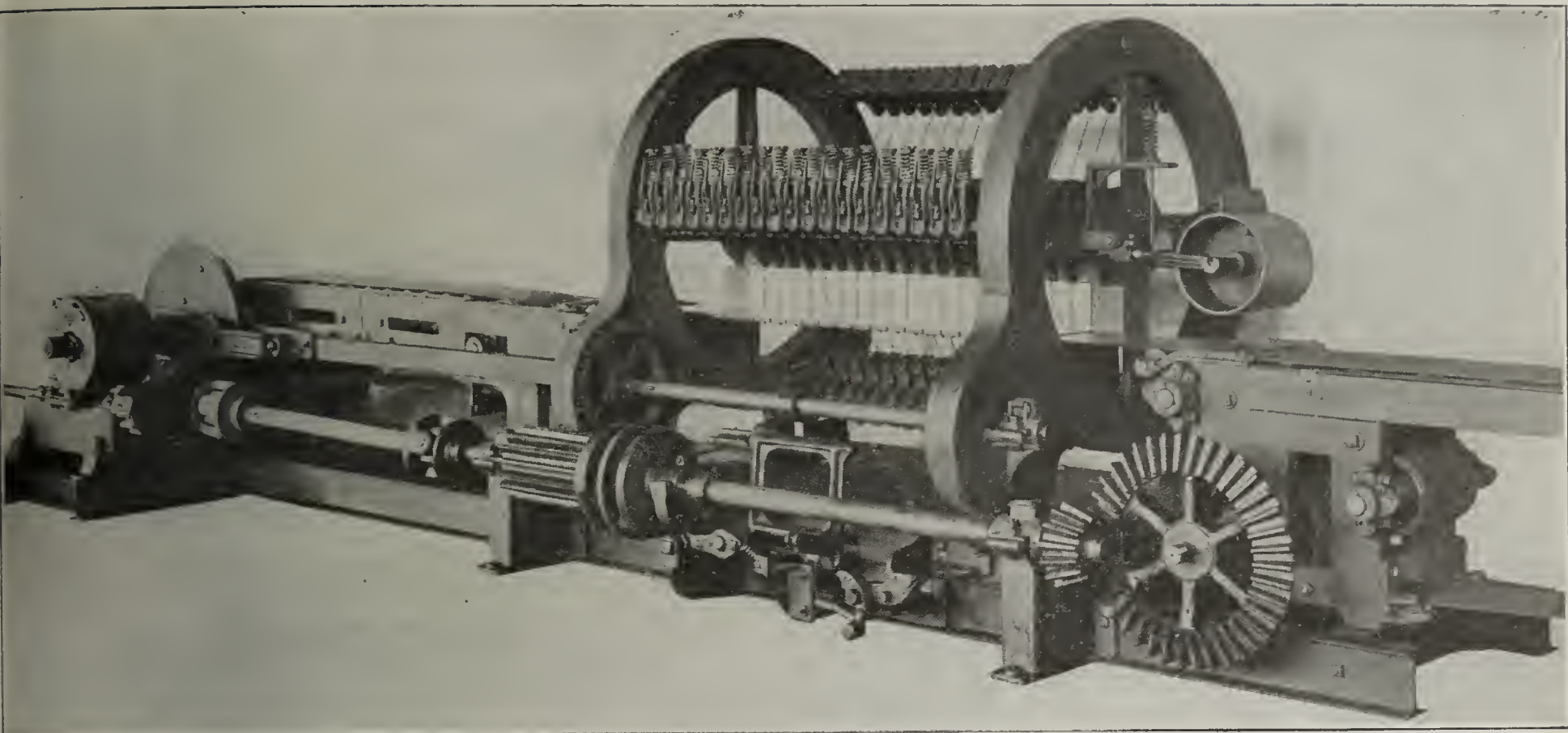
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

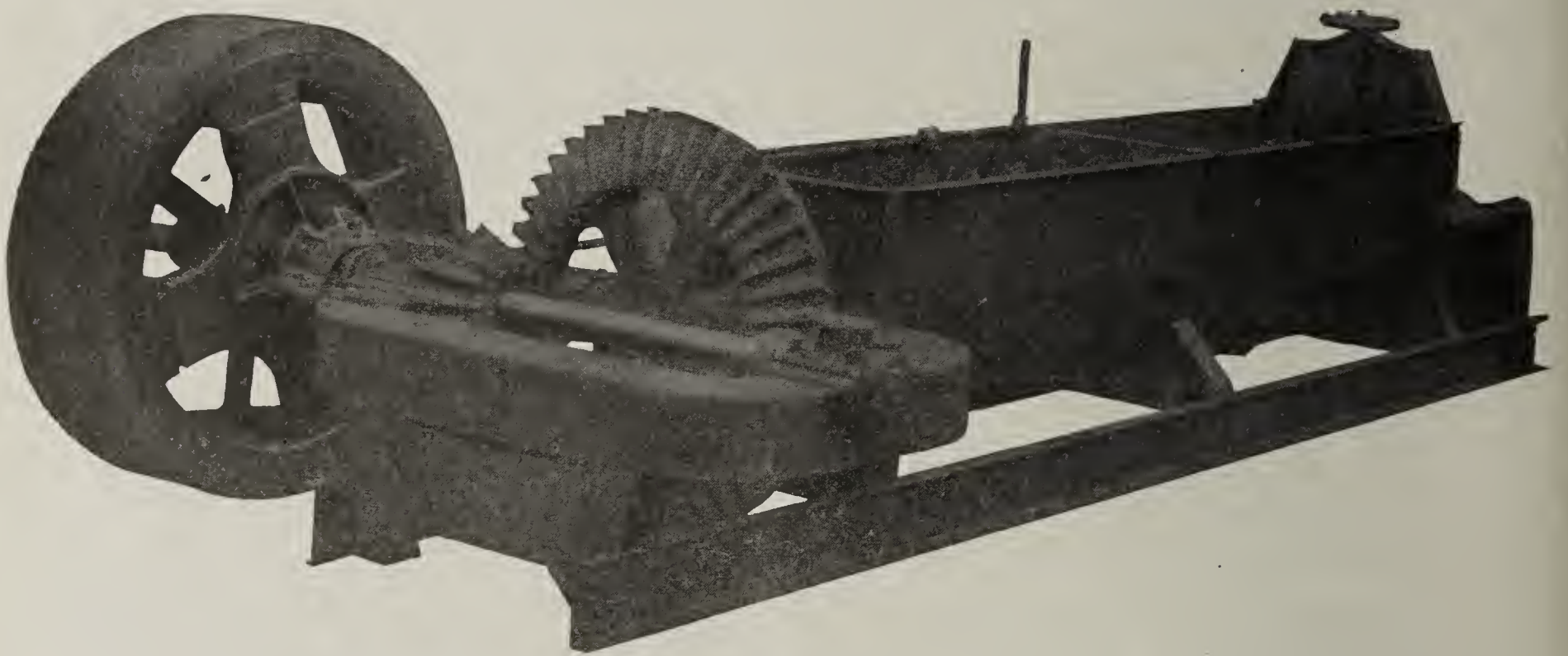
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

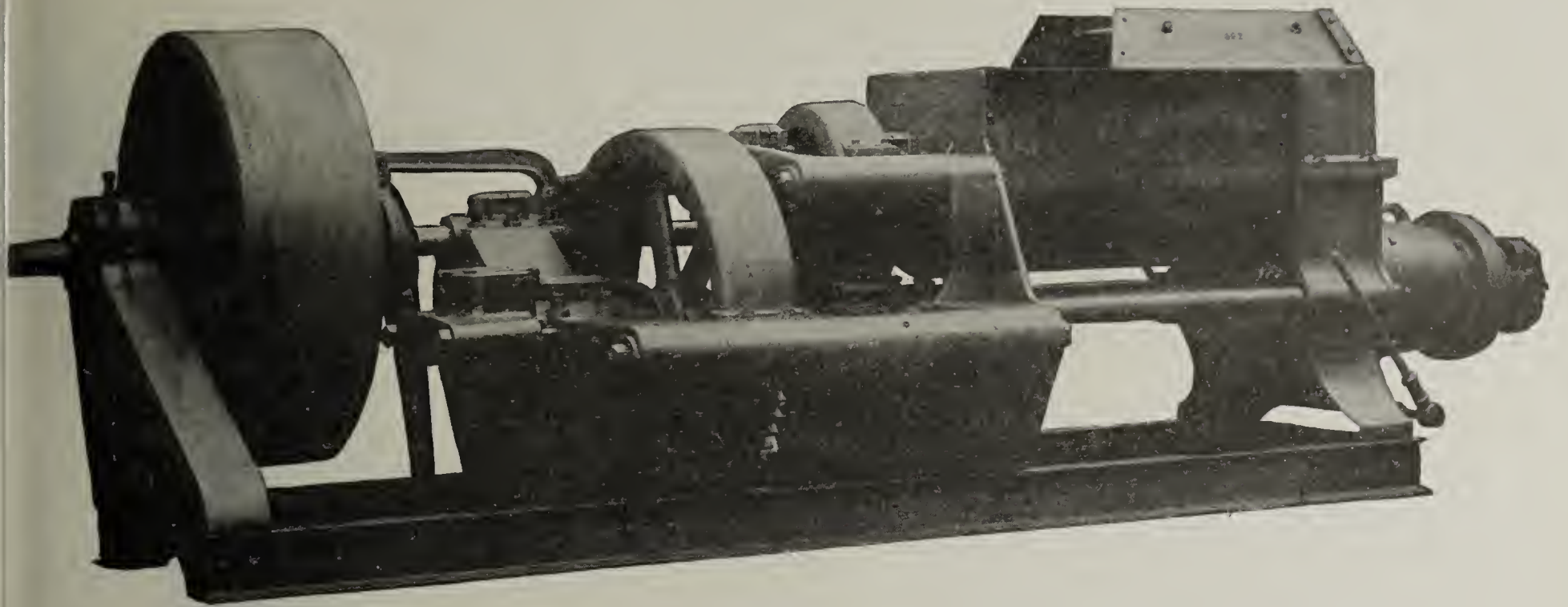


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



YOU WOULDN'T SPEND
\$2000 on an AUTOMOBILE

till you had inquired into the
merits of the various machines

NOW WOULD YOU?

Then don't rob the stockholders
of your Company by spending
from

\$10,000 to \$200,000

of their money on a Brick, Sewer Pipe,
Tile or Sand Plant without first in-
vestigating the merits of the various
makes of machines needed for your
plant.

Secure the judgment of these acknowl-
edged old experts ranged alongside
here among others; or better, visit
their plants.

THEY USE STEVENSONS
BUILT AT WELLSVILLE, OHIO

Washington Brick, Lime & S. P. Mfg. Co. 1 Pan and Elevator in 1905. 1 Pan and Flaking Rolls, 1908. 3 Pans, 3 Elevators, 1 Press and Dies in 1910.	Kittanning Brick & F. C. Co. 1 Pan in 1894. 2 Pans in 1906. 2 Pans in 1910.	McLain Fire Brick Co. Pans after Pans and other machinery galore for all their works.	Am. Fire Brick Co. 1 Pan in 1903. 1 Pan in 1905. 1 Pan in 1909. 1 Pan and 1 Press in 1910.	Dominion S. P. Co. 1 Press and 3 Pans in 1904. 1 Press in 1907. 1 Pan in 1908. 2 Pans in 1910.
--	--	--	--	--

UP TO DATE.	ENDURING.	SPEEDY.	BEST EVER.
A dozen or more valuable im- provements on Pan and Press— money-saving and money-mak- ing—in the past year or two.	Pan Record:—Sixteen years on hard shale and good for many years more. Press Record:—Thirty years and still running.	Pan's Record:—108,000 brick in a single day for one pan. Press Record:—720 24-inch in 5 hours; 9,400 4-inch in 10 hours.	Users say: "Best machinery on the market." "Gives little or no trouble." "Your Press is a dandy." "Best Press in Canada." "Your Pans are first-class."

H. A. Robinson Co. 4 Rock Crushers. 10 Dry Pans. 10 Wet Pans. 5 Presses and complete outfit with it in 1910.	E. Ohio S. Pipe Co. 1 Press, 4 Pans, etc., etc., in 1902. 2 Pans in 1904. 1 Rock Breaker and 1 Pan in 1910.	Am. Sewer Pipe Co. Pans and wholesale re- newals galore from organ- ization to date	Stratton Fire Clay Co. 2 Presses and 6 Pans, etc., in 1903. 4 Pans and 2 Presses in 1905.	Robinson Clay Prod. Co. 4 Pans in 1903. 14 Pans, 5 Presses, 2 set Dies, etc., in 1906. 16 Pans, 1 Press and a train- load of other stuff in 1910.	Streator Fire Clay Co. 2 Pans and 1 Press in 1908. 6 Pans, 2 Presses, 6 Elevators, etc., in 1909.
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For Sixty
Years
The Name

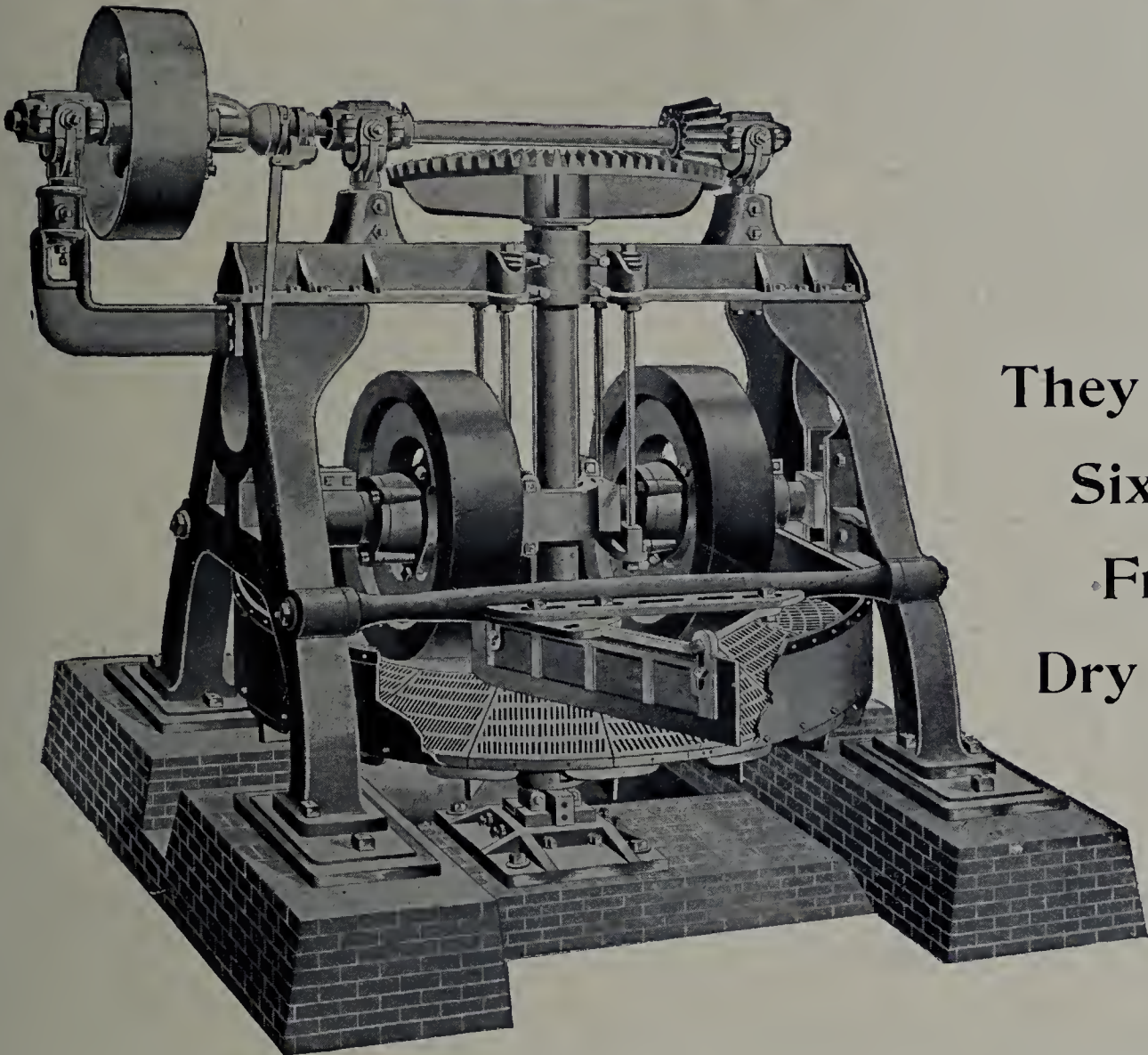
Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

Read
What
Purington
Says—



They Have
Sixteen
Frost
Dry Pans



D. V. Purington, Chr. of Board.
F. G. Matteson, President.
Geo. C. Prussing, Vice-President.
C. B. D. Howell, Vice-President.

THE PURINGTON PAVING BRICK COMPANY
Annual Capacity, 100,000,000.

W. H. Terwilliger, Secretary.
C. H. Chamberlain, Treasurer.
W. G. D. Orr, General Manager

Galesburg, Ill., February 23, 1911.

Frost Mfg. Co., Galesburg, Ill.

Gentlemen—Replying to your inquiry as to the service we have obtained from our Frost Dry Pans, would say that our experience with them has always been satisfactory. Our shale is harder than that from which most brick are made, and in spite of this fact we only have two Dry Pans to each brick machine, and the brick machines are never waiting on the crushers for clay.

Yesterday we made 305,000 ten-pound paving blocks on four brick machines. All of this material went through eight pans. The cost of keeping up Frost Crushers is so much less than on others we have seen, that it is not our intention to make any experiments.

Yours truly,

THE PURINGTON PAVING BRICK CO.

By Wm. Geo. D. Orr, General Manager.

Don't Forget We Manufacture Engines and Boilers.

Write for Special Bulletins and Specifications.

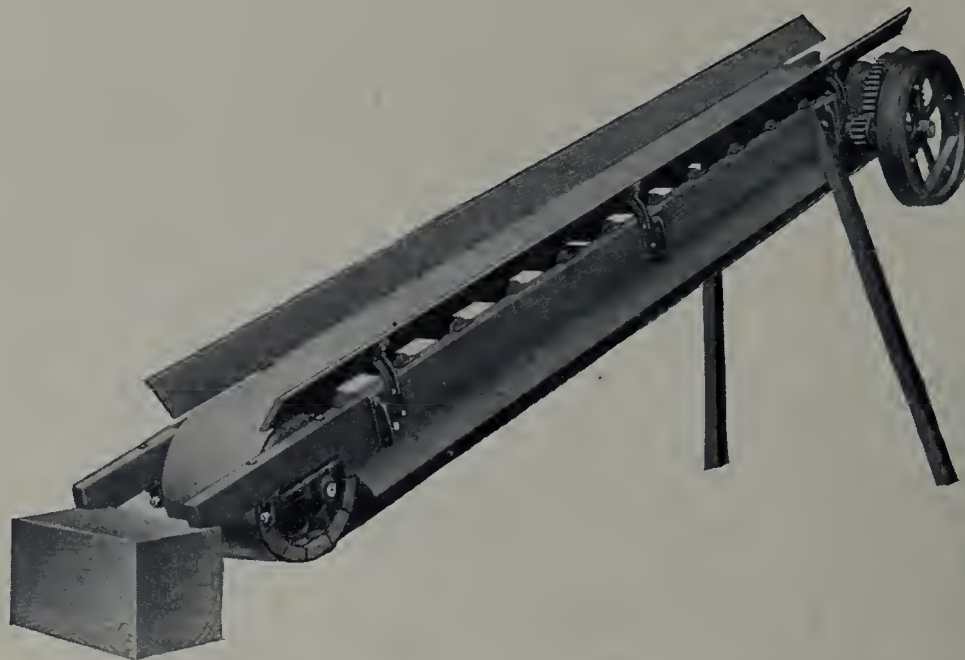
The Frost Manufacturing Co.

Works:
GALESBURG, ILL.

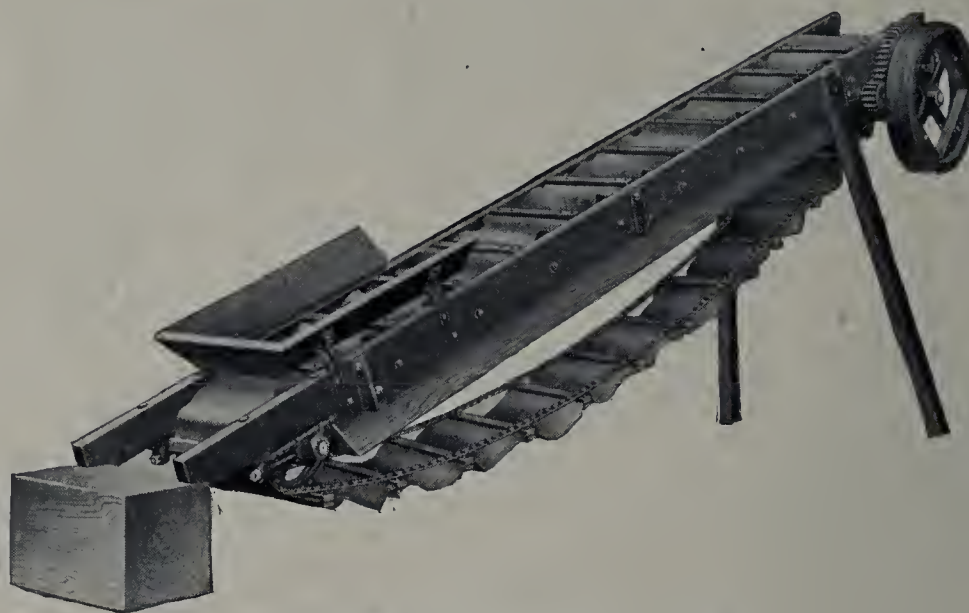
CHICAGO OFFICE:
135 Adams St., CHICAGO, ILL.

Cable Address, "FROSTMANCO," Chicago.

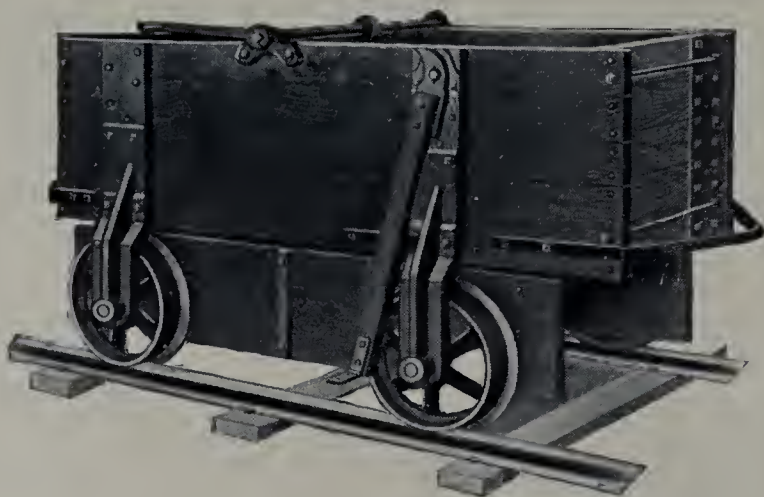
Mention THE CLAY-WORKER.



Drag Belt Clay Conveyor.



Sprocket Chain Clay Conveyors.



Bottom Dump Clay Car.

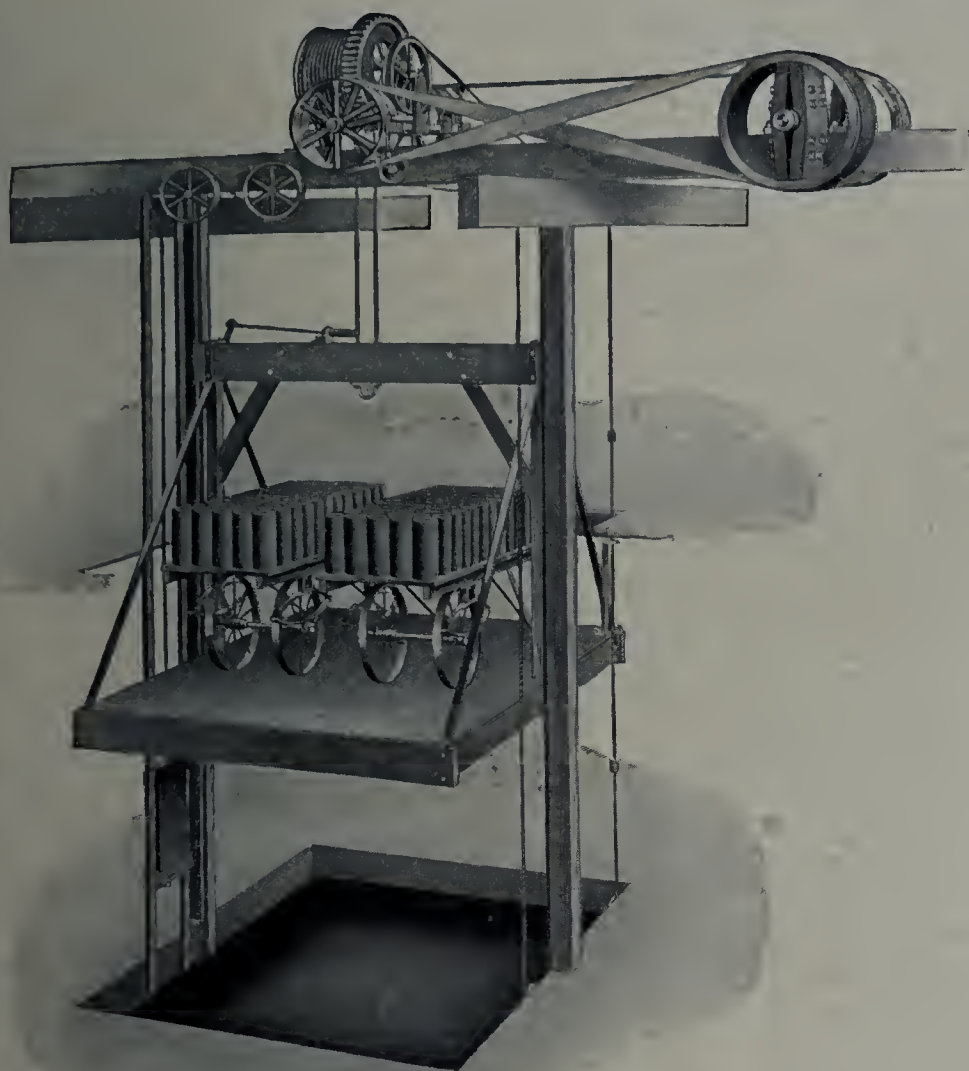


Side Dump Clay Car.

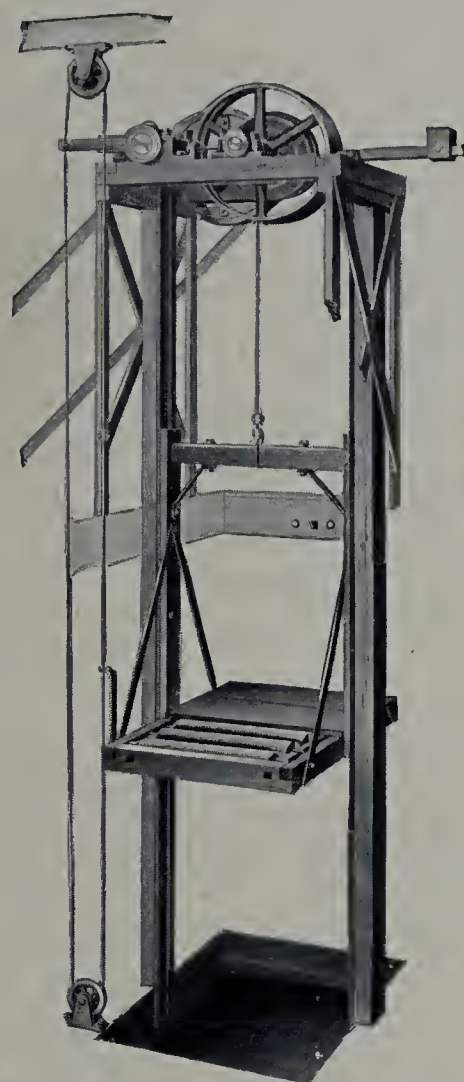
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.
THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

Mention THE CLAY-WORKER.



Platform Elevator.



Friction Drive Elevator.

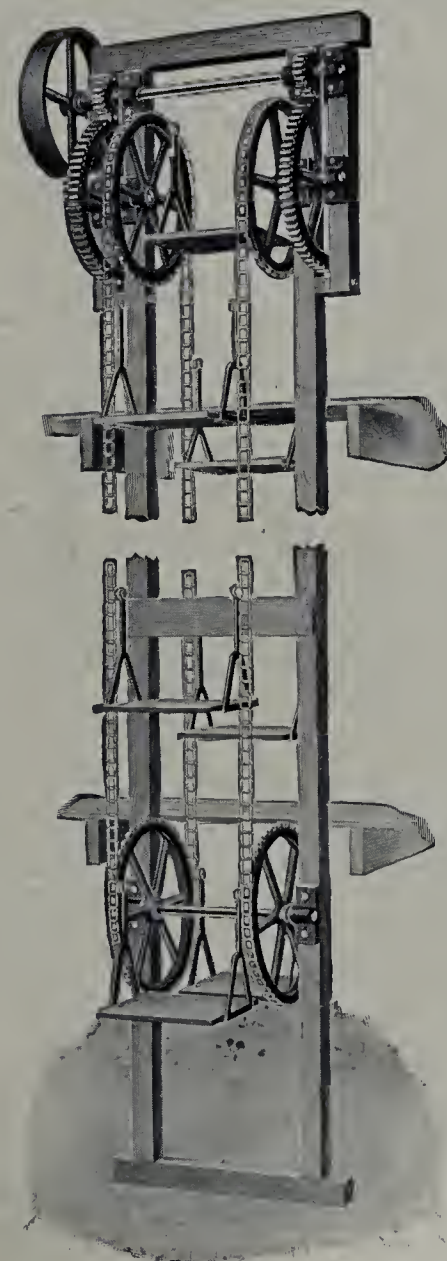
The J. D. Fate Co.

Plymouth,
Richland Co., Ohio.

A. E. Davidson, Eastern Representative,
Room 6060, No. 1 Madison Ave., New York
THE MANUFACTURERS EQUIPMENT CO.,
Dayton, Ohio, Sales Agents.



Gravity Elevator.



Small Tile Elevator.

THIS IS ONE OF A THOUSAND

F. H. ADAMS, PRESIDENT

F. W. WOOD, VICE PRESIDENT

C. A. PRITCHARD, GEN. MGR.

ADAMS BRICK CO.

MANUFACTURERS

RED BUILDING, COLONIAL, MISSION, PLAIN GLAZED, COMMON BUILDING
AND SEWER BRICK

CAPACITY 100,000 PER DAY

WORKS AT MARTINSVILLE AND VEEDERSBURG, IND.
OFFICE ROOMS 303 304 230 E. CHIO ST.

PHONES NEW 103
OLD MAIN 548

Indianapolis, Ind. Feb. 18, 1911.

We Guarantee
the Results
Will be
The Same
For You.

Dunlap Mfg. Co.,
Bloomington Ills.
Gentlemen:

We are in receipt of your favor of the 15th and are
pleased to state that your screen which we installed last spring
is doing excellent work for us. The positive nature of its screen-
ing, eliminating entirely all of the coarser particles of shale,
gives our product a much more uniform texture without grinding
to an extreme fineness, and, while we were assured of its work
and increased capacity in wet mud, we must admit that the results
have surprised us and we run right along in wet shale, the
screen putting it through all right.

Positive
Satisfactory
Screening
Is Our
Business.

Yours very truly,

ADAMS BRICK CO.

By

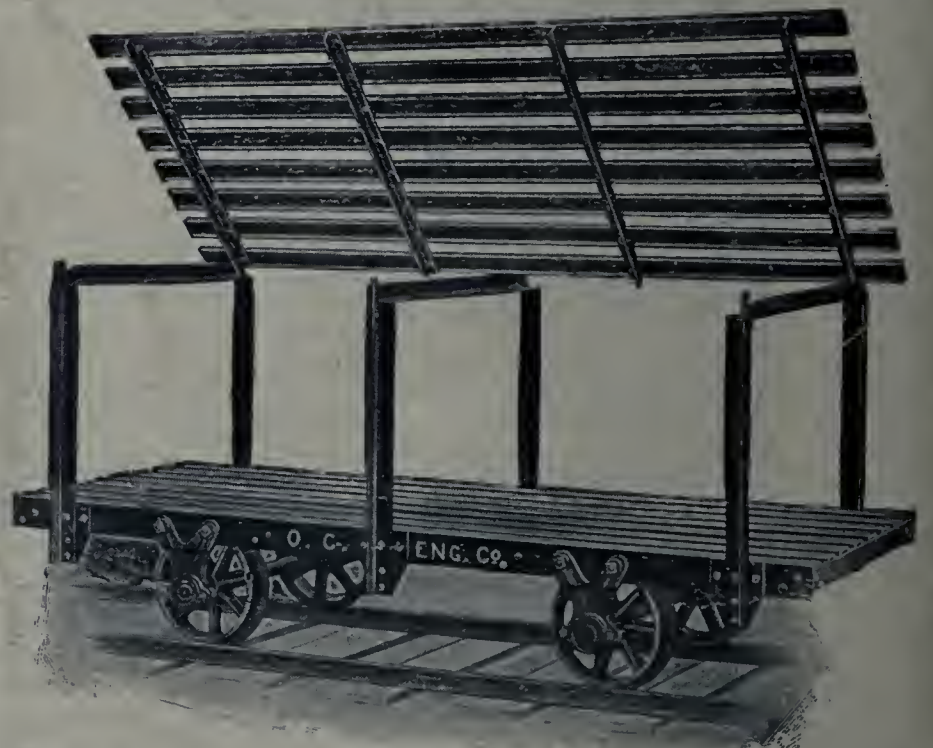
F. W. Wood

DUNLAP MFG. CO., Bloomington, Ill.

THE PEERLESS LAKEWOOD LINE



- "Lakewood" Soft Mud Rack Cars.
- "Lakewood" Single Deck Dryer Cars.
- "Lakewood" Double Deck Dryer Cars.
- "Lakewood" Three Deck Dryer Cars.
- "Lakewood" Flat Cars.
- "Lakewood" Turntables.
- "Lakewood" Transfers.
- "Lakewood" Portable Track.
- "Lakewood" Dump Buckets.
- "Lakewood" Clay Cars.
- "Lakewood" Kiln Bands.
- "Lakewood" Richardson Represses.
- "Lakewood" Miniature Reprer for Models.



Ohio Ceramic Engineering Co.
CLEVELAND, OHIO

Branch Office: 1015 First National Bank Bldg., Chicago.

No. 167 DOUBLE DECK CAR.



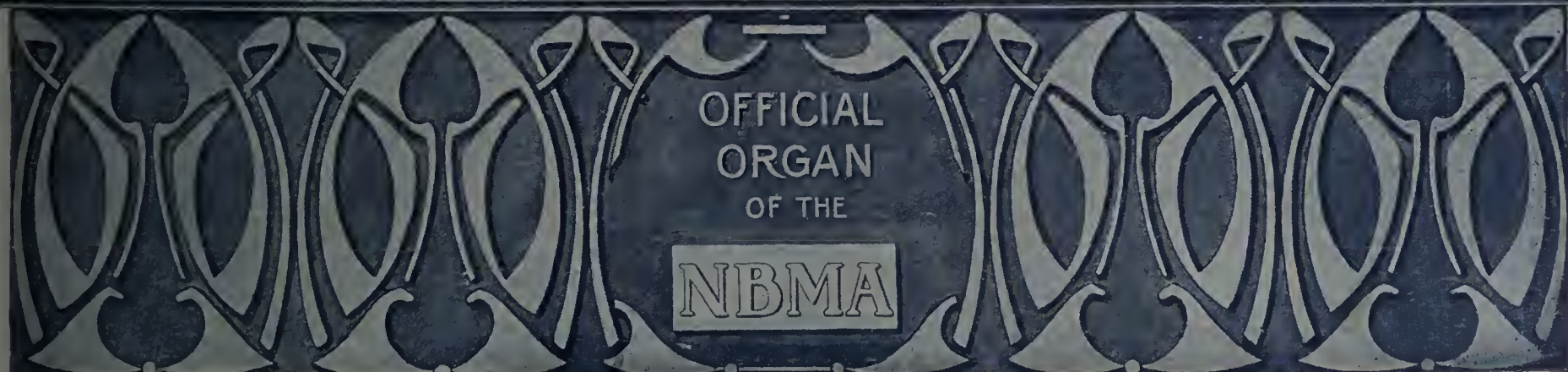
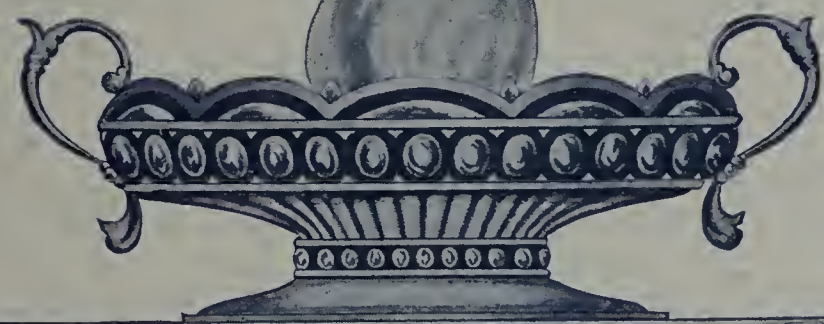
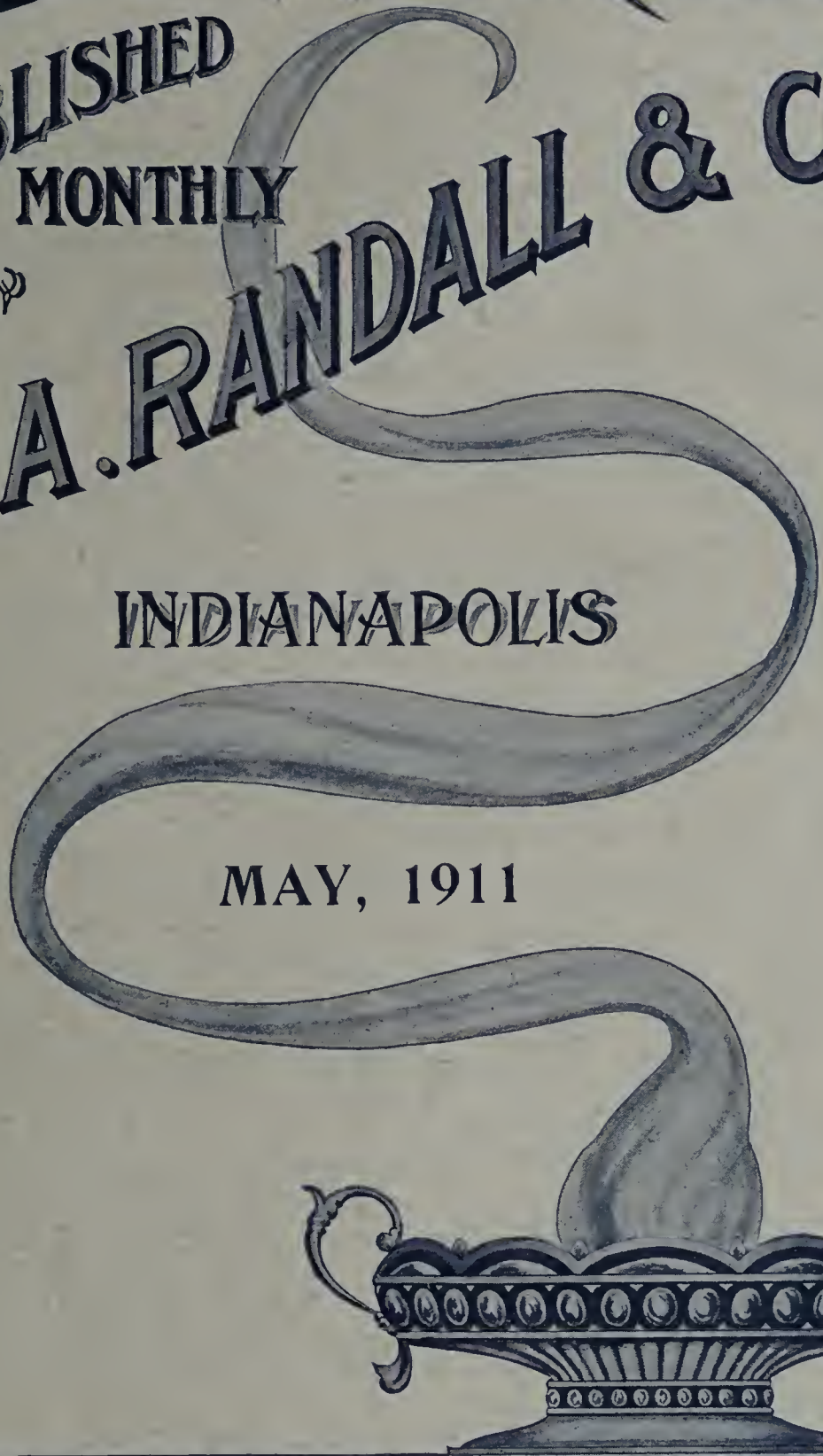
THE CLAY-WORKER

PUBLISHED
MONTHLY
BY

T. A. RANDALL & CO.

INDIANAPOLIS

MAY, 1911



OFFICIAL
ORGAN
OF THE

NBMA

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Subscription, Yearly, \$2.00
Single Copy, 25c

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Are You Trying to Dry Brick Economically With Sluggish Steam Lines?



"Detroit" Return Steam Traps

drain every drop of condensation from steam coils and return it to boilers without pumping. Condensation ought to reach the boilers at practically the same temperature at which it is condensed.

You can do it with a "Detroit" Return Trap. You can't do it with a pump.

Install an Electric Lighting Plant of Your Own.

"ABC" Vertical Enclosed Self-Oiling Steam Engines

Actually have paid for themselves in one year in savings of oil and fuel.

Being enclosed can be placed most anywhere without liability of injury from dust and dirt.

Engine Book No. 288 C explains why "ABC" Engines are the logical power plant auxiliary.



AMERICAN BLOWER COMPANY
DETROIT, MICH.
U. S. A.

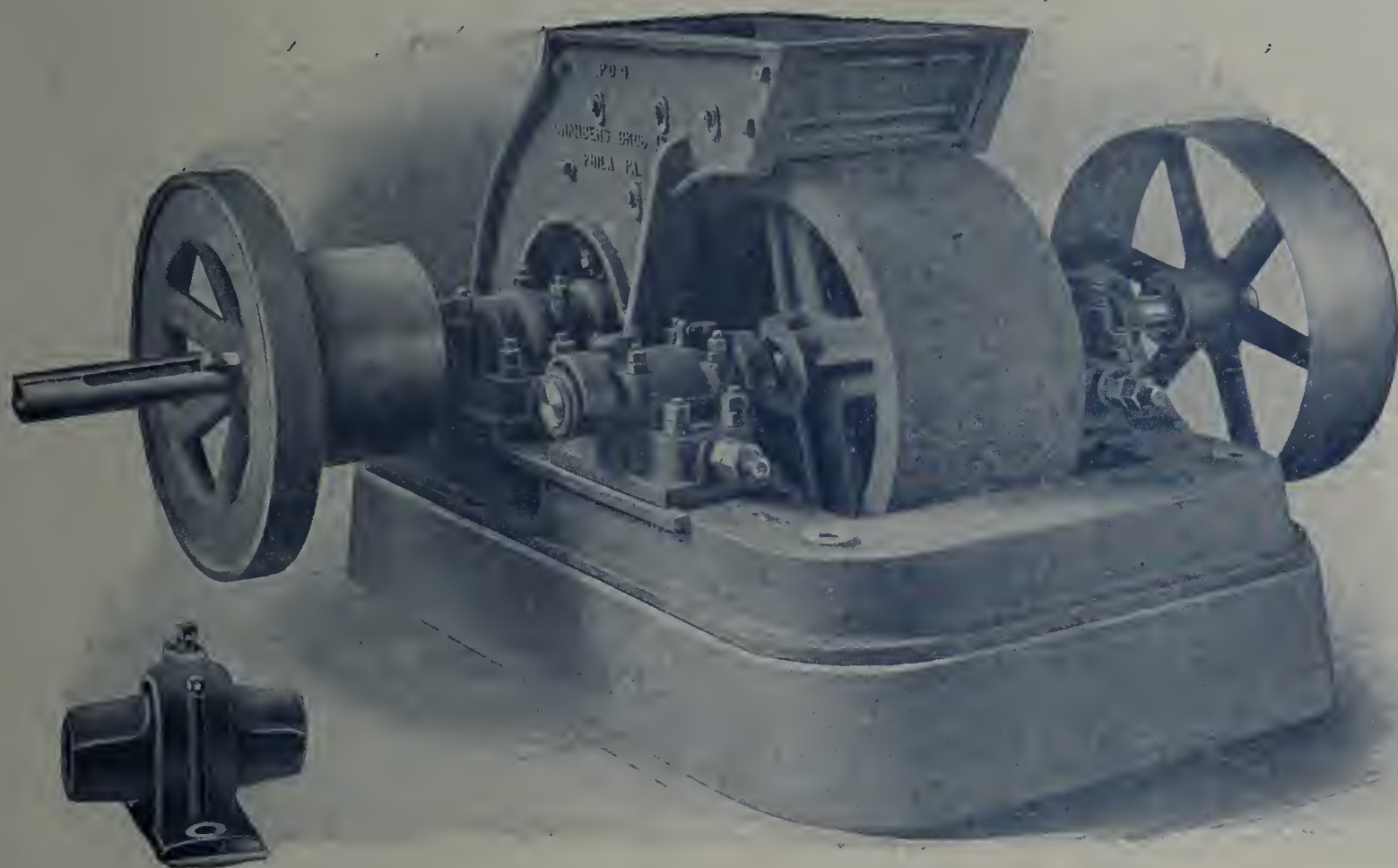
New York, 141 Broadway
Philadelphia, Hale Building
Chicago, Marquette Building

Pittsburg, Empire Building
San Francisco, Monadnock Building
Seattle, Arcade Annex

St. Louis, Title Guaranty Building
Atlanta, Empire Building
Minneapolis, Plymouth Building

ONE OF OUR SPECIALTIES

Clay Disintegrators or Grinders



The Chambers No. 2 Special Clay Disintegrator.

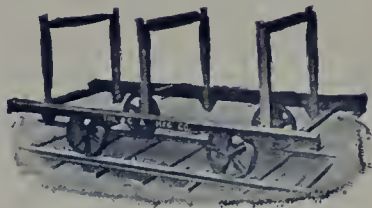
For all around work on surface dug plastic clays used either for stiff tempered or soft molded brick-making, this machine has an enviable record. Receives clay in either dry or moist condition, throws out the larger stones and crushes the smaller ones. A very reasonable attention to maintenance keeps our Disintegrators in condition for good work and insures continued satisfaction. One brickmaker claims to have put clay for 27 millions of brick through one of our No. 2 Special Disintegrators without any repairs! This is an unusual record. Conditions must have been exceptionally favorable. The next customer may have a mixture of flint rock and gummed sand that would cause him to divide that record by ten at least, but the No. 2 Special grunts a little and then goes on. We don't sell many stiff mud brick machines to the New England Brick Manufacturers but we sell them our Disintegrators.

We build several sizes and have one machine designed for the man who feeds horse shoes and steel wedges along with other things sent up by the steam shoveler.

Chambers Brothers Company

Brickmaking Machinery

Philadelphia, Pa., and Chicago, Ill.



RAIL,
SWITCHES,
FROGS.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

TURNTABLES,
WHEELS,
AXLES.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Taplin-Rice-Clerkin-Co.

The Machinery Folks of Akron, Ohio, U. S. A.

STOP

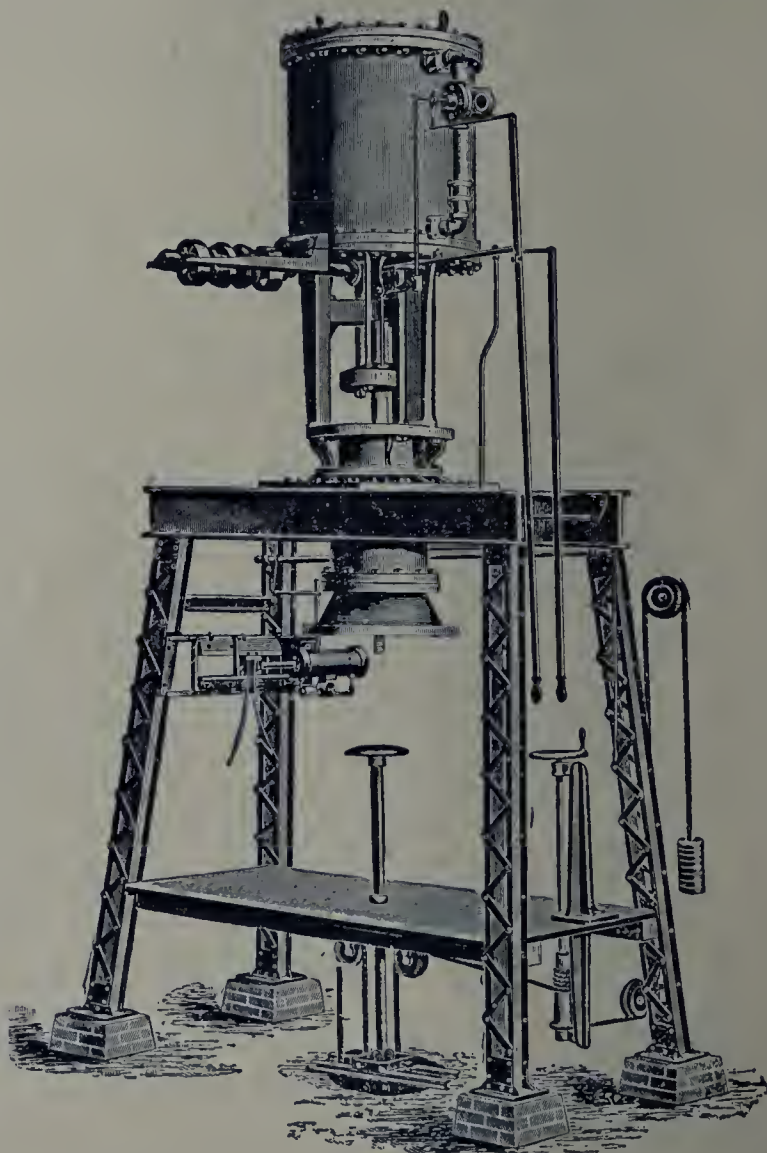
at Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny, Renton Co., Seattle, Wash.
The Gladding-McBean Co., San Francisco, Cal.
The Pacific Clay Products Co., Los Angeles, Cal.
W. S. Dickey Clay Mfg. Co., Kansas City, Mo.
Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.
at San Antonio Sewer Pipe Co., San Antonio, Tex.

LOOK

Henry Stevens Sons & Co., Macon, Ga.
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Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Ulrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.

LISTEN

to British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 27.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

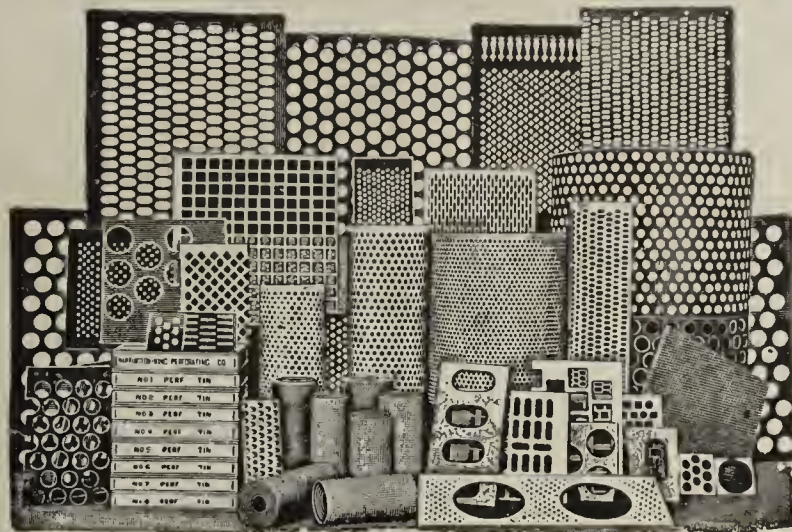
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



"The Measure of a Man's Success is the Measure of His Effort."

Our constant efforts have been crowned with success, as proven by the Rodgers Dryer.

It is the apex of Waste Heat Drying Achievement.

We dry SATISFACTORILY most of the brick of Western manufacture.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

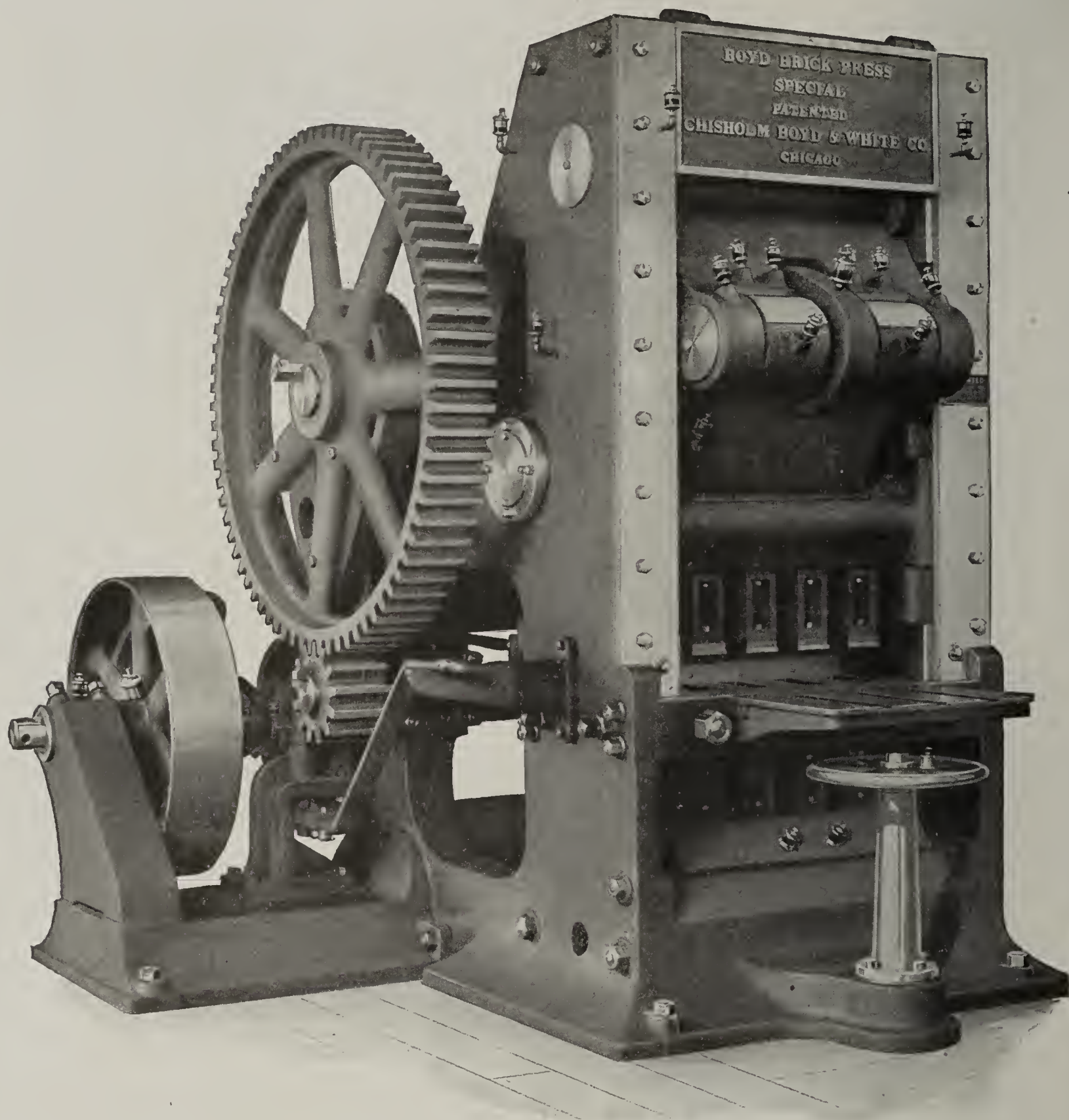
Largest Manufacturers of Brick Drying Equipment in the United States.

30 North La Salle St.

CHICAGO.



The Boyd Brick Press



OUR NEW FOUR-MOLD "SPECIAL" HEAVY DUTY BOYD PRESS.

Our BALANCED-PRESSURE improvement automatically equalizes the pressure on the brick through from TOP to BOTTOM, producing brick of uniform density throughout and FREE from granulated surfaces or soft centers and with good, hard corners and edges. Full particulars upon request.

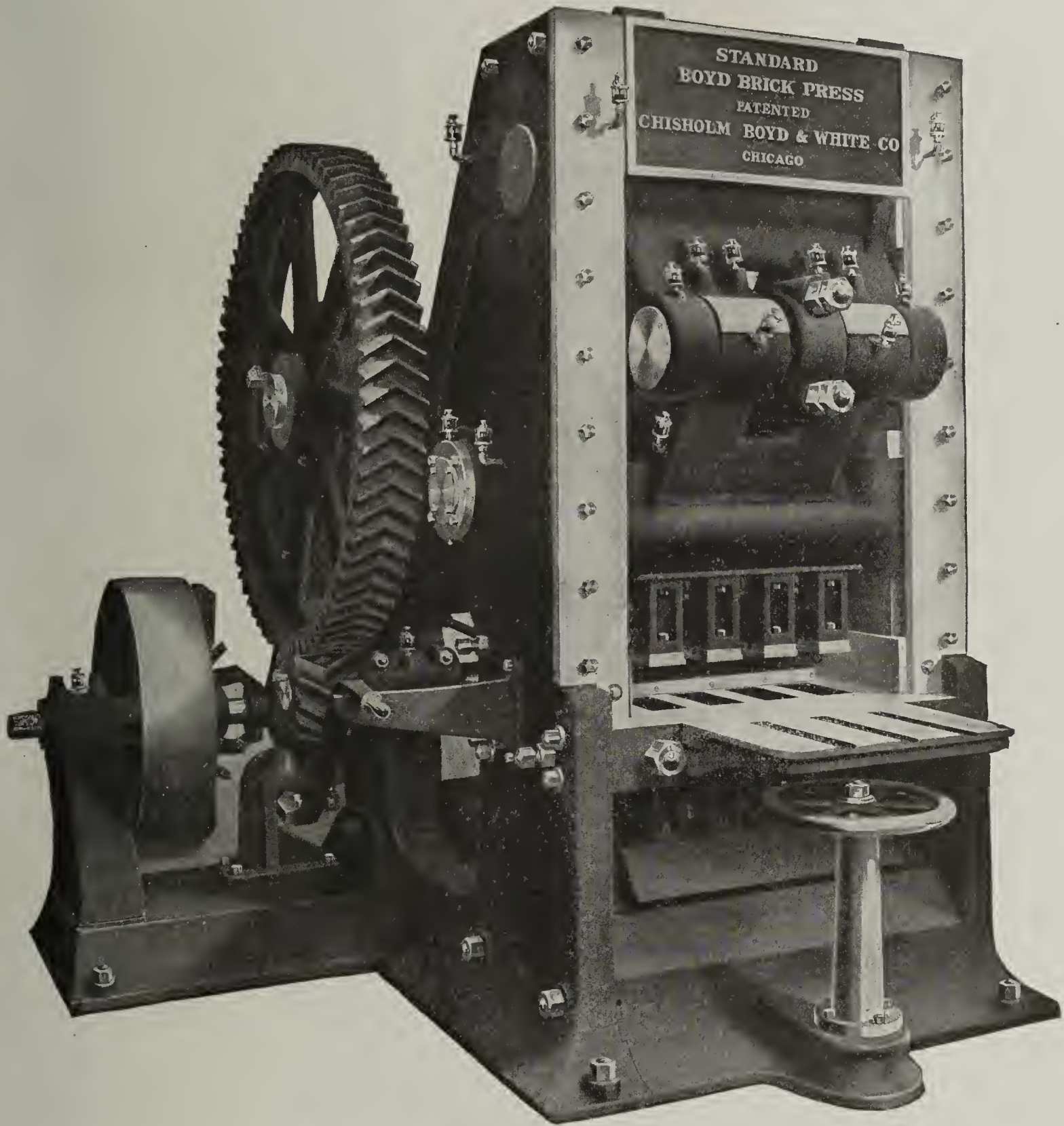
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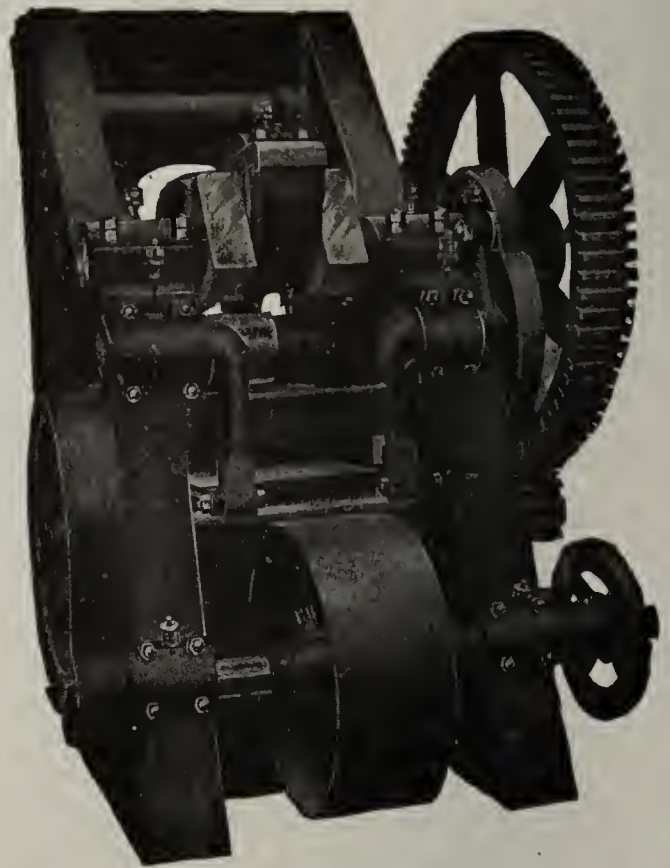
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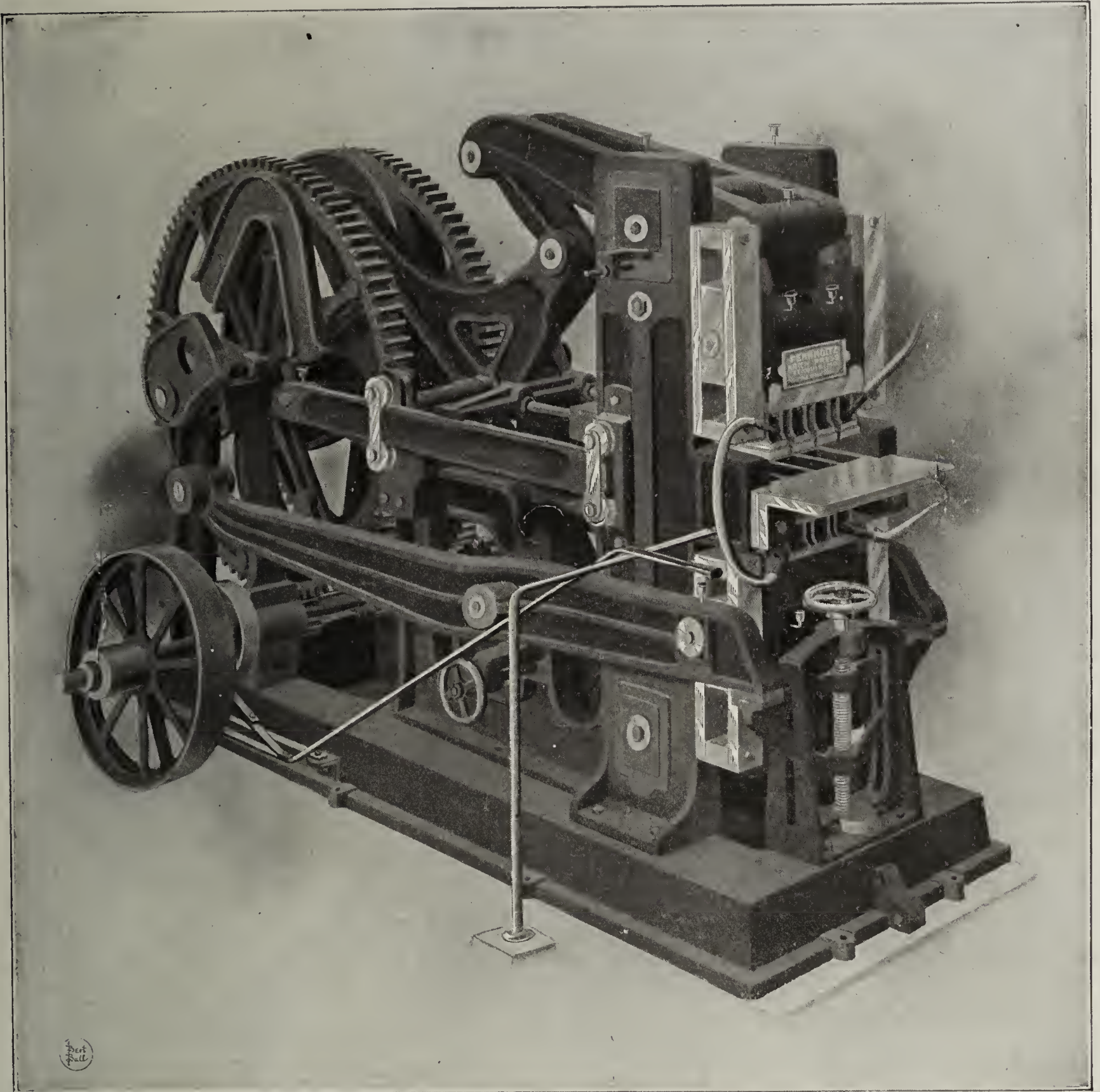
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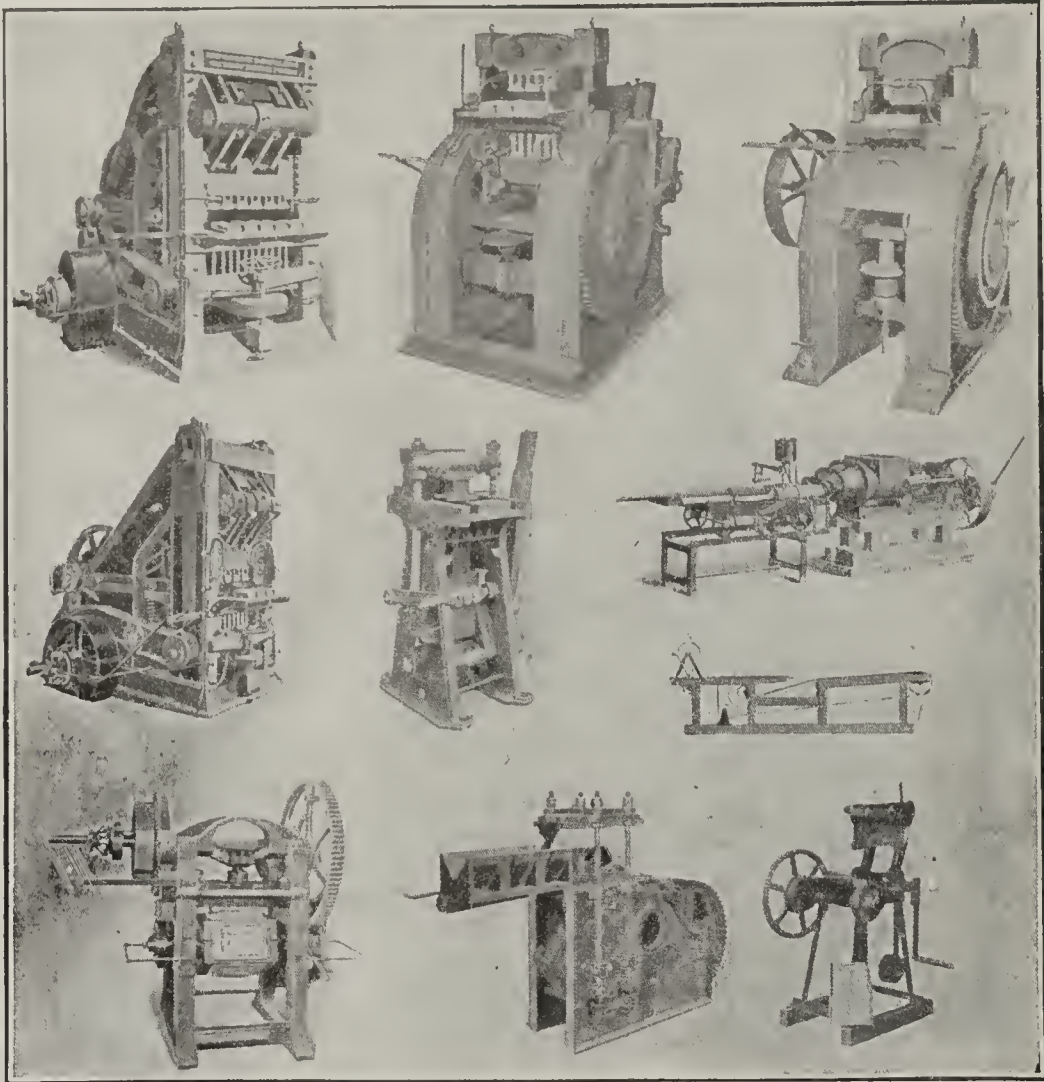
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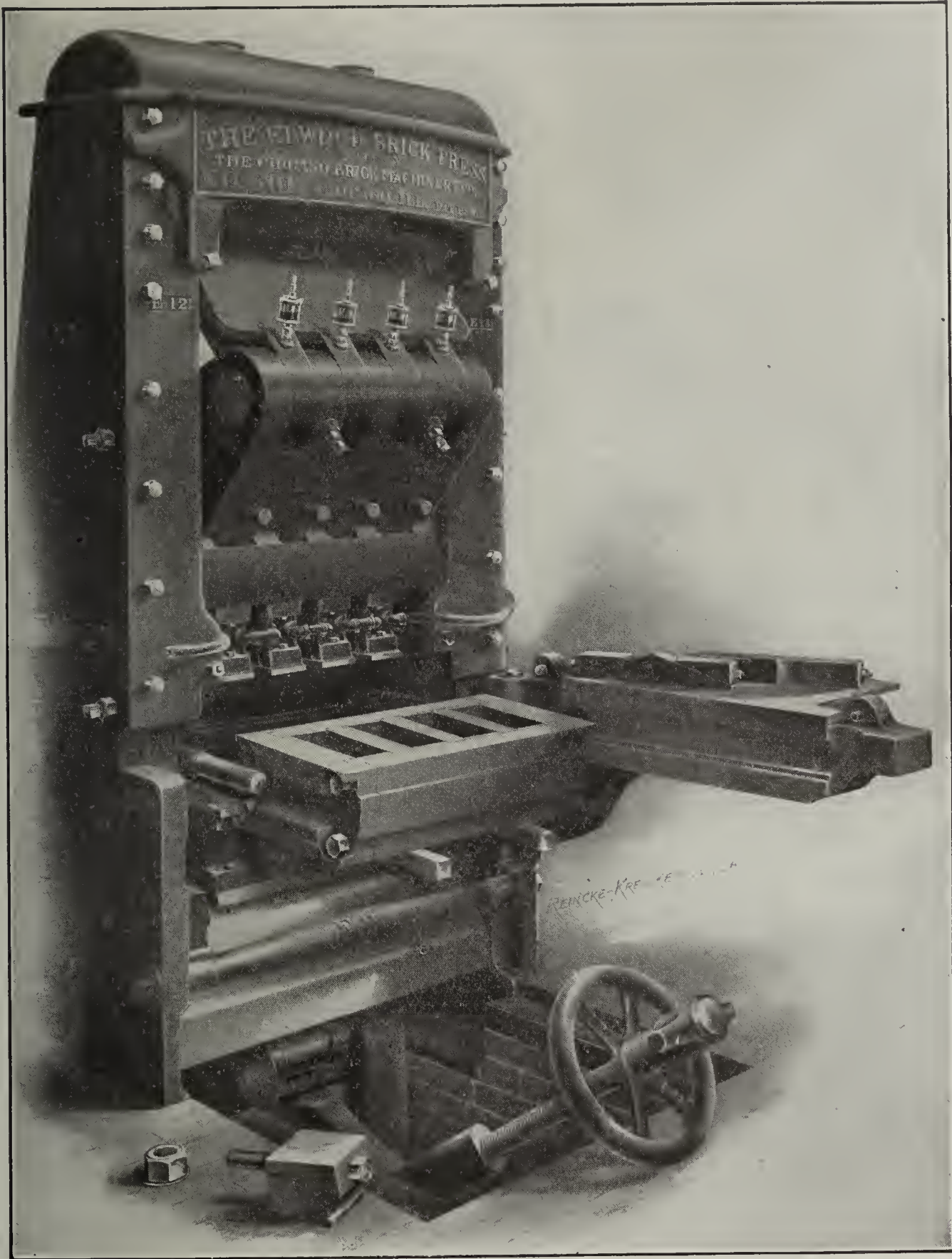
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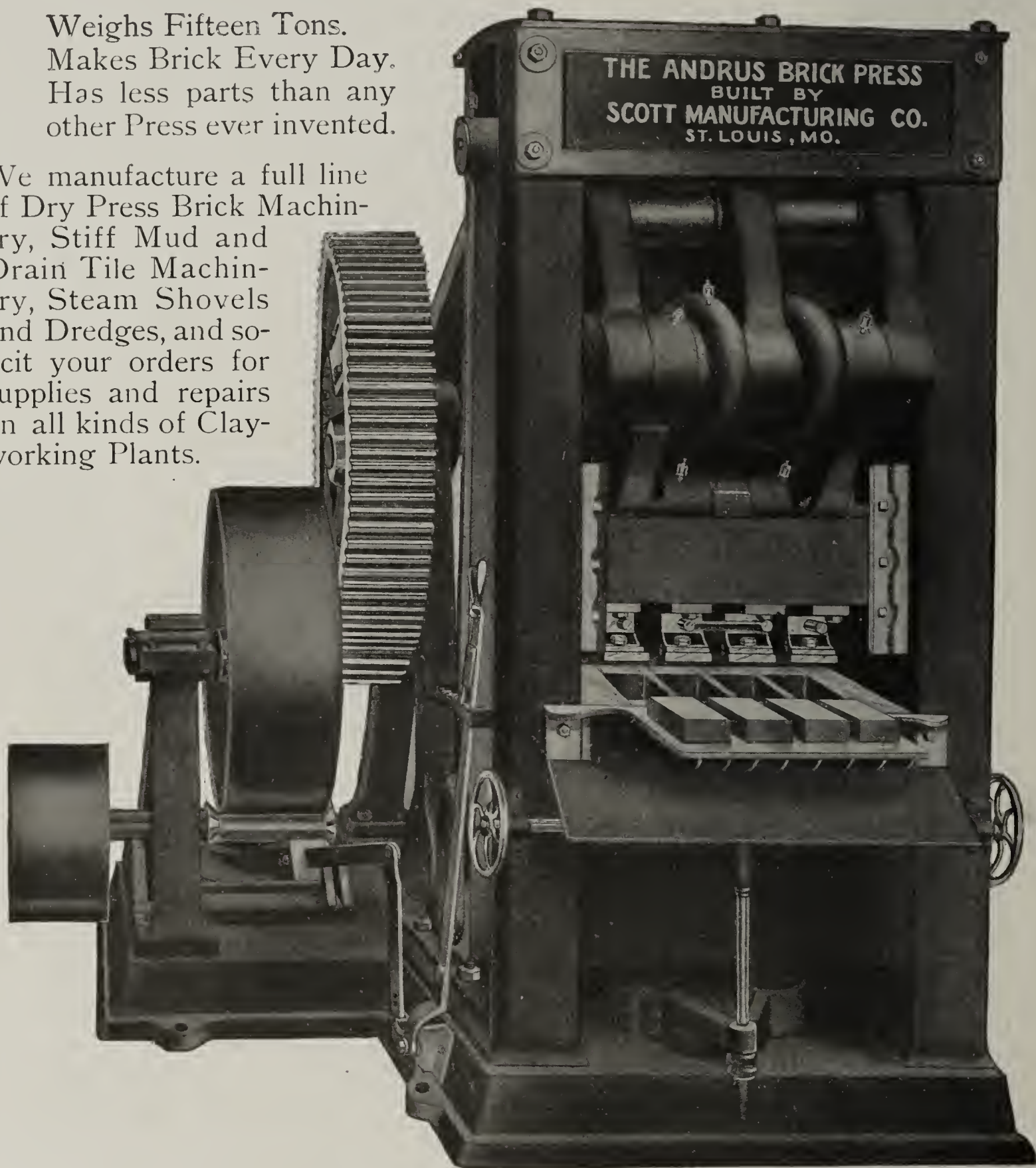
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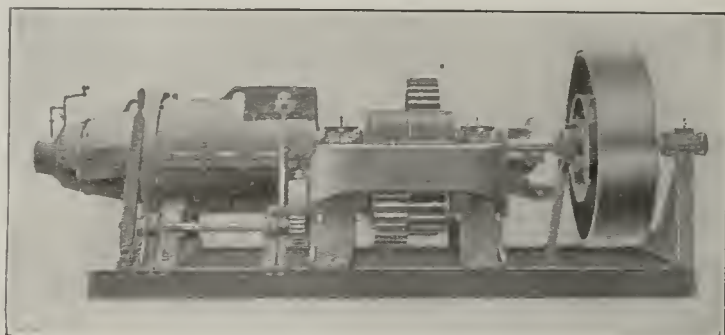
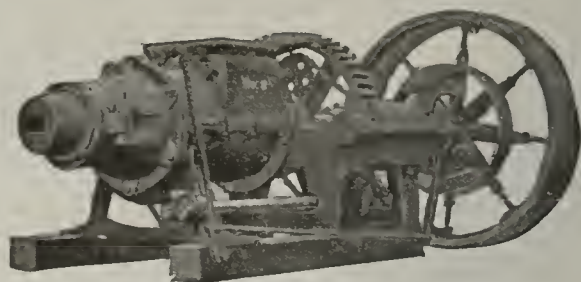
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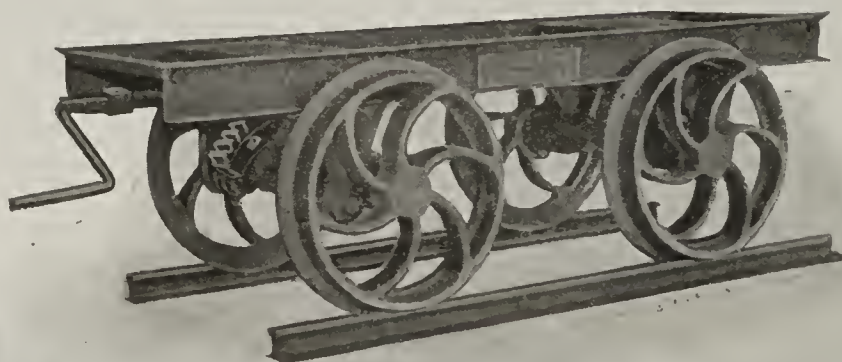
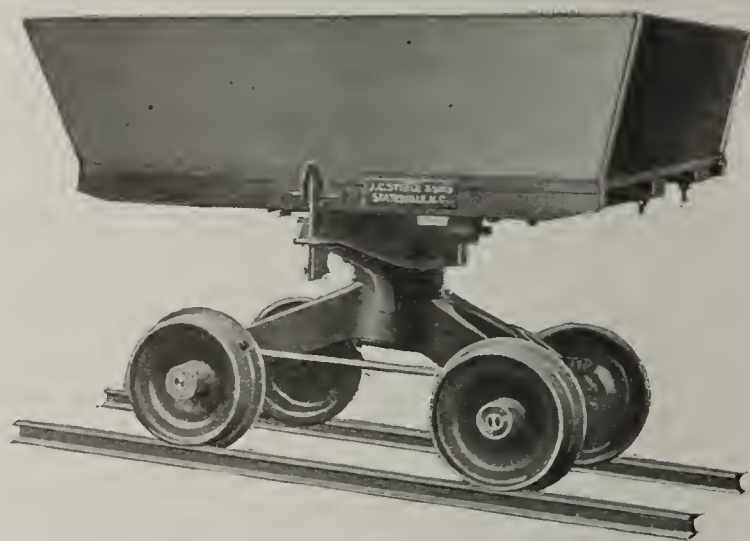
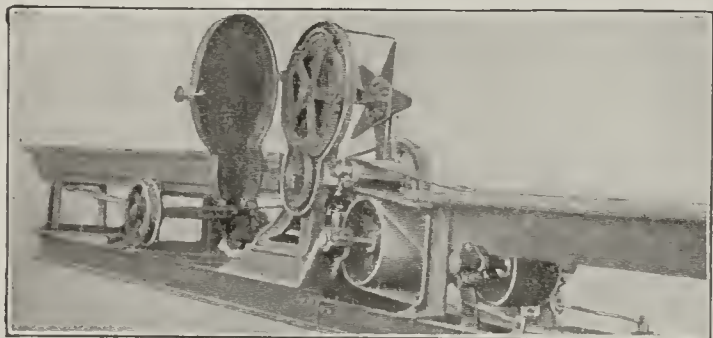
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First cost is important, but *results* and *cost-per-year* are the
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The deeper you dig into *facts*, the more closely you *compare*
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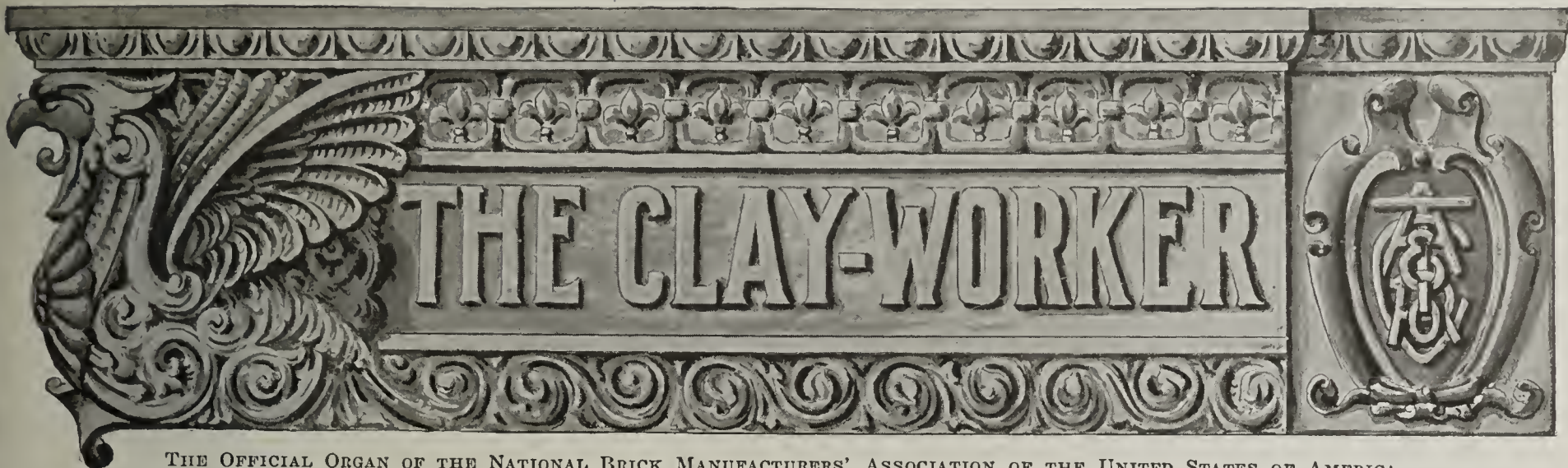
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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LV.

INDIANAPOLIS, IND., MAY, 1911.

No. 5.

Written for THE CLAY-WORKER.

THE IMPORTANCE OF ARTISTIC BRICK CHIMNEYS

Attractive Brick Well Laid Results in Beautiful Architectural Effects.

CHIMNEYS ARE seldom given the credit due them as architectural adornments on the average residence.

Did you ever see a rather commonplace brick house which had a certain charm about it which you were unable to define? Did you every study the problem deeply and finally come to the conclusion that it was the brick chimney which set off the building and made it seem impressive where it would otherwise have appeared very commonplace?

A brick chimney on many a house is the same as a condiment on a choice cut of roast meat; the flavoring in the pudding, the coloring in the flower, the warm tint in the sunset, add to these things the same indefinable charm that the artistically constructed brick chimney does to a home.

Does it not seem wise, therefore, that attention should be given to the architectural possibilities of the chimney. Instead of planting chimneys on the inside of the house as in former years, architects are now using them extensively as ornaments and decorative features. One of the most im-

pressive architectural schemes the writer ever saw was an English home, built of brick, with a huge chimney placed right on the front wall of the house. The main doorway or entrance was built right, through the chimney, which split in two like a big fork to receive it. It was a picture which one could not fail to remember.

No other material shows up so well in chimneys as brick. This has been demonstrated again and again. Architects themselves realize this fact by incorporating outside chimneys into most of their better residences. Some of the chimneys have fireplaces on the lower porch. Above the porch roof they are given a graceful form, tapering in the air for the necessary height and then capped with a pretty design.

It often relieves an otherwise ordinary looking dwelling to put a chimney in an appropriate spot in a wall. The possibilities for decorative purposes of the chimney are almost unlimited, but are coming to be better understood each year.

Chimneys should always be built with burned clay flue linings, for no matter how solid they are a settlement is likely to take place, particularly

if the masonry is heavy. The bricks will draw apart under this settlement and occasionally permit sparks to get through to woodwork, leaving an opening for a dangerous fire if not discovered and checked in time. Joist should not be built



An Unusually Odd Brick Chimney.

with a bearing surface on a chimney for the same reason. If the chimney settles the floors may be thrown out of plumb. The joist should be braced quite independently of a chimney, so that if a settlement does take place on a heavy piece of masonry there will be no disastrous effects to the house itself.

In building a chimney there should be a separate flue for every furnace, stove or fireplace which is to be provided for. If two or more of these enter upon one flue it will have its drawing qualities seriously affected, and it may be found impossible to use two of them at the same time. In cold, wintry weather this will be found to be a serious drawback, for it is then that the full capacity of the chimney will be most needed.

Care will have to be taken in placing the chimney to see

*A MODEL BRICK DWELLING FOR STATE FAIRS.

By S. WEIDMAN, MADISON, WIS.

THE NEED of greater publicity for the brick industry is a well-established fact. Various organizations have recently been formed for publicity work, and considerable effort and money have been expended. The serious object of all these aggressive campaigns of publicity is to persuade the public that brick offers advantages in relative cost, permanency and artistic taste over wood, cement or other building material.

These campaigns of publicity are generally carried on by means of advertising and by special articles in magazines and



Two Brick Chimneys, Furnishing a Fine Decorative Effect.

that sufficient wall space is left for the rooms inside as well as to make sure that the harmony of the exterior is not disturbed in any way. Windows flanking a chimney give a very pretty effect, especially if they are built rather high, for under them can be constructed seats or built-in cases for books or china. The chimney should be made an integral part of the plan and should be worked right into the heart of the subject and not plastered in a thin layer on the outside, for if it is its beauty and strength will not impress itself upon the eye, and the effect which is sought will not be obtained.

In planning a house it is well to give greater consideration to the style and location of the chimney and to see that it is built of brick, for no other material is so easily adapted to this important purpose.

in pamphlets. The publication and distribution of plans of houses is used with very good results.

Your attention is called at this time to another method of educating the public as to the value and importance of brick and other clay products as a building material. This method involves the erection of a model display house at our state fairs.

The great value of an exhibit of any sort lies in the fact that it is a real example and not a representation or mere description. A model brick dwelling exhibited on the State Fair Grounds will be a live illustration of what can be accom-

*Read before the Eleventh Annual Convention of Wisconsin Clayworkers' Association.

plished by the use of brick and other clay products in the construction of a home building.

This model dwelling should cost a reasonable amount, say, \$2,500 to \$4,000, so that it would serve as an example, the construction of which would come within the means of the average or better class of farmers or city dwellers. The dwelling could be made of clay product throughout, or mainly of clay product. The architecture, of course, should be of the most approved plan and the dwelling a model in all respects.

In order that a definite plan may be presented, I will assume that the dwelling be made of clay product throughout and that the cost be \$4,000.

For such a dwelling vitrified brick could be used for the foundation, hollow brick for inner surface of walls (for air

A neat little pamphlet of six or eight pages could be printed with a few illustrations describing the construction and material of the dwelling. The dwelling would be advertised not only as a 'house of brick,' but as a model in architecture and as a model in fireproof construction.

The educational value of a model brick dwelling from the viewpoint of the State Fair Board lies in the fact that the dwelling would be an example of good home building with respect to general appearance, architecture and fireproof construction, and only of incidental value as a representation of a building of such a material as brick.

The pamphlet should contain much other information which would tend to exploit clay products as a building material; the names and location of all the brick and tile firms,



A Brick Chimney Which is an Integral Part of This Splendid Brick Residence.

space purposes), inner walls could be lined with a light-colored or possibly an enameled brick, the exterior walls of whatever brick is suitable so far as the color scheme is concerned; the sills, caps, cornice and coping could be of brick or ornamented terra cotta, if at all practical. The floors, arches and ceilings could be made of hollow tile; the floors of tile; the roof of roofing tile: in fact, the entire structure could practically be made of clay products. The kitchen could be furnished with porcelain sink, and the bath room accessories and all sanitary ware also be made of porcelain.

This model dwelling would contain six to eight rooms, and would include a kitchen, dining room, a main living room, with possibly a small bedroom or hall on the first floor and three or four bedrooms on the second floor.

both manufacturers and dealers, in Wisconsin, or of the members of this Association, and the kind and color of the brick of each firm indicated. The plans of brick dwellings such as those furnished by the Building Brick Association should be exploited. Other appropriate information relating to clay products should be set forth in an attractive form, as the opportunity offers.

I need only state that the proper exploiting and advertising of the model dwelling and clay products in general is a very important matter, and should be as carefully planned and executed as that of the construction of the model brick dwelling itself.

The model dwelling should, of course, be opened to visitors and a complete inspection of all parts of the house should be

invited. In fact, the inspection of the dwelling should be a most important and attractive feature of the entire undertaking. On this account, therefore, the building should be completely furnished, or at least practically so. All the house accessories and furnishings should be provided. The porcelain ware in the kitchen, in the bathroom and lavatory, should be attractive features, and the mantel of brickwork in the living room should not be overlooked.

Now there are various details that might be discussed in regard to the plan of the model brick dwelling, its educational value on the general public and the opportunity which it would offer to exploit clay products as a building material. I have merely desired to give you general ideas of the plan and the details can be worked out with greater care at a later time.

Speaking of brick exhibits and brick structures and related advertising as an important means of educating the public, a recent writer has this to say: "This method of publicity has proven successful from time immemorial, while its modifications and plans have been many and varied, the result has been the same, and, after all, it is but an exemplification of the biblical injunction not to hide your light under a bushel. That the brickmakers have plenty of merit in their products is conceded; that consumers are not buying goods "on sight unseen" needs no argument; but burnt clay products need exploiting; they need the modern, up-to-date, hustling methods of successful business; they need push, energy and enthusiasm, and the keynote to the whole situation is found in that one word—enthusiasm. Enthusiasm not only enhances the value of your business, but you build a permanent and lasting institution, you gain the respect of your fellow men and disarm competition, for the enthusiast imparts enthusiasm, and one cannot enter his atmosphere without partaking of it."

The erection of a model brick dwelling and other brick structures at the State Fair is one important means of advertising brick. The use of printer's ink in magazines, in pamphlets, and in the publication of building plans is another very important means of educating the public to the use of brick. Each of these methods has its limitations when used alone, but when combined the entire field of opportunity in the campaign of publicity can be brought into action.

In all kinds of industrial developments the general plan of making exhibits is becoming more and more important. The automobile shows, the exhibits of concrete, the agricultural and horse shows, the land shows, and the great national expositions are illustrations. The great development of extensive exhibits and expositions of all kinds is based upon very sound and the most approved principles of education.

While great expositions and exhibits of our industrial achievements have been made and are being made year after year, and while new inventions and new products are brought forth and exploited, the great art of home building, in which every man and woman at one time or another inevitably becomes interested, the art which in reality is more important to our individual and civic welfare than any other part or feature of our industrial development, has been left to neglect and decay. For is it not true that while we pride ourselves on our great industrial achievements, we have to confess that the art of home building in this country is at its lowest ebb?

A new era in American home building may, however, be soon at hand, if we have not already begun to enter upon it. In this new era the home building will be fully expressive of its useful purpose, fitting in its environment, wholesome in its art, and possessing a charm which will increase with age.

Can such a home be built of any material but brick? Since one likes to feel substantially sheltered, to know that his investment is secure from decay—why not a house of brick?

At our State Fair something like a quarter-million visitors are annually in attendance. If these visitors are there inter-

ested in seeing a model cow, a model pig or a model barn, would they not also be interested in seeing a model home dwelling, which is of greater real importance than all of these? It seems to me that we have here a rare opportunity of educating the public in the noblest, the most exalted art developed by the human race; a rare opportunity, I believe, to demonstrate the real importance of clay products in the art of home building, which this Association in its campaign for publicity and for the good will of the public cannot afford to lose.

Written for THE CLAY-WORKER.

THE VALUE OF A TRADE JOURNAL.

THE VALUE of a trade journal to the manufacturer or dealer is inestimable, but few appreciate it, and still fewer make proper use of it and fail to derive from it the value they should.

There are two classes of people who are interested in the journal—buyer and seller. The latter makes good use of it, since it is one of the many agencies he uses to reach interested people.

The journal is primarily published for the buyer, and he should get the most return from it, but usually gets the least simply because he does not make use of it.

A scientist remarked to the writer that he was satisfied if he could give his class a single idea or two, at most three, in the course of a single lecture.

Think of it! An authority whose every word is supposed to have weight, whose every sentence ought to be bristling with knowledge to be treasured up, talking an hour to develop one, two or three ideas.

We have heard people say of trade journals that there was nothing in them, but they should have added "for them," because they did not use the journal and made no effort to get the value from the ideas presented.

Such people think that a journal should be a compendium of knowledge, a sort of "million receipt book."

A single idea which will net the subscriber 1 cent per thousand bricks will give a return of 5,000 to 10,000 per cent. on the investment annually.

Just one idea will suffice to pay our subscription and take us to the N. B. M. A. convention next winter.

Let us start out with the intention of getting that idea. The journal is replete with ideas, and if we go after one we will get several, but we will never get the second one until we get the first.

One idea worth 1 cent a thousand. It looks easy, and it is easy, and once we get the habit it will grow on us. This is the central idea of this article, and it should be in capitals or italics.

There is not one factory in a hundred where such return is not possible in each department.

The increase of fifty to one hundred bricks in the output per day, betterment of the product, the digging of a few hundred more pounds of clay, the increasing of the life of machinery, belts, etc., and decreasing the cost of maintenance, the saving of a few lumps of coal, saving in oil, conservation of the waste products, keeping of records—the list is too long for enumeration—will bring returns many times over.

It is the little things that count for economy.

The change in the shape of a grate bar netted a saving of 3 cents per thousand; more accurate counting of the loaded cars saved several thousand bricks per year; a better type of tally-board cut off five or more seconds each trip of every man who used the board.

There are big things, too, all along the line from the clay-winning to the finished ware, but if the little things are being looked after the big ones are not being overlooked.

A manufacturer will visit other plants, spending a hundred

dollars or more on the trip, and from each plant he will glean an idea to put into use in his own plant, and considers the money well spent, but the trade journal, which makes a similar trip once a month, and a much broader and far-reaching one, is frequently but casually glanced over without results. It costs too little.

If one paid a hundred dollars for it instead of the nominal sum which it costs, better use would be made of it, and the investment would be more profitable.

It brings to us description of plants, of machinery, of equipment of every kind. dryers, furnaces, kilns, the methods of winning the clays, of manufacture, burning, storing, packing, the troubles of every kind that go to make the life of the clay-worker interesting.

Every detail of the business is discussed by men who have given such detail special attention, and the sum total of the information is many times greater than any single individual could get from the same number of trips.

Every article has a central idea, and the bulk of the article leads up to this idea and presents data in support of it.

The subscriber should go after this idea and get it. He may be able to put it into immediate use, or it may be filed for future use, but he should get it and put it where he can find it, otherwise he is not making good use of the opportunity presented to him.

The collection of such journals for a library is commendable, but that is not the proper use of them. If they are not read when they first come to our desks, they will never be read, except as we dig back into them, spending hours, perhaps, in search of some dimly recalled article.

He who would build up his library should have at least two copies—one for the library and one for use.

The professional man may abstract the articles and keep a cross-card index of them, but this does not appeal to the average manufacturer.

After reading the article thoroughly it should be cut out and filed. Every office has some method, simple or elaborate, of keeping track of its correspondence, and the same system can easily be applied to printed matter. As we go through the file in search of some article on setting, let us say, we catch the headings of other articles, and thus they are kept fresh in our minds. If a man who is experienced in any detail of the business should write you a long letter fully describing that detail, you would not only read and reread that letter and discuss it with your foremen, but you would carefully file it away and would refer to it many times.

The printed articles are just such letters, and they are more valuable than 90 per cent. of the correspondence which has been carefully preserved.

Not only should we so preserve the reading articles, but also should we make a collection of all the advertisements. We are always interested in the equipment required in our factories, and we should be able to quickly put our hands on any advertisement from the trade journal.

Advertisements are constantly changing.

A machine is presented today which we do not want, but six months hence we may have need of that very machine, and then will begin the "Where, When, In What, Whose" hunt with which we are all familiar.

Manufacturers of equipment cannot publish cuts and descriptions of every machine they make in every issue, and it may be months before the particular machine we are seeking will appear again. We should have it in our file. We may be contemplating changes in our equipment and wish the addresses of the manufacturers of such equipment, and it is a notable fact that just at the time we wish such addresses seems to be the time when those particular manufacturers have withdrawn their advertisement temporarily. But our file supplies our need, and we can find what we want in it quicker than we can find the classified index in the journal.

Our file is corrected and added to with every issue of the journal.

In this way we can get the good from the journals, and if we would keep track of the profits from the small investment it would greatly surprise us.

There is another good use of the trade journal that we often neglect, and that is putting it in the hands of our foremen. They will read them and make use of them.

How many times have they come to us asking if we had read a certain article in THE CLAY-WORKER on lamination, or drying, or setting, or burning, or some other detail of the work, "which comes pretty close to our trouble and may be worth trying," and we had to plead guilty.

We turned over a new leaf and started our file system, and now Mr. Foreman gets a jolt if he is caught napping, and, moreover, when any new difficulty comes up, we can go back over our file and learn what others have done to overcome the trouble.

CAREY P. ELLIS.

SPECIAL CUT PRICE SALE.

A special stock reducing sale of tile was held recently by one of the Illinois firms in which tile selling regularly at \$16.00 per thousand were sold for \$12.50, with corresponding reductions in other sizes.

Why was this? What does it indicate?

Shall we infer that the firm was hard up and had to resort to price-cutting to keep from going to the wall, or that there is really an overproduction in the manufacture of tile, or does it mean that prices of tile are too high and one manufacturer at least is being troubled by his conscience for taking too large a profit?

Experience has taught that price-cutting will not materially increase the amount of tile used. Farmers are accustomed to fluctuating markets and their mental habit is to delay buying when prices begin to fall, expecting a still greater decline.

Prices are fixed by the manufacturers when selling and not by the buyers. Sales are made at prices quoted by some manufacturer. These prices are not always fixed by the maker of tile in the locality where the sale is to be made, but often by a larger factory at a distance.

This factory probably has a capacity far beyond the local demand and in order to get into remote markets quotes prices the same or lower than those in use by the local manufacturers.

We cite one instance where tile are shipped 300 miles and sold at prices to meet those where sold. In this case the freight amounts to almost 40 per cent. of the selling price.

That is, the distant manufacturer cuts prices 40 per cent. to get into another's territory. It is an open question whether such sales are worth making.

Price-cutting is an acknowledgment that tile can be sold at a lower price and all careful buyers watch for low prices.

The old cry of "Quick sales and small profits" does not apply to tile selling. That only works when the seller can turn around and restock his store and be ready for the next customer. Tile factories have only a limited annual capacity, and the money realized from the sale of that amount is all the manufacturer can take in during the year. It is just the same as a farmer's income from his farm. He can only raise one crop from his land and only one calf and colt from each of his breeders. Quick sales and small profits is not a good business policy for him, neither is it for the tile factory.

Cutting prices can only take a customer from a competing factory and compel the competitor to meet the price by cutting his prices, and the result is lower prices all around.

The remedy for overproduction is not to be found in "Sheeney" methods of special sales for money-raising or stock-reducing, but in enlarging the demand or shutting down. There is capital enough in the country to build tile factories enough to manufacture tile in sufficient quantities to heavily overstock the market, and maybe that has been done in some

localities. There is a limit to all things. Simply because a factory is being conducted with a fair profit to the owners is no reason for capitalists building another and another and another in competition with the first until they are compelled to resort to special stock-reducing, price-cutting sales to obtain the cash necessary to operate the plant. Such sales may keep the plant going for a time, but it will not long pay dividends to the stockholders.

HISTORY IN OLD POTTERY.

One interesting feature of pottery making is illustrated in some of the beaver-shaped pots found in the Mississippi valley. The beaver-shaped pots do not differ particularly from vessels representing other quadrupeds except for three or four conventional signs. For instance, the four incisors and the flat tail, together with the representation of a stick for the beaver to gnaw, indicate this animal on a pot from south-

Written for THE CLAY-WORKER.

A CLEAN CITY—MACON MADE ATTRACTIVE BY BRICK PAVED STREETS.



CIVIC PRIDE and ambition is exemplified in many ways in Georgia's central city—Macon. The stranger within her gates is at first glance impressed with this fact, and as he looks about and sees the unmistakable evidences of thrift and good living manifest on every hand, the impression deepens into conviction that Macon is a clean city. It is a trite saying that "Cleanliness is next to Godliness," and Macon lives up to this idea, too, for evidently her cleanliness is not alone physical. It is plain to be seen that her municipal affairs are well ordered and her citizens are prosperous and happy.



One of the Fine Brick Pavements of Macon, Ga. First Street, Looking Towards City Hall.

ern Illinois. Efface these three conventional features and the pot might represent a bear or a wolf.

The human head is sometimes represented, and in Peru we find pots of this sort so well executed that they are truly portrait jars. Often the whole human form is modeled, and sometimes it is represented with its headdress and ornaments. People are represented engaged in various activities. From such pottery the archaeologist may study the personal adornment and costumes of a people long extinct. We know, from the representations in pottery of men with these objects, that in ancient Peru shells were used as symbols, that horns were blown and pan pipes played upon. In Mexico have been found pottery figures representing people beating turtle shells. One may learn of some animals and plants that were known in a region at the period when certain pottery was made. The paintings on some of the Mexican pottery give an idea of the ritualistic life of the people, and the costumes and paraphernalia of the shamans or priests.

Macon's broad, clean, brick-paved streets is only one of several manifestations of progressiveness. The city is clean morally, which some say is due in part to the fact that she is a dry city, and be it said in this connection that dryness is not a bar to growth. The "irrigation" which the dispensers of liquor sometimes insist is indispensable to business is not really an essential element in a live, prosperous community. Anyhow, Macon is dry and she is prosperous. Her commercial interests are great and varied. Her business men are public-spirited, and have formed a local association in connection with the Chamber of Commerce, of which an expert publicist, Mr. E. H. Hyman, is secretary, for the purpose of promoting the city's industrial interests. Mr. Hyman insists that Macon is "the prettiest and busiest city in the South," and he is making it his business to convince the outside world of that fact. A serious effort is being made to have the State Capitol moved from Atlanta to Macon, and one of the chief

arguments advanced in favor of Macon is its central location. It is in the exact center of the State almost. Indeed, it is claimed to be the very heart of Georgia. It is not only the center of population, but is the center of schools, wealth and railroads, fifteen lines connecting it with every other section of the State. Her health statistics gives Macon the rank of second in point of health of any city in the United States.

Through its Chamber of Commerce Macon is bidding for factories and all manner of industrial enterprises. Some of its many attractions are cheap power, excellent transportation facilities, a fine home market, and by no means the least important, satisfied labor. The Ocmulgee river runs through the outskirts of the city and furnishes cheap water transportation to the seaports of Savannah, Brunswick and Darien. The intervening country is marvelously rich in agricultural resources, and offers splendid facilities for stock raising, etc. The development in this line during the past fifteen years has

brick. The first pavement laid is still in use, and it is in good condition considering the length of service, method of construction, etc. This original brick pavement was so satisfactory in every way that similar pavements were demanded, and the work has gone on from year to year until now the majority of her streets are paved with brick. Good brick are used and as a rule they are well laid, though not strictly in accordance with the specifications adopted by the National Paving Brick Manufacturers' Association. Pitch is used as a filler almost exclusively, the mayor and the city engineer insisting on that detail. The pavements are smooth and are kept clean. Even the older pavements show comparatively little wear. There have been no repair bills to vex the taxpayers, so 'tis little wonder that brick is preferred to any other paving material. The good people of Macon have learned from experience that once a street is well paved with brick, it is a permanent improvement, with no need for fur-



Birdseye View of Cherry Street, Macon's Busiest Thoroughfare.

been truly wonderful. The river furnishes unlimited water power, which has been developed on a large scale, furnishing 24,000 h.p. for the purpose of furnishing power for factories in the city and along the river. The Central Georgia Railroad Company's shops are located at Macon and cover an area of forty acres, ten of which are under roof.

An event of great interest to the people of Georgia generally and those of central Georgia in particular is the Georgia Agricultural Fair, which is held in Macon every year. Mr. W. E. Dunwody is president of the fair association, which is run on a very successful basis. They expect to make the fair larger and better than ever this year, for they anticipate an appropriation of \$100,000 for new buildings at the fair grounds, \$50,000 from the State and \$50,000 from the city of Macon.

Macon's best growth and prestige began some twenty years ago, when she commenced paving her main streets with

ther expense or worry. This lesson once learned by taxpayers makes them advocates of brick pavements in preference to all others. At least, so it is at Macon. Now that most of her streets are paved with brick, they are beginning to think of paving the country roads leading into the city, and there is little doubt but that this will be done in the not distant future, for automobiles play havoc with ordinary macadam roads, and the only way to avoid the trouble and expense of constant improvement of heavy traveled roads is to pave them with brick. Many other Southern cities have learned this same lesson.

Macon is not only proud of her brick streets, but is also very proud, and with good reason, of her many substantial brick schools, churches and other public buildings and fine residences built chiefly of home-made brick. There are two established brickyards about three miles from the center of the city and a third plant is in course of construction. The

product of both the old plants is sold by W. E. Dunwody, who is vice-president, secretary and treasurer of one of the companies, the Cherokee Brick Company, and president of the Standard Brick Company, the selling company. Unfortunately Mr. Dunwody, who is also a director of the Building Brick Association of America, was out of the city at the time of our visit, but his able assistant, Mr. A. H. Burnett, did the honors in a very pleasant way. Through his courtesy a fine drive was enjoyed, during which we visited all three of the plants.

That of the Cherokee Brick Company has a daily capacity of 125,000 building brick. They have one Chambers outfit running on common brick and one Freese machine, on which

they are wire-cut brick cut by hand to the desired form and afterward dried and burned.

The Bibb Brick Company's Plant.

One of the oldest and best-known brick plants in Georgia is that of the Bibb Brick Company, of which Mr. W. J. Massee is president; O. J. Massee, Jr., vice-president and treasurer; James L. Anderson, secretary, and W. W. Mosley, superintendent. To simplify their work the entire output of this plant is sold by Mr. Dunwody. "This is a good working arrangement," said the superintendent, "for all we have to do is to make and ship the brick; Mr. Dunwody does the rest." They are kept very busy at that, for they are making 175,000



SOME OF THE FINE BRICK STREETS IN MACON, GA.

1. Cherry Street, Fifteen Years Old, and in Excellent Condition. 2. Mulberry Street, Looking North.
3. Second Street, Looking East. 4. Third Street, Showing Parked Center.

they are making "face" brick. They have been using a steam dryer, but are planning to put in a waste heat system. Their common brick are burned in square kilns having a capacity of 375,000. In addition they have eight round, down-draft kilns in which they burn their face brick, of which they make quite a variety. Mr. Dunwody sells a great many ornamental brick and frequently fills orders which require brick of special shapes for arches, etc. There is enough work of this sort to keep one man busy as a rule, and he has grown expert in cutting brick for use in mantels and other ornamental purposes. We got a snapshot of the expert brickcutter cutting brick for an arch. The brick are shaped while green, that is,

brick per day the year round. They make common brick only. Formerly they used convict labor, but that is now a thing of the past, the State having passed a law prohibiting the leasing of convicts for such purposes.

The clay bank is a mile and a half from the plant. The raw material is dug with a steam shovel and dropped into large side dump cars, each holding seven yards of clay. They are hauled two at a time to the plant and up an incline by a steam-driven locomotive. They have two Chambers outfits of disintegrators, pug mills and end cut machines. The brick are dried in steam-heated tunnels and burned in eleven square up-draft kilns, each holding 400,000 brick. The entire output is shipped by rail to Macon and neighboring cities. Both

VIEWS TAKEN IN AND ABOUT THE MACON BRICK PLANTS.



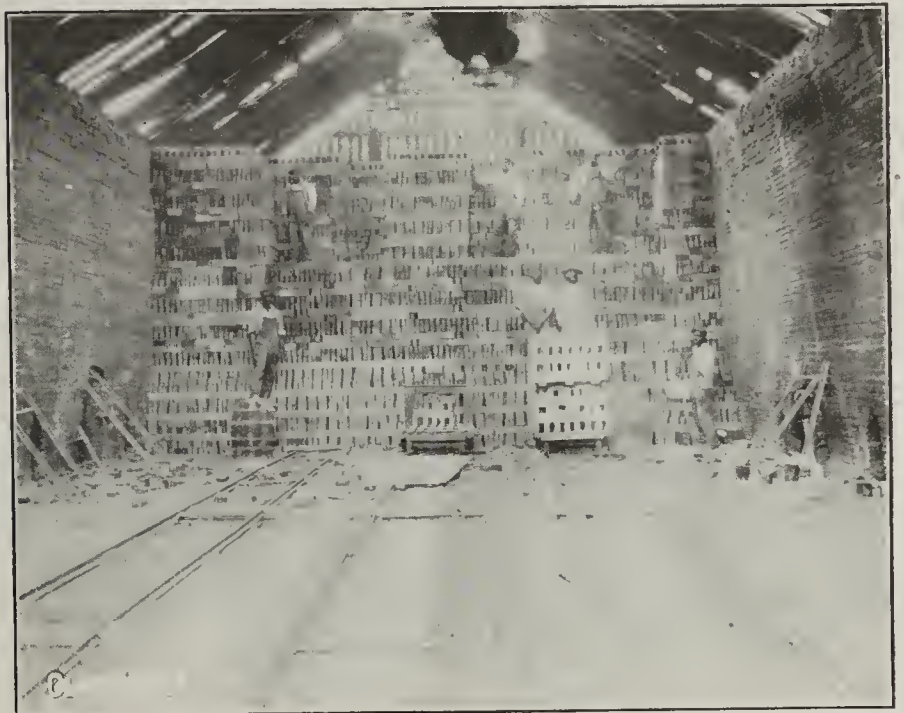
From Kiln to Car at Cherokee Brick Company's Plant.



From Kiln to Stock Pile at Cherokee Plant.



Cutting Green Brick for Arches at Cherokee Plant.



Setting Gang at Work on 400,000 Kiln, Bibb Brick Company.



Car of Brick on Way to Kiln at Bibb Brick Company's Plant.



A Glimpse of the Bibb Brick Company's Kilns and Dryer.

plants are arranging to change from steam power to electricity for all power purposes at the plants. The yard offices are detached one-story brick buildings with widely overhanging roofs. It is cool and comfortable even in midsummer, and, as a dusky native said, "It do get powerful wa'm here, boss, in the summa'."

Macon's Other Brick Plants.

There are two other brick plants in Macon and vicinity—that of W. H. Jones Brick Company, making 50,000 brick per day, and that of the Central Georgia Brick Company, making 50,000 per day.

Returning to the city, we passed the large pottery of H. Stevens' Sons Company. It was late in the evening, the plant had shut down, so we only stopped long enough to say "Howdy," and observe that they have a large, well-equipped factory for the manufacture of sewer pipe. This plant is the outgrowth, as it were, of a plant established at Stevens' Pottery, Ga., in 1851 by Henry Stevens, who made the first sewer pipe and fire brick in the South. At the first plant, which is still in operation, the three sons, W. C., J. H. and W. P., were given a practical training in every branch of the business, and in 1887 built the plant at Macon, which covers, including the buildings and yard, fifteen acres of ground. The build-

organization may not be disturbed from time to time and its capacity impaired through the breaking in of new men or the dissatisfaction of old ones.

Some day we will get around to these things with the same scientific methods that are applied to the analyzing of clays and the mapping out of a course of treatment, or that are applied in the iron, steel and other industries in the handling of material, and we will come to regard these spring disturbances and ailments for just what they are and begin to treat them intelligently.

Meantime, many a man is groping around more or less in the dark for some practical and ready means to keep his working force intact and alive with interest and zeal so as to make the success he dreams of out of his business.

The biggest and most important secret to this proposition right now is that of keeping some real big interest alive, something that will prevent men from getting into listless ways. Therefore, it behooves every owner and every superintendent and foreman to cudgel their brains for ways and means to stimulate live interest and to nourish enthusiasm.

Indeed, it is contended by some of our philosophers that nearly all the petty bickerings and dissensions and troubles of that kind are traceable to sources of misunderstanding and



The Bibb Brick Company's Yard Office. A. L. Burnett and Superintendent Statson at Leisure.

ings, which are all built of brick, cover 83,000 square feet of floor space and contain a mile and a half of radiating pipe for drying. They have sixteen kilns, the annual output being one thousand cars. Three different railways run into their plant, which gives them unexcelled shipping facilities. They are proud of the fact that they have on their books customers who have been with them for twenty-five years.

KEEPING THE WORKING FORCE ALIVE AND INTACT.

A spirit of unrest usually pervades nearly everything and everybody in the springtime. It is the spirit that leads many a worthy mechanic and workman to wander about aimlessly from place to place, and makes it difficult to keep a crew together intact and keep them alive and full of ginger. It is a time of labor disturbances, strife and bickering, and a whole lot of other things that can be traced directly back to a spirit of unrest generated by the spring season.

This thing of keeping the working force together and intact is one of the greatest problems of the industrial world, and often the measure of success of an industry depends quite largely on the faculty of keeping men alive and at work and well enough contented to stay with the institution so that its



One of Mr. Dunwody's Down-Draft Kilns. Mr. Burnett and Assistant Superintendent Gofforth in Foreground.

to conditions of lethargy, of idle minds and hands that lack some prime object to arouse enthusiasm.

It is a matter of bottled-up energy and emotions of one kind and another seeking for an outlet and not finding something ready at hand that appeals. Therefore, it results in rumblings and grumblings, and out of these may grow all sorts of trouble. On the other hand, all sorts of trouble may be avoided if one could keep some big, live interest at hand to exercise his surplus mental and physical energies on during the effervescing days of spring. Some may find it in one direction and some in another, but wherever it is found and whatever it is, the secret of keeping a crew active and intact during the spring and early summer season is in keeping their live interest aroused and engaged upon something worth while in connection with the work. Have changes, innovations and something doing all the time to prevent dullness and lethargy.

The fights between the railroads and the shippers, one wanting to raise rates a little and the other wanting to keep them down, is getting to be a sort of continuous show that is a bit tiresome now, and we are wondering if there isn't some way to get the matter settled and keep it settled for a reasonable time. Disturbances of this kind, with lawsuits, legal

talent and the other costs involved, are such as may become burdensome, and, some way, somehow, we ought to find a way out of it that will leave us in peace for a while and give the railroads fair returns for their investment and give the people a square deal at the same time. The question, though, is, how are we going about it?

***THE OPERATION OF PRODUCER GAS FIRED COMPARTMENT KILNS.**

BY GEO. C. F. VATER, DAYTON, OHIO.

Mr. Chairman, Gentlemen of the Convention:

Continuous kilns, and, in particular, producer gas fired continuous kilns, have been much discussed during the last few years. It may therefore be of interest to you to hear a few remarks on the "operation" of such kilns. As the scope of this theme, however, is too large to allow treating more than one type at a time, I have chosen as the subject of my present paper, "The Operation of Producer Gas Fired Compartment Kilns."

At some future occasion I hope to have the pleasure to follow up with such papers devoted to the other types of continuous kilns.

I believe that I may safely assume that all present are reasonably familiar with what constitutes a producer gas fired compartment kiln and shall therefore omit all descriptive matter.

In treating our subject we shall have to subdivide into the following two main parts:

1. Directions for the operation of the producer.
2. Directions for the operation of the kiln.

PART I.

Starting of Gas Producer.

Before putting the charging hopper in place, the lower part of the producer and to a height of about 6 inches above the apex of the grate or to the level of the lower sight holes, should be filled with ashes (as free as possible from coal or coke). Ashes containing much combustible material are liable to catch fire and expose the grate to excessive heat. The upper part of the ashes around the grate should consist of larger particles only (the fine to be sieved out), and should be put in as loosely as possible. The emergency doors are to be left open when starting.

On top of the ashes pile scraps of wood, shavings, etc., about one foot high. Then open the clean-out door at the end of the gas main, all other valves, except, of course, the sand damper in the neck of the producer, being kept closed. Set charging hoppers in place, closing the bell.

Start the fire with oily waste and let the smoke draw through gas main until issuing from cleaning door at far end, thus filling the main with neutral gases. Then close this cleaning door and open the horizontal sand damper in burn-out offtake, connecting producer with fan or stack. At the same time the manhole in main draft flue nearest to fan or, where provided, the air register on fan uptake should be opened sufficiently to cool down the hot gases by means of admixture of cold air. If not sufficient draft is apparent, the fan should be started slowly.

After the wood is well on fire a few bushels of coke should be charged and spread evenly over the whole surface. After this coke is in incandescent condition put on coal, starting with larger lumps only and continue to charge as fast as each charge brightens on top.

As soon as the fuel bed is thick enough and in good in-

candescence, close the emergency doors after first bricking the openings up with a 4½-inch fire brick wicket, laid dry and plastered on outside, then start to fill up water pan with water. When seal is reached start the steam blower slowly, gradually bringing the pressure up as the condition of the producer warrants.

From now on keep the top of the producer under pressure, so that the gas will blow out slightly from an opened poker hole, preventing air from entering, and thus excluding any tendency to igniting or to explosion. Eventually the fan has to be slowed down.

Now the fuel bed may be brought up to full depth as fast as warranted by its condition. The gas should be tested from time to time as to its quality, and as soon as it ignites readily on the torch and burns with a steady flame it is available for use. As soon as this is the case open clean-out door on gas uptake and light the gas by oily waste, making sure that the gas is burning well in flue. The blast on the producer should be regulated at the same time so that the pressure is just enough to prevent air being taken in at the top of the producer. Then close the sand damper in the burn-out offtake and also close the manhole on main draft flue, or the air register, as the case may be, meanwhile having all poke holes open, and make connection between gas main and the compartment which shall be started. Also establish connection between kiln and main draft flue at the proper place, at the same time gradually speeding up the fan.

As soon as it is evident that all flues and downtakes are filled with neutral (non-combustible) gases and all air is expelled from them, close the cleanout door of gas uptake and the poker holes and handle producer as per "Instructions for Operation."

Drying Out Producer and Gas Flue.

In the case that the installation is a new one, it is essential that previous to starting up producer and flues be dried out thoroughly.

The bed of ashes should be prepared as outlined above and on it a light wood fire should be started as kindling for a slow coke fire. This coke fire should be kept up with charging hopper and poke holes closed and drawing off the heat through the main gas pipe until producer as well as pipe are perfectly dry and warm. The explosion doors and clean-out doors should at first all be open, but should be closed one after the other as the gas main is getting warm until only the ones on the far end are open.

Care is to be taken that the fire not be such as to make the iron parts too hot. After the drying out has been satisfactorily accomplished the producer may be started off as per above instructions.

In handling clean-out doors, dampers and gas connections of any kind always stand to one side, never in front. While danger from explosion is little, it may inadvertently occur; it is better therefore to safeguard against it.

Operation of Gas Producer.

In judging on the status quo of a producer working on bituminous coal the following points will serve as a dependable guide, aiming at the same time to show how wrong conditions may be righted.

The surface of the fuel bed should appear dark red and clear as coke fire. The pieces of coal should look darker than the spaces between them. No smoke nor flame should be visible at any part of the surface. The gas escaping from an opened poke hole should appear as blue vapor, possibly with a slight tinge of yellow; it should never be smoky, should have rather a sweet odor, and should never show the stinging smell of sulphur (SO₂).

The gas should blow from an open poke hole quietly and steadily, should light easily with a torch and burn with a steady flame. In case the gas should ignite by itself when

*Paper read before the Third Annual Convention of the Northwestern Clay Association, at Minneapolis, Minn.

issuing from a poke hole into the atmosphere it would be evident that the producer is running too hot. Close inspection is needed in this case. It will show at the same time that on top of the fuel bed the pieces of coal appear brighter than the spaces between. The cause for this in most cases is that some point of the bed burnt through, and the ensuing flame is heating the fuel bed from the top. In the pressure producer it will be well, if this occurs, to look after the steam and air pressure and revise these if necessary. Aside from this any local air channels which may have been formed in the fuel bed and which are surrounded by clinkers in various stages of development must be closed by means of the poker rod, and the fuel bed in general be brought in good condition.

If the producer has been neglected it will occur that on account of too hot running the flames issuing from such blow holes burn up the gas in the top of the producer altogether. The appearance then will be dark and smoky and the gases coming from the poker holes will not ignite at all. In such cases, which should not take place at any event, a very conscientious rearrangement of the fuel bed is imperative to avoid troubles of longer duration.

Sometimes the top of the fuel bed may appear enveloped in a more or less hazy atmosphere. The cause for this is that the whole mass of coal is lying hollow and loose, or eventually is lying too shallow on the grate. In this case the whole bed should be carefully shaken down and solidified. If necessary a charge of fresh coal has to be made.

The work with the poking rod should be done very judiciously, and any excess be avoided, as too much poking is about as harmful as none. First, find out what is wrong, judge which will be the best way to remedy and then act. Make every lick count, and be done with it as quick as possible.

In regular intervals the height of the ashes has to be ascertained through the sight holes. Ashes are to be drawn whenever their top rises to the upper sight hole level. The drawing of the ashes should be done uniformly all around and care is to be taken that the ash level does not drop below the lower sight hole level. After drawing ashes always ascertain the appearance of the fuel bed through the poke holes and act accordingly, level up, etc. The water pan should be kept filled so that the seal is not liable to break.

As to steam pressure, air pressure and gas pressure, these will naturally vary with the conditions on a particular job. However, as a guide, a steam pressure of 60 pounds, an air pressure of not more than 3 inches to 4 inches water column and a gas pressure of not more than 1 inch to 2 inches water column, measured in neck, may be taken as an average.

The regulation, of course, has to be done in accordance with the amount of gas required at the place of combustion, and naturally will also vary with the distance of this place from the producer.

The amount of air and steam necessary will be determined by these points in conjunction with the requirements for obtaining a good quality of gas. To some extent the amount of steam necessary depends on the inclination of the coal to clinker, more or less.

It will be well before starting to find out how much steam under certain pressure is delivered to the blower. To this end take a barrel about one-half filled with water, weigh it and let the steam blow into the water, where it will condense. Then after a certain time, say one-quarter of an hour, weigh again. The steam, by weight, required is about one-third of the coal gasified in a certain time.

In regulating the amount of steam it must be borne in mind that too much steam reduces the combustible in the gas and lowers the calorific power, while, on the other hand, too little steam will result in high temperature of the gas and may also cause trouble from clinkers.

In regulating the air care should be taken to avoid an excess, as this will tend to burn the gas in the producer.

The producer should for continuous kilns be handled in such a way as to yield a gas of medium temperature, say about 850 degrees F. to 900 degrees F. in the neck. If the gas is too hot the hydrocarbons are broken up and deposit their carbon as soot. If run too cool the low temperature favors the deposition of tar in the flues. Keeping at about the above temperature will give the best results as regards those two evils. Pyrometer readings taken in the gas neck will go far towards accomplishing economical conditions in the producer.

If an Orsat apparatus is available, the gas should be tested frequently during the first days at least to ascertain the most favorable conditions of pressures, etc., which then should be fixed as a standing rule.

The composition of good gas may vary from—

4—6 per cent. CO₂
20 per cent. CO with high H₂
to 28 per cent. CO with low H₂
12 per cent. H₂ with high CO
to 20 per cent. H₂ with low CO
2 to 6 per cent. CH₄
0 per cent. O₂.

An average gas analysis, therefore, should be about—

5 per cent. CO₂
24 per cent. CO
16 per cent. H₂
4 per cent. CH₄
0 per cent. O₂
51 per cent. N₂
—
100 per cent.
44 per cent. combustible gases.

The coal to be used in the producer should be of as good quality as can conveniently be purchased at a reasonable price.

Slack coal or refuse should not be used. Such fuels can be obtained at a very low price, but the result will be very unsatisfactory. With these the capacity is materially reduced on account of the choking of the blast, which has to be driven at high pressure to get through the fuel bed. This in turn results in overheated gas, loss of efficiency and increased labor.

As a rule, run-of-mine coal, crushed at the mine to 4-inch ring mesh, will be the best to use. Nut, 1¼ to 2-inch, screened and freed from dust, if obtainable at same price as run-of-mine, is the most desirable.

The coals preferably used in the producer should be high in volatile matter, as they give the long flame desired for burning of brick. Bituminous coals, lignites and peats may be used with equal advantage, with the provision that the producer be arranged to suit their different qualities.

A high percentage in ash does not necessarily interfere with the qualification of a coal for producer work; if, however, high ash and high percentage of sulphur are combined, the labor of working the producer is greatly increased and simultaneously the capacity reduced. A sulphur content of up to 1 or 1½ per cent. will be harmless, but beyond this it becomes far more annoying than ash.

The depth of the fuel bed must also receive consideration with the different grades and sizes of coal.

As an average guide for bituminous coal we may take—

For run-of-mine (crushed to 4-inch ring mesh), 5 feet.

For nut (1½-inch to 2-inch), 4 feet to 5 feet.

For pea, 3 feet to 4 feet.

And then vary according to special requirements, as they may present themselves.

Attendance.

The handling of the producer is simple and does not require more than ordinary intelligence and thoughtful attention. The work of the gasmaker is not laborious, but may become so if proper and regular attention is lacking.

Labor required per shift.

Plant of one producer—One gas man.

Plant of two producers—One gas man, one laborer half-time.

Plant of three producers—One gas man, one laborer full time.

Stopping the Producer and Burning Out.

In stopping the producer it is important to have good incandescence on top of the fuel instead of fresh coal. Before stopping slacken the blast, remove the poke hole covers and then shut off the blast entirely. The gas, gently blowing from the poke holes, should be ignited. When the blast is cut off altogether the air will follow the receding flame into the producer and the gas will burn quietly without explosion.

If the producer shall be cut out for several days or altogether the vertical sand damper should be inserted in the neck. Then open the clean-out door in gas uptake and ignite the gas in the main gas flue, if this has not been accomplished previously. The suction from the fan should be kept on the gas main and kiln until they are perfectly cleared of all gas.

In case of a permanent shut-down the producer should be allowed to burn down as far as possible before being cut off and left to die down, in order to avoid too great a waste of fuel.

For the purpose of burning out the gas main, after inserting the vertical sand damper and clearing the main from the gas, the connections to kiln should all be closed. Then open the sand damper in burn-out connection, the nearest man-hole in main draft flue or the air register and the clean-out door farthest away from fan. At this end then start the soot and tar deposit to burn, creating the draft by means of the fan. Naturally the burning out should be done when the whole main is still hot and therefore preferably at a time when the gas has just previously been taken to the compartment or section farthest away from the producer.

Producer Tests.

TIME REQUIRED.

With proper precautions regarding uniformity of depth of the fuel bed, approximately 100 hours may be the required duration for tests on producers, although this period may be influenced by the character of the fuel used.

Directions.

(a) Throughout a test the fuel bed should be maintained in uniform condition, with regard to both the character of the fire and the thickness of bed.

(b) Failing in this, special care should be exercised to see that the fuel bed is in the same condition and of the same thickness at the close of a complete test, or at the end of a test period, as at the beginning.

(c) A test should never be started when the producer has been standing idle for some time with "banked fires," as the fuel bed will not be in the average condition under which it will be required to work during the test.

(d) If, as the appointed hour for closing the test approaches, the fuel bed is not in the proper condition, the time of closing the test should be postponed until the bed naturally assumes the proper thickness and character. No forcing of conditions should be allowed simply to bring the test to an end at a previously determined hour.

Initial Fuel Bed.

In 7-foot producer about 5,000 pounds coal.

In 8-foot producer about 6,500 pounds coal.

In 9-foot producer about 8,000 pounds coal.

Ratio of weights of equal volumes of coke and coal is approximately 1÷2.

Temperature of Fuel Bed.

1 foot above apex of grate about 1,300 degrees to 1,350 degrees C.=2,372 degrees F. to 2,462 degrees F.

3 feet above apex of grate about 1,000 degrees C.=1,832 degrees F.

5 feet above apex of grate cone about 400 degrees C. to 550 degrees C.=752 degrees F. to 1,022 degrees F.

The temperature at any point in the producer is dependent on the depth of the fuel bed, the draft or blast, the poking and firing. As these conditions cannot be maintained absolutely constant, the temperature varies accordingly.

(To be Continued.)

OPTIMISM.

"Twixt Optimist and Pessimist

The difference is droll;

The Optimist sees the doughnut,

The Pessimist the hole."

OPTIMISM IS THE view that leads upward on the ladder of accomplishment. It is the road that arrives at achievement.

It inspires the hearts and minds of the greatest and best to higher and nobler attainment. It brings about the progress of the race.

Optimism recognizes opportunity, and makes opportunity; it supplies the energy and ability to turn opportunity into achievement.

Optimism looks up, not down; onward, not backward; constructs, not destroys; grows, not atrophies; promotes, not depresses; builds success, not failure.

Optimism conquers over land and sea, the air above and the earth below; discovers unknown continents at the extremities of the globe; constructs railroads and flying machines; builds ships and Panama canals; ties together the people of the nations and the nations of the world.

Optimism develops Wanamakers, and Fields, and Hills, and Curtises, and Edisons, and Wrights.

The unbounded optimism of Columbus overcame stupendous obstacles, won for him the discovery of an unknown world, and the awakening of the human race to a higher knowledge and civilization.

Napoleon's optimism conquered Europe, and moved mountains. When the Alps were in his way he said, "There shall be no Alps," and he passed them successfully and surprised the enemy.

This optimism marked him as the greatest general of the age, and gave him a name that can never die.

Cyrus W. Field entered the commercial world at fifteen and through his optimistic endeavor was able to retire from commercial life a wealthy man at thirty-four.

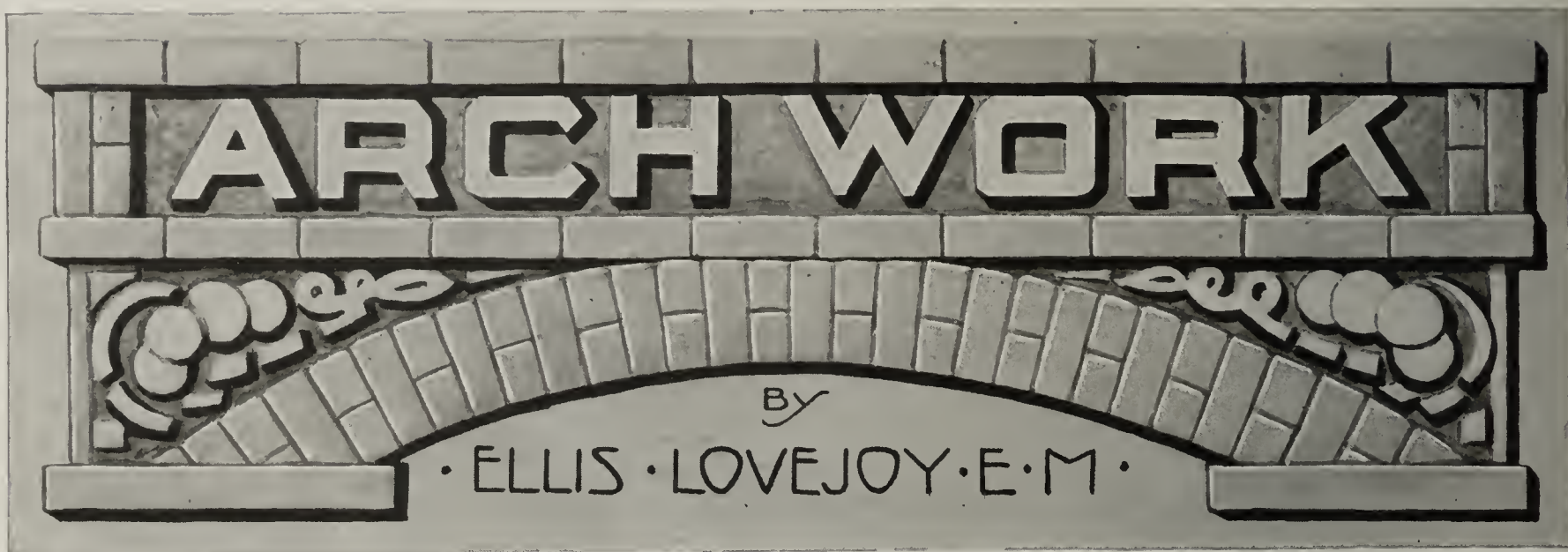
Then after thirteen years of repeated reverses and incessant labor, working on both sides of the Atlantic, exhausting his own resources and making large drafts on the treasuries of two nations, with scientific advice against him, his optimistic spirit enabled him to accomplish the laying of the great Atlantic cable.

It was the greatest achievement of the century; and one man's optimism did it.

Optimism has ever been the guiding spirit in the accomplishment of things worth while. From the time when Moses safely led the children of Israel to the promised land down to yesterday's success in aviation, optimism has been the guiding motive power in every great attainment.

And it must always be thus. History is bound to repeat itself here, for optimism is the natural stimulus that develops success, and the men of today and the men of the future who reach that goal, must, in the very nature of things, be men of the optimistic faith.—The Mahin Messenger.

There was once a statesman named Blaine, who promulgated a great idea called reciprocity. The statesman has passed away, but the idea still remains despite the hard sledging in political fields.



A PROBLEM IN ARCH WORK.

SECOND PAPER.

LET US ASSUME seven half-circle arches, 12-inch face, 8-inch reveal, 1-foot 6-inch radius. We will make the reveal the length of a standard brick, whatever it may be, and ordinarily we are justified in making the face a brick and one-half, which will make the face nearly 13 inches with the mortar joints. In some work there may be stone or terracotta in the arch construction, in which case the architect's dimensions must be followed.

Where the face is 12 inches we must not only cut and grind the wedge shape, but we must also cut and grind one brick in each course to less than standard length, which increases the grinding work. The width of the mortar joint is usually not specified, and we adopt a standard joint for all work where the instructions are not specific. At the present time we would use $\frac{1}{4}$ -inch or $\frac{5}{16}$ -inch joint.

This simple problem has three doubtful points—width of face, depth of the reveal and thickness of the mortar joint—yet we would not refer it back to the architects or contractors unless we wished to gain time to get other work out of the way and at the same time save our credit on the work in question.

If one is in serious doubt about any changes, it is wise to write the contractor of the changes that have been made and thus put the responsibility on him, but as a rule we would go ahead with the work as we have laid it out.

In drawing the arch (Sketch No. 4) we first lay out the base line (E-D) and center line (D-F), which establishes the center (D) of the arch. On either line (A or B) the radius is laid off, or if the straight edge has a scale like a yardstick it is only necessary to push the bradawl through the stick at the proper distance from the end and force it into the board at the center (D) and strike the inner circle. Change the length to the outer radius in the same way and with the double pencil draw the circle (E-F). This lays out the arch, or at least half of it, which is all that is necessary for our purpose.

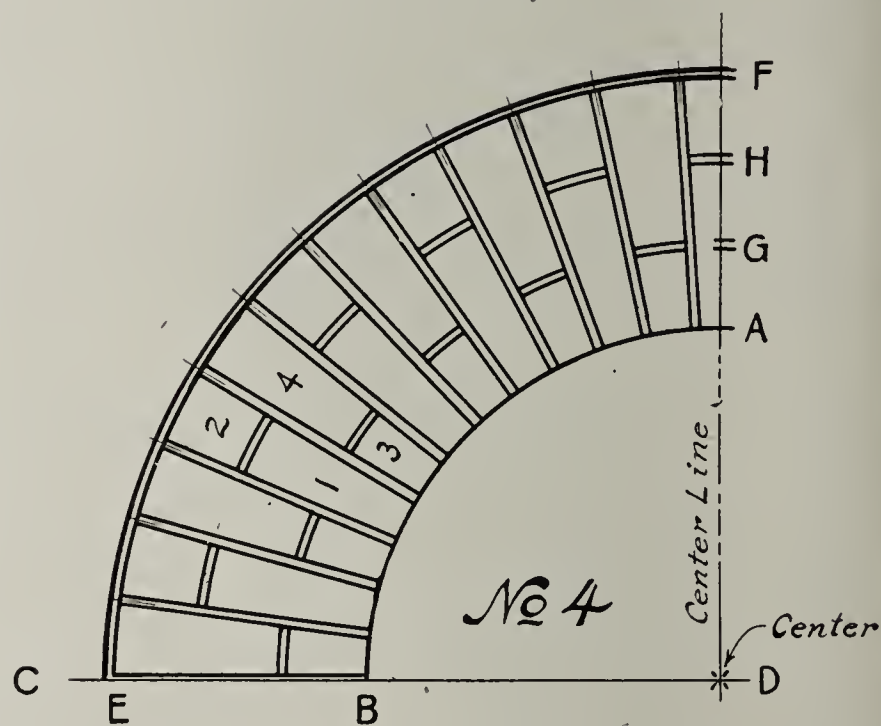
Set the dividers to space the thickness of the brick plus the mortar joint, and beginning at E, step off the bricks along the circle up to F on the center line. It should come out a half-brick at the center, but probably will not be exact the first trial. The spacing must be changed and a second trial made. Sometimes when very little is to be gained or lost the second trial may be a little inside or outside the circle line.

One-sixty-fourth of an inch on each brick, which would be inappreciable in brickwork, gains or loses $\frac{1}{4}$ inch in 16 bricks, which doubles at the center since what we gain on one side of the center we lose on the other side, thus making $\frac{1}{2}$ inch gain or loss. One should seldom have to go over the spac-

ing more than three times to come out right, and usually twice should suffice. We now have the center points of the radial joints. Put the bradawl with the cork in the center D, which holds the ruler a half a joint away from the center, and holding the ruler a half-joint away from the radial center points above found, strike the radial joints with the double pencil.

Lay off the points G and H representing a full length and a half-length brick and with the straight-edge and center pin strike the circles, making the head joints, skipping, of course, every other brick.

We oftentimes when in a hurry, after setting the ruler for the head joints (H) and striking them, place the double pen-



cil on the side of the ruler at G and strike this set of joints without changing the ruler.

This completes the arch and the time consumed should not exceed fifteen minutes, and, more than that, we know that the minimum amount of work will be required in the grinding room.

When the arch construction is complicated we put on the drawing a section through the arch in each course, as shown in Sketch No. 5.

We look over our drawing and select four bricks in which the mortar joints are exactly spaced for patterns.

The drawing should be marked as follows:

Order No.

Letter A.

For John Blank.

Thos. Blank, Architect.

Seven arches.

12-inch face, 1-foot 6-inch radius, 8-inch reveal.

77 No. 1.

77 No. 2.

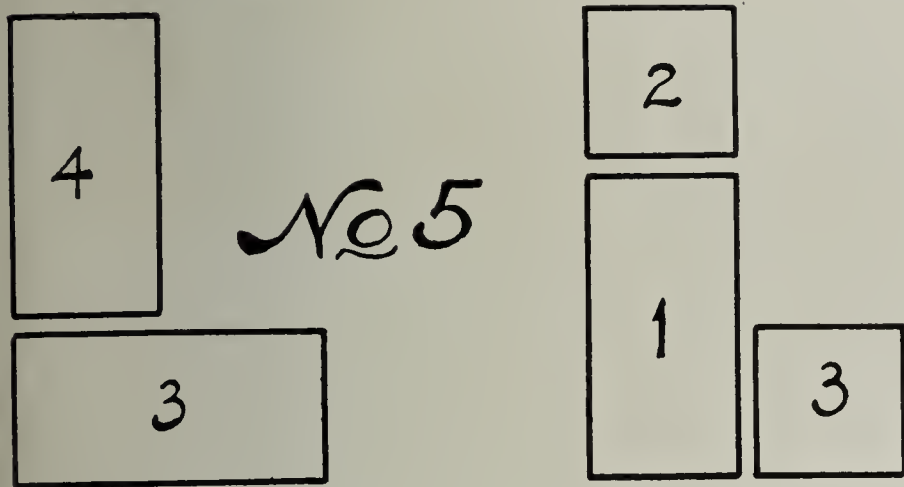
84 No. 3 full length for soffit.

84 No. 4.

84 No. 3 half-length to back No. 1.

No. 2 is always half-length, and if bricks with two good ends are selected only half the number are required, since each brick when broken gives us two arch bricks. The same is true of half-length No. 3.

This is where the profit comes in.



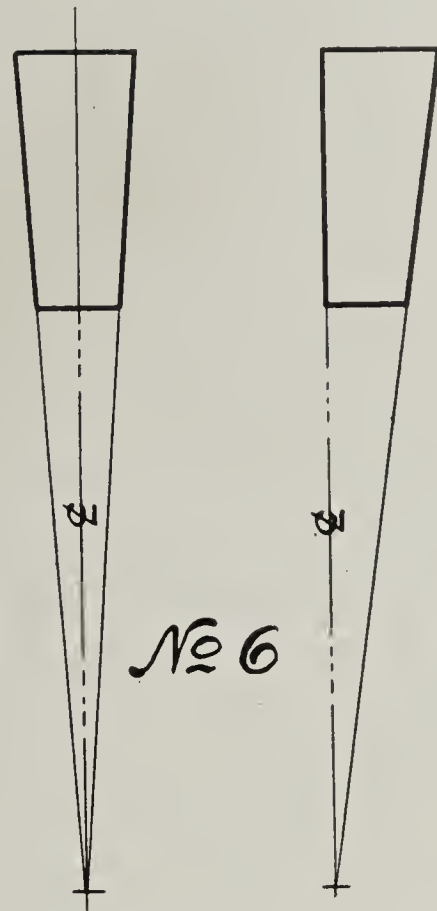
A question often comes up, Shall we grind a perfect wedge, which involves double work, or shall we make all the bevel on one side?

Small arches near the ground and in mantel and other inside work, subject to close inspection, should have all bricks ground to perfect wedges, but in large arches and those high in the building the bricks need be ground only on one side.

When ground only on one side the bricks should be right and left, so that in laying them in the wall the ground face can be laid down, which will throw the lip on the upper side,

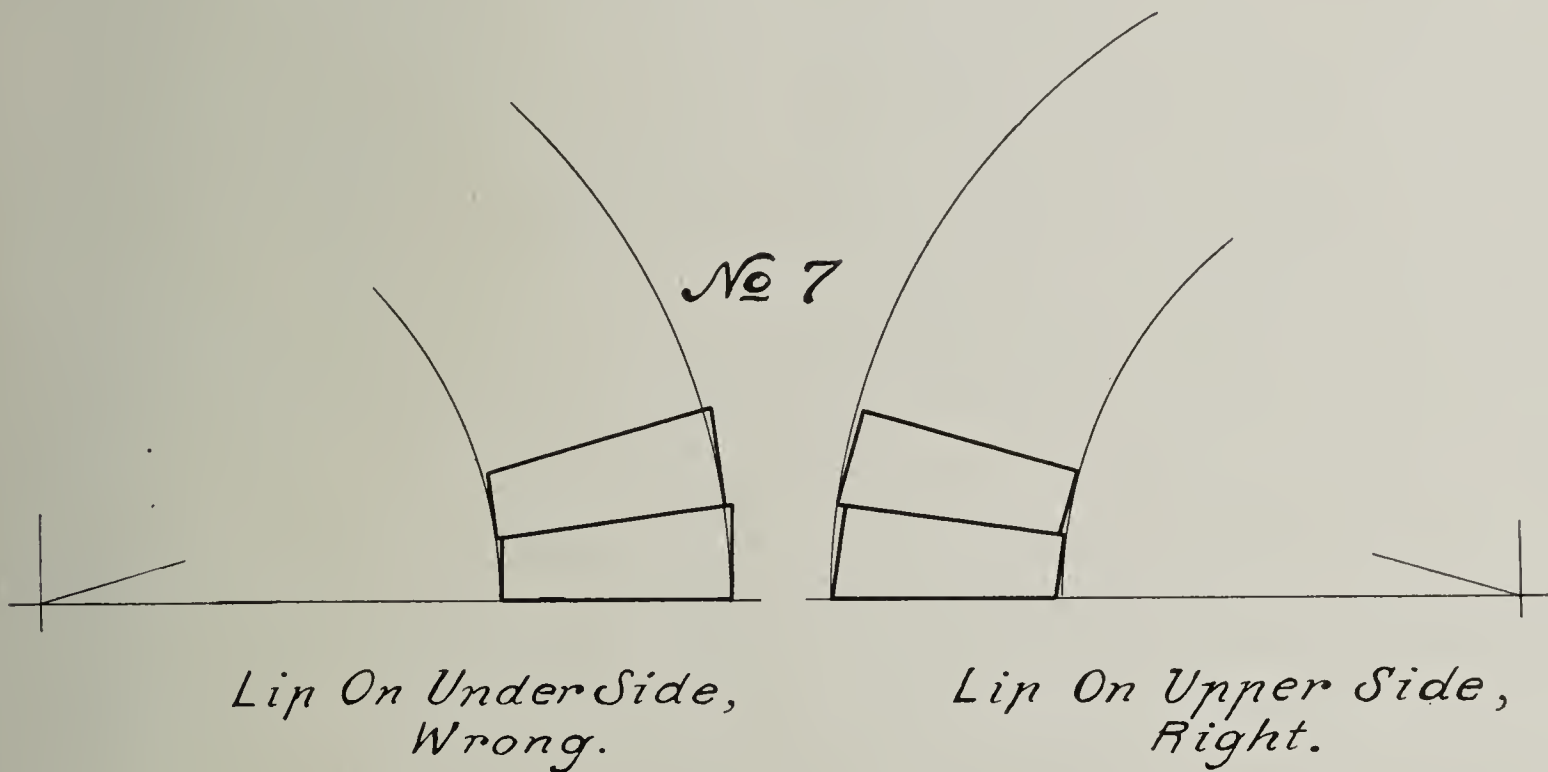
THE PENCHANT FOR EXTREMES.

For perhaps a decade now the people of this country have manifested quite a penchant for extremes. No matter what direction a start is made whether it is a matter of civic or



social reform or a matter of business methods and system, there has always been a matter of extremes.

Take, for example, the card index system, which followed close on the heels of the unit system in bookcases, and we had card indexes until we were surfeited with them. Then



where it will not be noticeable in looking up at the arch. These points are illustrated in Sketches 6 and 7.

All bricks ground right and left should be so marked, and while there is no rule as to which is right and which is left, it has been our custom to mark the bricks left which belong to the left of the center as we face the arch. This would be the mason's left when laying up the work from an outside scaffold, as is usually done.

(To be continued.)

The sponge-like affinity of cement for moisture is causing it to lose favor even as a foundation material, while it is no longer considered seriously by people who know, as the proper material for the upper walls of a dwelling.

came what was called the system habit, that everybody got as bad as if it had been a new fad in millinery, with the ladies after it instead of business men, followed next by the cost-keeping idea. All of these things and many others were worn threadbare and driven to such extremes that they racked the nerves of the business world and lost more or less favor. And now we are taking up with a new one. The latest thing being driven to extremes is this matter of conservation and complete utilization of everything, including material, energy and everything else that can be thought of.

All you need to do to get light on this subject is pick up some of the popular magazines or literary journals of the day and you will find instance after instance portrayed where

some analytical investigator has discovered a wonderful loss of material here and loss of energy there, and often they make a regular jungle book sort of to-do about it, giving one the impression that unless some great reforms are worked in about a minute we will all go to the bow-wows.

One particular case illustrating the tendency came to the writer's notice recently in which a manufacturing plant found that a certain machine was not supplying its needs and was contemplating adding a new and larger machine, but before the order was sent off the junior partner (you will notice it is nearly always the junior partner that does these smart things) went out into the factory and kept tab on the machine awhile. He found that when operated at full capacity it was capable of doing from 25 to 30 per cent. more work than it was actually turning out per day.

The tale was not pursued much further in this direction. The writer probably assuming that he had reached the dramatic point and should stop and let the reading public picture the climax itself.

Things like this may sound exciting, and they do good in the way of stimulating us to a little closer attention to what is going on around us, but they are misleading in the matter of going to extremes. There is such a thing as a happy medium, and that is really what we need. It is manifestly impractical to run a machine, no matter whether it is a planer in a woodworking institution or a brick machine in a clay plant, at its maximum capacity all the time. Indeed, if a machine turns out during the day 50 per cent. of what it is capable of doing if taxed to the limit of capacity, it is probably doing better work and will make more money than if it were driven to the extreme high point of capacity every hour of the day and every day of the month. Moreover, it would be more economical in the end, because high-pressure work results in more wear and tear and more breakage and more damaged stock than is gained by increased capacity after one has passed a rational limit.

That is where these extremists fall down; they fail to take into consideration what the structural material world calls the factor of safety. No man would think of putting a beam or girder in place that was just barely heavy enough to carry the greatest load. It is seldom that people use a factor of safety below two and sometimes it runs up as high as eight. Perhaps three or four would be an average multiple to the factor of safety in structural material. In machines and in manufacturing it is not necessary to have all this, but it is important to have some factor of safety, and it is much better to have the plant running steady at half-capacity and filling the needs than it is to have a plant so small that it must be strained to the limit every day to supply the output required.

The reason for these extremes in literature is easy to find. The popular writer plays for strong effects and dramatic situations and the only way to get these is by dealing in extremes. He does it often more for the sake of emphasis and contrast than out of true conviction of the necessity of following his advice. The thing for the general public to do is salt down these extremes, get the meat out of the argument and some benefit from it, but not undertake the following blindly of the extreme ideas laid down by some of the would-be advisors of the business world.

We had about come to the point of believing the argument that the President of the United States is limited as to power in the control of Congress when the newspaper men unearth the fact that the President has the power, when occasion requires, to dismiss Congress and send the members home. It is a power not likely to be used often, and it will probably be the death knell to a president politically to use it. Yet it might, after all, be a good thing for Congress to have just such a thing done to it now and then.



KANKAKEE VALLEY, INDIANA.

A Study of Drainage Methods.

WE HEREWITH submit extracts from and comments on the Report of U. S. Department of Agriculture under the direction of C. G. Elliott, Chief of Drainage Investigations.

This is given as a type of many systems of drainage that may be instituted for the improvement of swamp and overflow lands in many places throughout the country. An examination of the history and development of this particular system will disclose the steps that may be taken in the beginning, planning and final construction of drainage systems in which a number of interests are involved. In general, the problems are to be worked out by competent engineers and must be executed under the provisions of the laws of the state in which the lands to be drained are situated.

In the Kankakee river valley, previous to the preliminary examination of the drainage conditions, in 1904, "the activity of landowners in constructing drains wherever there was opportunity to reclaim or better the conditions of marsh farms was developing serious complications, especially in the lower parts of the valley, and that there was no unity of opinion regarding the plan that should be adopted in the further reclamation of the lands. These separate and individual beginnings in drainage and especially those in the upper part of the valley emphasized the necessity of some action being taken for the betterment of the conditions in the lower section.

The magnitude of the work to be done, together with the unsatisfactory results obtained from the work already accomplished, forcibly brought before the minds of those interested the necessity of

Co-Operation and Organization.

Confronted with these facts, the owners concerned in these lands held a mass-meeting, at which time a proposition submitted by the office of experiment stations to locate and survey a line for a corrected channel of the river was accepted. Irrigation and Drainage Investigations of the Office of Experiment Stations, U. S. Department of Agriculture, agreed to survey a new channel for the river and prepare a report upon the same, provided the citizens would furnish the labor required to assist the engineering force.

A committee known as the Kankakee Drainage Committee was chosen at this time and given charge of the matter, and through this committee the four counties concerned co-operated by providing the assistance asked for.

A report, accompanied by a profile of the channel proposed and recommended for the lower section of the valley, with specifications of size of channel and estimate of cost, was presented to the committee and discussed at a public meeting held for that purpose.

Description of the Valley.

The watershed lying above the Momence Rock, in Illinois, comprises an area of 1,420,000 acres, of which approximately 400,000 acres was a marsh plain. It is about 85 miles long. The crookedness of the channel is a characteristic commented upon by both geographer and hunter.

Its light fall—only 5 to 6 inches per mile—has made it a

favorite course for the houseboat and other summer craft and an ideal stream for the lover of fishing sports. The entire marsh portion of the valley is devoid of rock except a few moraines, containing scattered gravel and boulders, the meager remnant of the last glacial epoch, to which this valley largely owes its origin. The soil is not uniform in character nor equally fertile in the several parts of the valley, some being a sandy loam of high natural value and others that undeveloped turf and muck whose real value is not yet known. The upper portion is quite uniformly underlaid with clay, while the subsoil of the lower valley is river sand.

Work of the State.

In accordance with the provisions of an act of the State Legislature of Indiana, Prof. John L. Campbell was instructed to ascertain the cheapest and the most practicable outlets for the drainage of the wet and swamp lands of the Kankakee region. This was done in 1882. The report of that survey, which was made upon a sea-level datum, states that Lake Michigan has an elevation of 585 feet, the upper end of the marsh near the river an elevation of 109 feet, the surface of the state line 684 feet and a point above the Momence Rock 619 feet.

It also shows a distance of 75 miles from the head of the river in an approximately direct line to the state line of Illinois and then 6.8 miles to Momence, making the total length of the valley under consideration 81.8 miles. The data secured by this survey showed the feasibility of draining the valley and in a measure its agricultural possibilities.

During the year 1893 the work of enlarging and deepening the channel at Momence, Ill., by cutting the rock ledge at that point was completed under authority of the Indiana Legislature, which appropriated a total of \$65,000 for that purpose. The appropriation was authorized upon the plea of facilitating the drainage of the marsh lands in Indiana. The completed channel was 8,649 feet long, 300 feet wide and 2½ feet deep, requiring the removal of 66,447 cubic yards of rock. The appropriations for the survey made by Professor Campbell and for the expense of enlarging the channel through the rock at Momence, Ill., cover the part the State of Indiana has taken in the drainage of the Kankakee marsh.

Methods of Draining the Lands.

The drainage of the higher lands of the watershed has proceeded for many years, the ditches of varying size required in draining these lands having their discharge into the marsh plain. The surrounding belt of reclaimed land has been gradually pushed toward the river, resulting in a continued change of conditions in the marsh, which have worked hardship upon the owners of the lower lands.

The improvement of the channel of the river began at the upper end by straightening the bends and cleaning the natural channel. This being a comparatively small project, it was executed by individual efforts and resulted in the making of a channel 7 miles long by means of which 8,000 acres were greatly benefited; the next division, 7¾ miles, was constructed as the Miller ditch; the third section, 9.1 miles, is known as the Place ditch; the fifth section, 16.7 miles, was constructed by the Kankakee River Reclamation Company, and completed in 1906 at a cost of \$78,310. These complete a channel approximately one-half the entire length.

The channel is 8 feet wide on the bottom at the upper end and 50 feet at the lower end, and receives at the lower end the drainage waters of 700,000 acres. The cost of this channel to the landowners concerned is approximately \$250,000.

This work has cost from 40 to 64 per cent. of the estimated benefits and, with the exception of the first named division, has been constructed under the provision of the State drainage law.

DRAINING LAND PAYS.

Writing to "The Farmer" of the value of mellowing clay lands, E. D. King, of Sauk county, Wisconsin, said:

"In draining part of my field it was necessary to dig a ditch 10 feet deep. I tried to maintain an open ditch for two or three years, but it would choke up in the spring; so sewer

pipe was laid and the ditch filled up. That was done 12 years ago last May. Every year since then one could see from the road a diagonal strip across the field where the crop was taller than the other part, which was directly over the old ditch. That fact proves again that the deeper we can loosen up the clay and mix it with fertilizing substance, the more profitable will our crops be. Subsoiling, however, should be done in the fall, but I have splendid results from trench plowing in the spring."

FROM THE VALLEY OF THE RED RIVER OF THE NORTH.

Prof. R. M. Dolve, of the North Dakota Agricultural College and Government Experiment Station, writing to the editor, says:

"Although I have been instrumental in installing several quite extensive tile drainage systems in the Red River valley, their installation has been so recent that we have as yet little reliable data to offer on the success of tile drainage.

"The first systems installed by me were put in during the summer of 1909, which gave them but little chance to show their worth during that year. The summer of 1910 was extremely dry, so that as far as drainage was concerned, no data could be secured that year, but it was observed that on the tile-drained fields an average yield of about 9 bushels an acre was received in increase over adjacent undrained fields that had been farmed exactly the same, so that that would indicate what tile drainage will do in North Dakota during dry seasons. I have as yet published no bulletin or pamphlet on the work, but expect to do so as soon as sufficient data can be secured from the projects installed."

CHEMICAL ACTION IN DRAINED SOILS.

It is only by long experience and careful investigation that we can learn to appreciate the great value of underdrains. Underdrains promote fertility by opening up the soil to the oxidizing action of the air, and by making the soil more convenient for the little organisms that work in the soil to liberate plant food.

When a soil is drained and the water taken out, air enters the spaces between the particles of soil and they shrink, crack and slack and by drying and chemical action become mellow. Roots penetrate the soil and in decaying leave spaces. The air and rainfall entering the mellow soil, carry down with them atmospheric gases such as carbonic acid, nitric acid and ammonia, together with the decaying vegetation and manures that may have been applied to the fields.

The pungent odor of the barnyard is largely due to ammonia escaping from the manures. These gases are absorbed by the soil and made ready for use by the roots of plants and by chemical action with the soil produce new combinations that can be taken up and utilized by the roots of the growing crops.

A writer to "The Farmer" recently said:

"The rainfall usually contains ammonia equal to six to eight pounds of nitrogen per acre. The more of the water that comes to the land in rains and snows, that can be made to pass through the ground in a reasonable length of time, the better, as in passing through the soil to go out into the drains, the ammonia is taken up by the soil and the land becomes better aerated and more friable, decomposition of organic matter is hastened, plant food of all kinds is liberated and the productive power of the land is increased in many other ways. Well-constructed drains not only assist in mitigating floods and increasing the fertility of the soil, but render tillage more effective and by ample drainage some of the diseases that plants are subject to are prevented. Blight and rust are not as prevalent in soils that are well underdrained as in soil that is not underdrained."

An undrained soil that has the spaces between the particles filled with water during wet seasons to the exclusion of the air, that run together and cement together when too wet, and that bake hard and crack into hard blocks when dry cannot be benefited by the chemical action of the air and rainfall as can a mellow soil, and will not produce as strong, healthy, profitable crops as will the mellow, well-aerated, drained soil.

Written for THE CLAY-WORKER.

**THE LARGEST EXCLUSIVE FIREPROOFING PLANT IN
THE PACIFIC NORTHWEST—THE FAR WEST
CLAY COMPANY OF TACOMA, WASH.**



N THE Tacoma Eastern branch of the Chicago, Milwaukee & St. Paul railroad, 28 miles from Tacoma, and within a few miles of the Mount Rainier National Park, is located Clay City and the big fireproofing plant of the Far West Clay Company, of Tacoma. Located in a section of western Washington which has so far only been investigated very little in connection with its clay deposits, but which has shown to be very rich in a large variety of mostly the higher grade clays, this pioneer clay concern has made an excellent showing for the short period of its existence. The plant is located on a flat plateau, about 80 feet above the level of the valley. The clay banks are one mile from the factory, and are connected with the same by a standard gauge railroad track. The largest clay bank is on the hillside, and has a face 80 feet high, and an open working front of some 200 feet. In this bank we find all colors of clays—white, buff, yellow and red. The lower part is buff

100 feet long. They also have 30 feet of steam-heated storage track, on which the cars are placed before they go into the dryer proper. Six down-draft 30-foot kilns and one 33-foot kiln are used in the burning of the product. The kilns are of the high down-draft type, the height to the spring of the arch being 12 feet, and the arch itself 9 feet high. The fireproofing is set 18 courses high and the bottom and top are burned alike as to denseness and texture. None of the material is warped by this high setting, which speaks well for the excellent qualities of the clay, especially when it is taken into consideration that this material is burnt to a cone 5 heat. The burning, including the water-smoking, takes 90 hours. The plant was started with the idea of using waste wood for fuel, but in a comparison test made with coal it was found that the coal was the cheaper fuel, and the whole plant is now arranged for the burning of coal.

From the kiln the material is piled out on the yard, which has ample facilities for loading. The railroad sidings at the plant are able to take care of 30 cars. The switching on the plant is greatly facilitated by the use of the company's 30-ton locomotive, "Betsy." The company owns 320 acres of land, which is, for the greater part, all underlaid with clay. It has its own postoffice, store and boarding house, and has 12 cottages for its employes. When running full time the company employs from 60 to 70 men at the plant.

The plant is the only one in the Pacific Northwest which



The Interesting Fireproofing Plant of the Far West Clay Company, Tacoma, Wash.

burning, while the upper part is red burning. For the manufacturing of their product the company uses everything that comes from this bank, and the burned product has a light pink color. The second bank, which is located some 500 feet from the large bank is called the fire clay bank, and in this the high-grade fire clay is found. This bank shows some signs of the volcanic action of the region, and part of the same is found in a semi-calcined state. The greater part of the bank is of a white color, and the clay stands a great heat. This clay is principally used for making fire brick.

The clays from the bank are handled by a Marion steam shovel, Model 30, and six standard gauge dump cars of six yards capacity are used in bringing the clay to the plant. The clay is dumped from a trestle 20 feet high, which is built into a storage shed, which has a storage capacity of 6,000 tons of clay. When the clay is dry it is fed direct into the pans by a 24-inch conveyor, but in wet weather the clay is dumped on a dry floor having a drying capacity of 50 tons in 24 hours. The plant is equipped with two large boilers, a Corliss engine, two nine-foot dry pans, two pug mills, one 888 Raymond brick machine and one Niagara hollow ware machine.

The fireproofing as it comes from the machine is put on cars, and the drying is done in a 16-tunnel direct-heat dryer

makes a specialty of making fireproofing exclusively. The company has inaugurated a large campaign among the owners, architects and contractors for the use of clay products in connection with fireproofing buildings, and the large business which they have been able to build up in the year and a half of existence is evidence that fireproofing and partition tiles are in large demand, and that the quality of their material is far superior to anything so far manufactured on the coast. The headquarters of the company are located in Tacoma, with E. R. Wheeler, president; F. W. Eastman, vice-president and manager; A. Armstrong, secretary and treasurer, and H. S. Wheeler, mechanical engineer.

The company's products are being shipped into Washington, Oregon, Idaho, Montana, British Columbia and Alberta. The fire brick which the company manufactures enjoys a good reputation among the numerous sawmill and kiln builders as being less expensive than the imported brick, and at the same time giving the same satisfaction.

It looks like it is time for the bricklayers to see a great light ahead and do a good turn for both themselves and the general public by lending a hand to and encouraging trade schools to develop plenty of efficient bricklayers.

Snapshots Taken on Far West Clay Co.'s Plant.



A Large Bank of Fine Fire Clay.



Steam Shovel at Work in Plastic Clay Bank.



The Immense Clay Storage Shed.



Kiln Shed and Transfer Track.



Engine "Betsey" with Manager Eastman in Cab.



A Kiln of Burned Ware.

A SHORT STORY WITH A LONG MORAL.

By R. E. SUNDERLAND, OMAHA.

Due to the timely suggestion of a friend, Brayton built his house of brick, and this is how it happened.

Roberts had lived for five years in a frame house of his own when Brayton told him of his intention to build.

"Perhaps you can tell me something that will help," said Brayton.

"I can tell you just one thing," replied Roberts, with more than ordinary emphasis, "do not build a frame house."

"But your own is frame, isn't it?"

Roberts smiled knowingly. "That's why my opinion of frame houses is worth something. My next-door neighbor built of brick about the same time I built of frame; I have watched both houses, and I say to you, by all means build of brick."

"But I can't afford to use brick," interjected Brayton.

"You can't afford not to," said Roberts, "and if you will listen a minute or two I'll tell you why."

Brayton, assuming a "show-me" attitude, listened.

"Six years ago," said Roberts, "I made up my mind to build. My neighbor, Sam Sampson, likewise decided to build. Our lots adjoined and were just alike—in fact, they cost the same to a cent.

"Wife and I worked out our own sketches, and when we thought they were about right, our architect was instructed to prepare plans accordingly and to secure bids.

"The lowest dependable figure was \$7,000 for a frame structure, complete, including plumbing and heating, ready to live in.

"The contractor was asked how much extra he would charge to face the entire building with brick veneer, figuring the brick at \$25 per thousand, and he said it would increase the cost \$750.

"We paid \$2,000 for our lot and had \$4,000 left to apply on the cost of the building. So we had to borrow \$3,000 or \$3,750 according to our choice as between frame and brick.

"We had arranged for the smaller amount and considered it unlikely that we could secure the larger loan, but to our surprise the bank seemed more willing to loan \$3,750 on a brick house than \$3,000 on a frame house, as originally planned.

"But somehow the brick construction did not seem worth the difference. Like most home builders, I knew but little about materials and concluded that brick was a rich man's luxury and we built of frame.

"It was different with Sampson. He chose brick construction. Our means were about the same and we planned houses of about the same size and interior specifications. Although his brick house cost less than \$8,000, we thought he was very extravagant.

"But his wisdom and our error of judgment became more and more apparent before the two houses were completed. The carpenters were all busy because everybody was using lumber and our work was delayed for want of workmen. Sampson was more fortunate, for bricklayers were plentiful. His house was completed and occupied six weeks before we could get into ours. Our first loss, therefore was \$60 for extra rent, figured at \$40 per month, the rate at which we were paying.

"Now, Brayton, there are a dozen other reasons why Sampson's investment was much better than mine."

Just here Brayton interposed the remark that there is nothing prettier than a neat frame house of good design, especially if it is tastily painted.

"Painted!" roared Roberts. "There's the answer! You can paint and paint, then burn off all the paint and paint again, and your frame house will look just as mine does—shabby after six months!

"Let me tell you what happened to me. My contractor

gave me an average job of painting. One year later the south side was blistered and scalded and sunburned until it looked ten years old. The rest of the house did not need painting, but, of course, I could not paint one side only, so I spent \$135 to repaint the whole house. I then let it go for two years because funds were short, and it cost me another \$152. Three-fourths of the time during those two years my frame house was dirty, faded and old-looking.

"The next year, at a cost of \$85, I gave the house one coat, and last month, after nearly two years, my frame house consumed \$165 that was paid to the painter. There you see is a total of more than \$500 in six years for painting."

"That does look bad on the face of it," said Brayton, thoughtfully.

"Well," said Roberts, "that's only one item. We are very fond of ivy and climbing vines, and we find that the wood siding decays from constant contact with the damp, thick foliage. Then again, we have to tear the vines down and they suffer great damage whenever the house must be painted."

"Look at Sam's place. The brick walls make an ideal surface for the climbers and they never have to be torn away.

"I want to tell you, Brayton, there is something especially attractive about a brick house. People who pass invariably look closely at Sam's house, while they seldom notice ours. There is a perpetual newness about his house."

"Say, Roberts," said Brayton, sarcastically, "why don't you sell your old frame house and build a brick one? You surely have got the 'brick fever.'"

"Let me tell you about that," ventured the disappointed Roberts. "I have been trying for a year to sell my house, and I could sell it tomorrow if I would take exactly what the house and lot originally cost, but I want a profit. If I could get what these lots are now worth and all that I have put into the house and grounds, I would sell mighty quick—and I'd build of brick, you may be sure.

"I was talking about this matter with Sampson a few days ago and he tells me he can sell out any day at a nice profit. He explained that home buyers seem to discount the value of a frame house after the first three years at the rate of about 5 per cent. per year to cover deterioration. That not only wipes out any possible advance in the value of the land, but also cuts down the selling value of the house below its actual cost. It is not so with a brick house, for the idea of deterioration does not suggest itself to the prospective buyer, since brick is not a perishable material.

"On this account Sam holds that his brick house has a value equal to its cost plus the present increased value of the lot. Even at that he does not want to sell because the house is exceedingly comfortable, and he likes the location.

"Now do you wonder I am disappointed and disgusted with my frame construction venture?" asked Roberts.

"Sampson's plumbing never freezes, whereas I have a 'thaw-out' bill every winter. His coal bills run 20 per cent. less than mine. His house is cool and comfortable in July, while mine is like a bake oven.

"Why, Brayton, if you go ahead and build of frame after knowing my experience—which is the experience of every builder who makes the same mistake—you won't deserve any sympathy and you will surely be a disappointed property-owner.

"Now, here's another parting shot for you, Brayton. You have heard that the law of supply and demand has much to do with prices. Look about you. How many frame houses do you see? Hundreds of them, to be sure. How many brick houses? Very few, indeed. The building public now recognizes the advantage of brick construction and is losing confidence in frame. Then what? If you build of brick you will have but little competition when you offer your house for sale. Build of frame and you will have so much competition

that your sale will be made at an actual loss, sure as you're a foot high."

After thus philosophizing, the two wandered down street. Brayton looking somewhat stunned by the body blows Roberts had delivered against his frame house ideas.

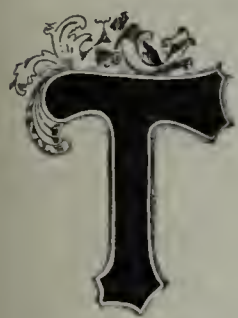
"You see," said Roberts, "I know what I am talking about, and when I see Sam Sampson piling up a profit on his investment just because he had sense enough to build of brick and then have to count up my loss that's bigger than his profit, I feel like steering you away from that sort of blunder."

Six months later the two friends stood before the fine brick walls of Brayton's half-built house. "Roberts," said Brayton, "you'd better sell that second-hand frame house of yours for any price you can get—stand a loss if you must, and then build a brick house alongside of mine."

And Roberts did!

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



HERE PROBABLY has not been a time since 1900 when building operations in Kansas City were on so small a scale at this season of the year as at the present. Some large buildings are under course of construction, and also a fair number of smaller buildings, but the total is very small when it is considered that everything should now be in full swing. The

weather is fine for building, and there is no excuse along that line. The surrounding country is in as prosperous a condition as it has ever enjoyed, so there is no excuse in that direction, and there seems to be no reason for this quietness in the way of new buildings except that capital is holding aloof.

In the past few years there have been a great many buildings erected in the various residence districts to sell on the installment plan, and they have been sold, but as the builder was always forced to take a second mortgage for his share, these people seem to have their capital now well tied up, and they can do little more until these mortgages are paid off. A few still have money to spend, but it is reported that there is becoming a less and less demand for residences which can be purchased on the installment plan, so there is little encouragement for them to continue.

In the matter of flat buildings and apartment houses there is also a lull, but there can be little reason given for the lull. Some claim that there are already plenty of them and that the loan people state that they are not interested. This may be a fact, at the same time it is well known that the new buildings of this class, as well as the new office buildings, are always filled up as soon as they are completed. People move out of the older buildings to the new ones. Of course, from the point of view of the loan people it is possible that this is exactly what they do not want, as they may have loans on the older buildings, and if they are not tenanted they may have them thrown on their hands later. There would seem to be little danger from this source, however, as such buildings, if foreclosed, would cost the loan companies so little that they could afford to reduce the rental, and in this way would have no trouble in filling them, as there is always plenty of people looking for cheaper rent to make such buildings popular.

Brick men are generally reporting plenty of demand to take all the brick they can get hold of, as the class of building being done is taking quite a large percentage of brick, as compared with other building material. The brick jobbers say that they have found many of the plants in the Kansas field to be crippled for lack of gas. This condition will probably improve now, but the spring has been a cool one to the present time and the gas companies probably have a good market yet from consumers who pay more than the brick companies can for the fuel. This gas trouble has held down

the production, but so far as this city is concerned there has been plenty of brick to supply all the demand, and there is no question about there being plenty from this time forward, as most of the Kansas City plants are now in operation, and unless building operations increase at a far greater rate than there is any indication of there will be more brick produced than needed in this field.

There is a good demand for pavers, and this seems to be a good year for brick manufacturers who can produce good pavers to turn their attention to that field, as there will probably be more paving work done than any other line of public improvements. There is a very strong sentiment in all parts of the country for good streets and good roads. This is probably caused by the automobile. The people who have automobiles are the class which can most easily create sentiment for whatever it wants, and they are now creating sentiment in large quantities, for they realize that here is one place where their expense ends with the sentiment once created. Then the property holder must take up the burden and pay for the improvements. Be this as it may, the fact remains that all parts of the Central West and South are agitating roads and streets, and there would seem to be a time coming when there will be so much paving that the paving material people will not need to fight for contracts, as there will be plenty for all and to spare.

The rock roads which are now in demand in the country will not stand the wear of the automobiles, as is well known by those who have observed them in the past, so there will be a time in the future when other paving material will be looked for, even in the country, and brick will probably get its share of the business when that time comes.

The price of common brick is now steady in this market at \$6.25 to \$6.50, on board cars for No. 1.

Word comes up from Caney, Kas., that the two brick plants located there have been forced to shut down on account of a lack of gas, and they do not know exactly what they can do.

At Altoona, Kas., they also have trouble. A new glass factory has begun operations there, and it seems that there is not gas enough for both the glass factory and the brick plant, so the glass factory is given the preference. K. A. W.

A NEW CAUSE OF SCUMMED BRICKS.

It is well known that sulphates occurring in clays are a prominent cause of scum, says the "British Clay-Worker," and that, in a broader sense all "soluble salts" are capable of producing this defect, but it is most unusual to find, as M. Campredon has done recently, a scum composed of practically pure, crystalline sodium carbonate.

The source of the scum is traced to the water used for the mortar and for dipping the bricks, previous to laying them. It is highly saline, and M. Campredon suggests that the lime in the mortar and the sodium chloride (salt) in the water have reacted on each other. This is a most unusual reaction at ordinary temperatures, but it appears to be the most likely explanation of what occurs, as the sodium carbonate is not present in either the water, the bricks or the mortar when these are examined separately before use.

The remedy is much simpler than when walls are scummed with sulphates, as a wash with dilute acid will remove the scum, though water alone would probably be equally efficacious.

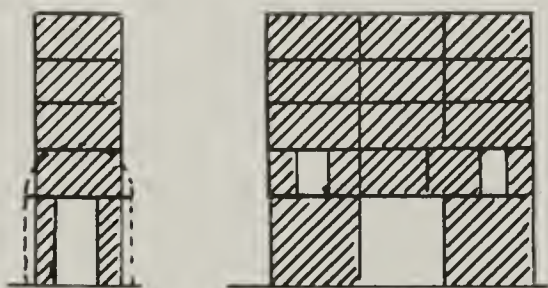
The weather predictors for the industrial press are advising that the sail be shortened during the present season and that everybody follow safe and conservative lines. No panic is predicted, but it is argued that strenuousness in extending operations for the coming season be dispensed with. One interpretation we can put on this is perhaps the high tension is to be let down, and we will once again get on a rational basis with the cost of everything, including the cost of living.



Scandinavian Clayworkers' Meeting.—The sixth annual meeting of the clayworkers of Sweden, Norway and Denmark will be held in Helsingborg from June 30 to July 1.—*Lerindustrien* No. 6, 1911.

The Weathering of Clay and Clay Smell.—Prof. Dr. Rohland in a very interesting article gives an account of the smell and taste of clay. He has made several experiments with different chemicals, and finds that some chemicals have the property of taking the smell and taste entirely away from clay, while others have no effect on the clay. Regarding the weathering of clays, he found that while water is principal agent used so far, ether will weather some clays quicker than water. When the clay was treated with chloroform or benzine no weathering takes place.—*Deut. Topf. & Z. Z.* No. 5, 1911.

Setting of Flues in Kiln.—The flues in a kiln are provided for the proper taking off of the firing gases, and to provide for the proper draft, so that the kiln will burn uniformly and quickly. A great deal of the success of the burning of the



Brick Kiln Flues.

kiln depends on the setting of the flues. Care should be taken that the ends of the flues are not closed up, so that the draft will be shut off. The cut here shown will give an idea of the proper method of setting flues.—*Deut. Topf. & Z. Z.* No. 15, 1911.

The Cracking of Brick.—The cracking of brick has been caused by different things. First of all, too strong water-smoking is the main fault of cracking brick. When the kiln is first started the fire should not be raised too fast, and the temperature should be taken on top of the kiln. If the whole kiln has a temperature of 250 degrees, then the firing can be increased. The doors of the fire boxes should be left open to some degree in order to drive the heat away from the arches. Second, when the clay is too plastic, cracking will often take place also. An addition of sand to the clay will usually overcome the cracking trouble.—*Deut. Topf. & Z. Z.* No. 11, 1911.

Wet Soles in Kilns.—The difficulty in raising the temperature in kilns which have wet soles is well known, but to many burners it is a matter of mystery why so small an amount of moisture can exercise so large an influence on the temperature.

The easiest way to understand it is to compare the kiln with a boiler. So long as a boiler is full of water the temperature inside it cannot rise very high, but directly the water has all boiled away the metal soon becomes red hot. It is a well-known characteristic of water that vessels containing it cannot readily be heated to a high temperature until the

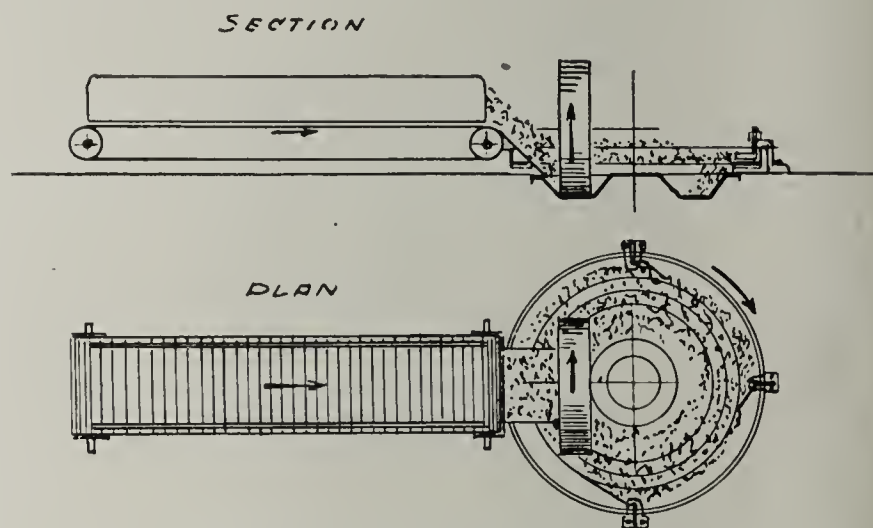
water has been evaporated and converted into steam. The same is true of the soles of kilns.

It is, therefore, essential that some method of removing the water should be found, and of the various means used the most satisfactory is a proper system of drainage, combined with a system of flues under the kiln floor, these flues being connected to a small chimney in such a manner that the steam is drawn away rapidly and passes out through its special chimney instead of entering the kiln.

If this method of ventilation is used it is important to see that the current of air circulating beneath the kiln floor is not more powerful than is really necessary, or a serious amount of heat may be lost by this means. The most satisfactory arrangement consists in drying the sole of the kiln by a somewhat vigorous circulation of air in the sub-sole flues before the temperature in the kiln is at all high, and then closing the damper connecting the sub-sole flues to the chimney until only just sufficient air passes to keep the floor dry.

Some idea of the saving to be effected by insuring the sole of the kiln being properly dry may be gained from the fact that each gallon of water removed from it will effect a saving of one pound of fuel. This may seem a small amount in itself, but when multiplied to correspond to the total moisture removed, it will be found to represent a large saving.—*British Clay-Worker.*

Conveyor Belt for Dry Pans.—The greatest capacity of a dry pan depends on the proper feeding of the same. To feed



Conveyor Belt for Feeding Dry Pan.

the material by hand is an expensive method, and better results are obtained by the use of a conveyor belt, as shown in the cut herewith. This arrangement is made by Buhler Bros., of Uzweil, in Switzerland, and has proven to give excellent results. The belt is covered with boards, and in that way the life of the belt is greatly increased.—*Tonind. Z.* No. 23, 1911.

The Drying of Damp Kiln Bottoms.—A damp or wet kiln bottom is a very bad thing for a brickmaker. It will not only spoil his burns, but will take a great deal more fuel than he first anticipated to use. The trouble can be overcome when the right precautions are taken, but should the brickmaker not be convinced that the wet kiln bottom is the trouble, he will then experiment along other lines, and lose a great deal of money. Mr. R. Schneider gives an example of the condition in which he found a continuous kiln with wet bottom, and what he did to stop the trouble. He found in the seven bottom courses of the kiln only black smoked bricks, then three or four courses of very soft burnt brick, and the balance of the kiln soft brick. The owner of the yard tried to blame the construction of the kiln for the cause. The kiln being of a new type and the burner not familiar with the handling of the same, was the principal cause of the trouble, it was stated. In order to overcome the trouble and to drain the ground around the kiln from the water a large cistern was constructed about 30 feet from the kiln. Three-inch drain tile

was used in two parallel lines. The drain tiles were also placed under the kiln bottom about two feet deep, and in that way they drained the whole kiln to such an extent that the burning improved directly, and no more trouble was caused from this source.—Tonind. Z. No. 20, 1911.

The Ceramic Industry of Holland.—The ceramic industry of Holland has been developed considerably in the last few years. Maasricht and Hague were formerly the two principal towns, while at present Delft has quite a large pottery industry. The total export was 195,163 tons, of which total there were exported to Belgium 89,947 tons; to Germany, 64,641 tons; to Great Britain, 13,053 tons; to Dutch East Indies, 9,836 tons; to the United States of America, 8,009 tons; to Russia, 3,965 tons; to Denmark, 1,112 tons, and to France only 17 tons. As the ceramic industry is principally art pottery and fancy ware, the importations of common ware are very great. The total importation amounted to 412,865 tons, of which amount Belgium imported the greater half part, with Germany next.—Moniteur de la Ceramique No. 5, 1911.

Graphite as a Destroyer of Fire Brick.—When the users of fire brick will point out the defects of the fire clay products used the manufacturers are in better position to improve their products and make a quality of brick which will stand the various uses better than before. F. Schreiber reported about the behavior of fire brick in coking furnaces. The fire brick would show, after being in use for some time, a symmetrical, sharp defined, dark layer of graphite. This layer was about three-fourths of an inch thick. An analysis of this layer showed a carbon content of 6.15 per cent. The brick would show considerable wear after being in use some time, and the brick would be much softer in texture than before. It was found that the acid brick showed this cause more than the basic and harder burnt brick, and evidently through the increased contents of silica, the pores of the brick were more open for the carbon gases. Another valuable point brought out by the analysis was that on every part of clay substance the original brick only showed 6.6 parts of silica, while the part attacked by the graphite carries 7.2 parts of silica to every part of clay substance.—Tonind. Z. No. 21, 1911.

Conversion of Up-Draft Into Gas Fired Kiln.—Could you tell us if it is possible to convert a substantially built up-draft kiln into a gas-fired kiln, and is it possible to burn bricks with gas in an up-draft kiln?

It is quite possible to convert a substantially built up-draft kiln into a gas-fired one, but the commercial advantage of doing so is highly questionable. It has, in fact, been shown repeatedly that there is little to be gained by heating single kilns with gas, but much advantage is to be derived when a continuous kiln or several single kilns connected together can be so heated. This is due to the fact that for effective gas firing a regenerator is necessary to heat the supply of air needed to burn the gas.

If, instead of gas-firing proper, an intermediate system can be used it will be found quite successful with a single up-draft kiln. In this case there is not one, but several producers, which take the place of the ordinary fire holes, and are fed with coal. This coal is converted into gas and the gas is burned inside the kiln instead of the coal burning direct as in the ordinary manner. The chief work in this direction has been done by a Scotchman, Mr. W. F. Murray, and by a Staffordshire china manufacturer, Mr. A. Woolley. Descriptions of both these kilns have been published in the "British Clay-Worker." We do not know about the former, but the latter has been in regular use ever since it was erected, and has proved quite satisfactory for china, though whether it would be equally so for bricks would depend on the clay of which they were made. In all probability, bricks of very uneven

color and hardness would be produced, and the fuel consumption would be much heavier than in a down-draft kiln or in one on the continuous principle.

No particulars are given of the shape and construction of the kiln; if this is of the open top or Scotch type it is quite unsuitable for ordinary gas firing, though the Fell-Woolley system just mentioned might be adapted to suit it.

The Fritting of Glazes.—It has been often observed that the condition of a glaze changes through fritting. While the melting point of glazes, which mature at high heat, is often quite reduced by fritting, the opposite is quite true of those glazes which mature at low heat. With glazes containing high lead contents and low silica this change by fritting is very pronounced. By fritting we have often reducing conditions, and while these conditions will not change the glaze, they have sometimes a bad effect. This can be overcome by firing with oxidizing temperature while the glaze is being fritted. When the glaze matures at higher heat after the fritting it is quite possible that it has taken up some grog of the fire brick. It is therefore well to have the frit kiln lined with such fire brick, which are of a basic nature and low in silica contents. Another point which should be watched closely is that the sand and grog in the glaze mixture are ground very fine, and that frit mixture is thoroughly sieved and mixed before being fritted, so as to insure a quick melting process. The frit kiln should be at high heat when the same is charged, so that the fritting will take place quickly, and the molten frit should be drawn off at once. The frit will gain in melting point when the molten mass remains long in the frit kiln.—Keramische Rundschau No. 8, 1911.

The Melting Point of Cones.—At the annual convention of the Manufacturers of Fire Clay Products, which was recently held in Berlin, Dr. Hoffman, of the German Physical Technical Testing Station, read a paper concerning the difference in melting points of cones. The tests were conducted on Seger cone 4 to 35. The results are tabulated herewith from cone 4 to cone 17. In the first column we find the temperature of the cones as advertised in the Seger cones circulars; in the second column we find the actual temperature as obtained in an iridium kiln; the third column gives the temperatures of cone melting points as found in the kilns of the ceramic industries. Column four is the difference between the advertised temperatures and column three, and column five is the difference between the experimental test and the actual ceramic kiln temperature.

Seger Cones.	1	2	3	4	5
4	1210	1225	....	...	....
5	1230	1225	....	...	....
6	1250	1260	....	...	....
7	1270	1285	1180	-90	-105
8	1290	1305	1200	-90	-105
9	1310	1335	1225	-85	-110
10	1330	1345	1235	-95	-110
11	1350	1360	....	...	....
12	1370	1375	....	...	....
13	1390	1395	1315	-75	-80
14	1410	1415	1375	-35	-40
15	1430	1435	....	...	....
16	1450	1460	1405	-45	-55
17	1470	1480	1410	-60	-70

The greatest difference is between the cones 7 and 8. With the higher cones the difference is lesser. While the degrees between cones 13 and 14 in iridium kiln is 20 degrees, between cones 16 and 17 it is reduced to 5 degrees and no uniformity has been found in the degrees, as stated in the circulars.—Sprechsaal No. 10, 1911.

The oil trust was too slick for the government prosecutors, so now they are trying to make an indictment stick around the sugar trust.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

We are about to engage in the brick business. Can you advise us of any preliminary steps that we should take before making definite arrangements?

The information requested can only be given in a general way, because specific cases require specific advice. However, one of the first things to look after is: What is the prospective market compared to your possible output? The day that some manufacturers had an advantage in freight rates is gone by and competitors no longer have this advantage one over the other. Bricks are a heavy material and large freight rates soon eat up what profit there might be in the business. Especially so as the larger modern plants are equipped at the present day with machinery and kilns of the most improved type looking to quality, cost and cheapness of production, and are furthermore supplied with appliances adapted to cut down the cost of handling raw material and finished products. A new plant should have all the best appliances commensurate to the probable output, yet the possibility exists that the little fellow oftentimes can get his clay in cheaper with a teaming outfit than it costs the big man, who has to use steam shovels and railroad equipment. Nevertheless, competition has cut into the profits of the brick manufacturing business and the beginner should equip his plant with the best obtainable machinery and kilns suitable to his clay.

Probably the next important consideration is the clay bank, upon which the primary future of the plant rests. Coupled with the probable yearly output, the life of the clay bank should be determined. This is best done by prospecting with bore holes and the resultant clay samples thoroughly investigated. These prospecting holes should not be too far apart, so as to leave out bad spots both as to quality of clay and the depth of the same. This prospecting should be done by an experienced party so that results are reliable. The writer knows of a paving brick plant that at the present time has to remove 30 or 40 feet overburden, and it has been frequently stated that if they had known that the overburden would run so heavy the paving brick plant would never have been started. At another plant after having run a short time the vein of clay these people used for making face brick ran out to a rocky fault. After a long time a suitable vein of clay was found on another man's land and had to be bought at a fancy price to keep the plant going.

Judicious prospecting would in all probability have discovered these discrepancies and saved many dollars and hours of worry. The machinery problem is the next important feature. Some sections of the country favor dry clay brick and others stiff mud and others soft mud. It would be folly to start a dry clay plant where there is a prejudice against them in favor of stiff mud brick, and the same statement holds good for stiff mud versus dry clay brick. All kinds of clays cannot be worked satisfactorily in any one type of machine, nor will all types of machines work a certain one kind of clay, hence it is of the greatest importance to install the proper machinery in connection with the probable demand for a certain class of brick. Salesmen for machinery have been known to say: This type of machine is not suitable for your clay. Yet with all that the brickyard owner has said: The trade at present demands the class of brick that your machine will make. In case this venture proves a failure, who would get or take the blame, the salesman or the brick plant owners? I do not think that in the majority of cases

in the failure of the operation of the machinery that the salesman should always get the blame, for it is one of the first principles of good salesmanship not to sell a customer anything that may prove unsatisfactory, and the perfect salesman is satisfied to miss a sale now and then, because he knows that he cannot sell everybody. In most cases the sale is made in good faith on both sides, as the salesman and proprietor know that brains must be used to run any machine successfully. Take the present fad, for instance. Two of the prominent dry clay press brickmakers were forced by the trade demand into the rough-faced stiff-mud brick, and they admit that in a way this type of ware is a failure with them, in that it costs more to make them than what they call a handsomer, stronger and better dry clay face brick, and thus these two firms are not an advocate of the stiff-mud process.

In case the decision should be for a wet process, the next problem that comes into view is the tunnel dryer. There are so many different tunnel dryers on the market, wherein each one has some feature of advantage, that its selection is one of great importance. The operation and functions of the dryer have to be in accordance with the characteristics of the clay, which necessitates a thorough understanding of the qualities of the clay.

The final feature to be looked after is the kiln proposition. The kiln problem has been thoroughly exploited, and why people having a limited experience will fool around with experimental kilns is a question that is difficult to understand. It should not be a matter of very great difficulty to select a kiln that will meet successfully the requirements of the product that is to be burned. The furnace or combustion part is probably the most difficult to decide upon, and its selection is governed by the type and grade of fuel that may be used to the best advantage. However, one of the attendant evils that come from improper kilns is the question of marketing the culls and seconds from a strictly face brick proposition. This class of ware is the one that cost the most and brings the least, and more than one face brick plant has proved a failure because the culls and seconds could not be marketed to advantage.

The question of drainage is of vital importance in the selection of a kiln, because water in the flues of the kiln is liable to cause burning of excessive quantities of fuel, besides cutting down the percentage of first quality brick. If you can go down deep enough it is of advantage to use a unit stack system, but if you have to stay up, then you necessarily will have to use a multiple stack system, where you do not need a great depth of flues.

Last but not least, one of the serious drawbacks in the brick business is the lack of working capital. One of the safeguards is: when you organize be sure to get enough capital in the start so that when the plant is completed you still have enough capital left to run and operate your plant, for if you don't do that you may have to make concessions to the brick broker for advance money that will cut down your profits considerably.

Statistics show that the successes in the brick business are about on a par with those of other classes of manufacturing plants, hence the risk of success or failure is along good commercial practice and contains no unusual element that would cause failure. About the best that can be said is: Start right, run right and you will come out all right.

I will close now with a word of caution, and that is: The brickmaking business is in a class of its own, and unless you

are very well posted in all details it is a wise business precaution to get the advice and opinion voluntarily of the man that knows and be in a position to carry on a paying business rather than be compelled to get the advice of the man that knows after your money has been expended and your plant is in a failing condition. This preliminary step is taken in other business undertakings, why not in the brick business?

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



WITH the first of May came strikes of the carpenters of the Twin Cities, following the refusal of their demand for a raise of five cents per hour from 45 to 50 cents. While the strike did not include bricklayers, it had its effect, since it suspended work which could not help but affect the brick trades. The workmen declare that they gave ample notice—dating from last January—which is true. On the other hand, the employers responded shortly after that they could not afford a higher minimum than forty-five cents, to which no response was returned. Two large concerns have yielded to the demands of the strikers, but in each case "there's a reason," the reason being that brewery interests were represented in the building under construction, and the brewery interests apparently do not wish to contend with the unions. Hence the submission to the demand. Aside from these two large concerns, one in St. Paul and one in Minneapolis, there are no conspicuous cases of granting the demands. In the St. Paul case, the building under construction was being built on a percentage basis, which made it all the simpler for the contractor, since he merely increased his own return by granting the demand.

There is a little hesitancy to be noted in building in general, due to the fact that things are not quite as active as could be hoped and many are holding off in every direction, awaiting a turn toward better things.

This is to be seen in the brick business, along with others. While the comparison is not exact with a year ago, because of the different and more favorable weather then as compared with the present spring, yet last spring there was a scarcity of common brick for the spring demand. Another difference which must be allowed for in making a comparison, is that there was a larger quantity of brick carried over the winter for the spring trade this spring than last. But making allowance for the differences, the fact remains that there is a plethora of brick this spring, against a scarcity of them last spring. The demand has not been up to last spring in brick nor in anything else, on the whole. There are exceptions, but in general that is the situation. There are a few isolated places where complaints are made of a scarcity of brick, but there are more that have a supply rather larger than the probable demand between now and the time of the new brick coming on the market.

New brick may be expected to be ready for market within a short time now. The weather has been free from sharp weather, and several predicted frosts have failed to arrive so that those who started early, were able to get under way without suffering damage. While it is notable that the demand has been rather less, there is a brighter side to the matter. It is apparent that there is a change in the public taste, or the advertising campaign of the National Association is beginning to have its effect, or something else is helping, for there is a greater number of brick houses being built through the interior points than ever before. The change is not of a heavy increase, but brick houses are more common among the building reports than formerly. Brick mantels, brick porch columns, ornamental brick porches, and brick trimming in various combinations, are all increasing somewhat in use through the Northwest, and they promise to develop a still greater demand for them. The principal objection is the uncertainty about getting the skilled labor, as well as the high prices which must be paid for such labor. The interest being shown in attractive brick work right now

is such that if it were possible to assure a good number of brick layers, there would doubtless be a marked increase in the work arranged, calling for brick. But when owners want work pushed there is apt to be a suggestion that chances are taken on brick work, because of uncertainties as to when the labor will get around.

The recent disaster in New York city, where 153 young women were killed because of a fire in a tall fireproof factory building where the fire escapes were not accessible, has led to a sharp investigation of factory conditions in the Twin Cities and the accessibility of the fire escapes. It was found that there were not many fireproof factories, and while there was a lack of such poorly arranged fire escapes as were in the factory in New York, that conditions could be improved, and directions were promptly given that the changes be made. Hollow-tile enclosed stairways have been built in many factories and other buildings, where the buildings themselves were not fireproof.

The brick yards of O. Duclos, Little Falls, Minn., have taken a contract to furnish 500,000 brick for the paper mill to be erected at Sartell, Minn., and for 2,500,000 brick to go to International Falls, Minn., on the border line of Canada.

Prof. W. M. Hayes, assistant secretary of agriculture, recently made a recommendation to the people of Red Wing, Minn., that they add to the public school curriculum there, training in the manufacture and decorating of clay wares, in the high school. This is quite in line with modern ideas on trade training, that local circumstances and conditions help materially in determining what subjects should be taught. The excellent clays and the unrivalled wares produced at Red Wing naturally suggest the propriety of training such subjects in the high school.

The Schroeder Brick and Lime Manufacturing Co., of Shakopee, Minn., has just installed a new brick machine of 45,000 daily capacity, and has gotten under way for the season's operations.

In St. Paul, the new city engineer has recommended naming a city architect to have charge of the department of building inspection, and to make plans for city buildings. He argues that the architect, by specializing in municipal work, would be able to produce a better type of structures, while the cost to the city would be much less than if work were placed on the usual fees.

The Heron Lake Brick and Tile Co., of Heron Lake, Minn., has just added to its plant a new 150 horse power Buckeye engine, a 120 horse power boiler, a 75-foot brick stack; increased the tunnel dryer from nine tracks to fifteen and has built a new down-draft kiln. The company makes a specialty of building tile, drain tile, partition tile, furring tile and similar materials.

Sam Kahn, of Blakely, Minn., has added a brick machine, a crusher, sand dryer, dumping table, and other equipment to his plant.

The Fort Pierce (S. D.) Brick Co. has been experimenting with crude oil for fuel, in place of coal.

The Minneapolis Builders' Exchange has decided to establish a bureau of employment, by which its members can secure the names of workmen available for work.

James Leck, of Minneapolis, has the general contract to erect an apartment hotel of forty small apartments, one room, kitchenette and bath, for the Iron State Realty Co., at Tenth street and Sixth avenue South, Minneapolis. The structure will be of brick construction. Cost \$40,000.

William B. Ittner, architect, of St. Louis, has been engaged to design a handsome pressed brick high school building for the city of Minneapolis, which will cost about \$500,000. Local architects in competition will make plans for several grade school buildings.

Ellerbe & Round, architects, of St. Paul, recently designed a \$200,000 building for the Zumbro Hotel Co., of Rochester, Minn. It will have Moquette face brick, Bedford stone trimmings, tile partitions, etc. G. S. Schwartz, general contractor.

The Kissel Kar Co., of Minneapolis, has had plans prepared by J. E. Nason, architect, of Minneapolis, for an enameled brick garage, to be erected at Thirteenth street and Hennepin Avenue, at a cost of \$35,000.

Lauer Bros., of St. Paul, have the contract for the new twelve-story office building for Herman Kretz, to be erected at Fourth and Wabasha streets, St. Paul. It will be of pressed brick, 65x150 feet in size, and will cost about \$250,000.

T. WIN.

Written for THE CLAY-WORKER.

NEW YORK'S REAL ESTATE SHOW.



REAL ESTATE around New York has not been as active as usual this spring and the influence thus exerted was noticeable in the annual Real Estate and Model Homes Show at Madison Square Garden during the last week in April and the first week in May. The exhibit, as a whole, was better than last year, though many prominent firms and individuals were missed, but the attendance was small.

Perhaps it is not too much to say that what was lost in attendance was made up in actual interest. Those who did go went to learn, to see for themselves the possibilities for the development of real estate in and about New York. Nor were they disappointed.

One conspicuous feature was the absence of all but a few

house and see exactly how your dwelling would be put together if constructed in this manner afforded a knowledge of the value of the material which could be gained in no other way. Even the wire lath was included, showing how the plaster adheres and how much better it is than the ordinary type of lath. It is needless to say that when anything is shown as plainly as that it is certain to attract attention from those interested.

As time and science advance, the defects of old forms of construction are becoming more and more apparent. Keeping abreast of the times signifies the perpetual process of discarding. Every day something becomes obsolete and must be consigned to the scrap heap. The building situation has changed along with the others. The primary idea of today is that the builder is an investor. Formerly men built for homes, but now they build first as investments, next as homes. This is particularly true about the great cities, where only a fraction of the people own the buildings they occupy.



The Fire-Proof House Exhibited by National Fire-Proofing Company at New York's Real Estate Show, Madison Square Garden.

brick and clay products firms. Not above five were represented, and they were there through agents, so that their products were all included in three booths. But these booths were made attractive, and well-informed attendants made the utility of clay as a building material plain to all who cared to ask. The National Fireproofing Company had a house of hollow terra cotta block similar to that of last year.

This fireproof building, however, unlike last year's, is shown unfinished. One side wall was omitted entirely, so that visitors might study the successive steps in the construction. The hollow tile blocks were shown free from the ornamental covering of stucco on one side, while on the other side the stucco is applied in the regular way. An illustration was given of how pipes are run through the hollow blocks and how the surface wooden flooring is put on top of the fireproof floor arches. It was, perhaps, one of the most noticeable centers in the show. To be able to enter a partially constructed

The laws, too, are determining the conditions of building safety and convenience. No longer may a builder construct a dwelling or a business building which doesn't meet the requirements of perfect sanitation or removes so far as possible the menace of fire. So common has this become that within a decade every builder will be compelled to conform to a strict code which will indicate what must be done in the way of sanitation and fire protection. That is already true in some localities. Shortly it will be true in all.

This makes it incumbent upon the builder to erect his structures not only for today, but for tomorrow. The form of structural material used must enable builders to avoid that class of building which will be obsolete within half a decade. This is so obvious that it scarcely requires mention. Yet perhaps it is worth while calling attention to it as a powerful influence in the construction of all sorts of buildings today, and it is, too, responsible for the active inquiries which have

been heard during the past few months. It means an awakening upon the part of builders and it is responsible for the activity in the revision of building codes and the concerted attempt in many localities to make them safer and more in accord with the best modern thought regarding construction.

The Natco people pointed out to visitors at their booth that Natco hollow tile construction insures a building fire-proof, damp proof, sound proof, age proof, warmer in winter and cooler in summer and maintenance proof. Said the attendant: "It puts you at once into the class of the future. It constitutes a sound investment for the money expended. You can indulge your fancy in the matter of exterior finish. It combines all the qualities which make a modern building notable."

"Natco tiles have six holes. The webs are heavy and the tiles are dovetailed with specially grooved ribs. The clay used is carefully selected and ground to extreme fineness. The blocks are carefully designed and molded in the wet. They are burned with a uniform degree of heat exactly the right length of time. Nothing is omitted that can make Natco tile adaptable to the construction of any sort of building. The firm can show a series of dwellings, for example, constructed at a cost ranging from \$4,000 to \$200,000, each peculiarly useful for the grade to which it belongs.

"I don't know what more I could tell you that would be of use. It seems to me that this about expresses its worth. The actual use of any manufactured article is the most convincing test of its value. The actual use of Natco tile makes unnecessary further explanations regarding its quality and usefulness."

Hundreds of people lingered about the exhibit and examined the construction carefully, expressing strong approval of its numerous advantages.

Mr. Pack, resident manager of the Ludowici-Celadon Company, had a display of roofing tiles which attracted much attention. The samples on exhibition, representing the methods by which they are applied, were illuminating and were potent factors in increasing the interest in clay products. They are ready to supply the best terra cotta tiles in all shapes and sizes and of such colors as the builder may desire. The proof of this was in the demonstration. Moreover, being both manufacturers and contractors, the firm is in position to do excellent work. In speaking of his exhibit and what it meant Mr. Pack said:

"In clay tiles we have a roofing material available in any color or shade with strength of line, either vertical or horizontal, according to style required. They furnish effectual assistance to architects in carrying out their designs and color schemes. A tile roof may be constructed to harmonize perfectly with a building, no matter what the style of architecture may be. With slate or shingles the architect is limited to one shape and with slate he is limited to an exceedingly narrow range of color. Tiles, therefore, in comparison with other materials, are especially decorative, adding to the harmony of design and the beauty of color scheme. Roofing tiles are fireproof. Flying sparks and burning brands cannot endanger the home covered with a tile roof. They reduce the expense or insurance and increase the safety of the buildings at the same time.

"They make a permanent roof. No decay, no breakage, no repairs. Tiles are everlasting and roofs covered with them have no maintenance charges. The building roofed with tiles is cool in summer and warm in winter, as burned clay is a perfect non-conductor of either heat or cold, and a roof so covered is practically lightning proof.

"Through the forms of interlocking capillary attraction doesn't affect them, and a natural drainage is afforded from the face of one tile to the face of the one next below it. Clay tiles have, therefore, the vital features to make the ideal roof—permanence, weather proof, fireproof, non-conductivity,

strength and beauty. They have qualities and possibilities that do not exist in any other roof, and, as the roof is quite as important as any other portion of the building, why should not tiles be used?"

This firm has supplied the roofing material for many important buildings in different parts of the country. And always with the complete satisfaction of the owner.

Edward E. Buhler & Co., selling agents, 103 Park avenue, New York, had an excellent exhibit of building tile, fancy tile for various purposes and other clay products. The company handles clay products and masons' materials, sewer pipe and flue linings and tops and other articles used for various purposes. They are also agents for the products of the Pennsylvania Fireproofing Company, Erie, Pa. All the sorts of articles usually included in a display of this type were there and the visitor could obtain a reasonably accurate idea of what he wanted or how the various articles looked from an examination of this exhibit. Mr. Buhler was present, assisting his staff of helpers in caring for visitors and explaining such things as they wished to know.

They make a specialty of their dovetailed building block, for which they claim superior advantages. It attracted much attention from builders and others and created a good deal of interest in the minds of all who saw it.

In the center of the booth was a display which represented a good many varieties of clay products, each used in its proper way and showing how they look when put together. This attracted attention, too, and led to many questions regarding the utility of such products in the ordinary course of construction.

The long list of buildings, including both dwellings and business structures, was sufficient testimony of the excellence of the product. The numerous photographs of these buildings afforded ample proof of their excellence of design and workmanship.

Mr. Buhler was enthusiastic over the firm's success and was quite sure that the future will bring more than the past.

The lesson of the Real Estate Show, if there is any lesson, is surely for the brick man, or, at least, the manufacturer of various classes of products from clay. The one thing the brick man needs today is to get his product before the people. Other building products are thrust upon their notice whichever way they turn. There is no end to the money expended in advertising them. Here was an opportunity to show one's product to a considerable number of men who are actually interested in buying something with which to construct buildings of various types. Yet only three firms took the pains to exhibit.

The value of such exhibitions cannot be measured by the sales made at the show. In other lines, if sufficient is sold at the show to pay the expense of a part of the exhibit only, it is considered well. If, however, nothing is sold, the manufacturer considers that he has made a good investment in getting his product before the people.

The clay manufacturer should look upon real estate shows in the same light. Perhaps he will not sell sufficient there to pay the expense of his exhibit, but the fact remains that in some way he must attract the favorable attention of the people, those who buy material, those who build houses and other structures. If he doesn't the more vigorous advertiser of some other material will secure business that the clay man might have.

It will do no harm to think this phase of the Real Estate Show over before next year and resolve upon a course that will prove to visitors that such a thing as brick and clay products actually exist. With such neglect upon the part of the makers themselves, what can they expect from the public? If a man has a good article publicity will increase its sale. The question of quality is not involved in this. It is the question of favorable publicity.

THE EFFECT OF PRELIMINARY HEATING TREATMENT UPON THE DRYING OF CLAYS.

By A. V. BLEININGER.

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I. Object of the Work.

THIS INVESTIGATION has been undertaken for the purpose of looking into the possibility of using the excessively plastic clays, which on drying by any commercial method show great losses due to cracking and checking, by subjecting them in the crude state to a preliminary heat treatment before working them by the usual methods. There are, especially in a number of the Western States and on public lands, many clays of this sticky, heavy type which resist all ordinary modes of preparation. To this class of materials belong the so-called joint and swamp clays of the glacial regions of Ohio, Indiana, Illinois, Wisconsin, Minnesota, North Dakota and other States and Territories.

In order to bring out clearly the various effects of such a preliminary treatment, extensive laboratory experiments have been made on small and large samples of widely differing plastic clays. Preheating, rather than other possible treatments, such as the admixture of sand or sandy clay or the addition of salts like sodium carbonate and sodium silicate, has been chosen, since the mixture with non-plastic materials like sand presupposes the presence of the latter within a reasonable distance, which frequently is not the case; on the other hand, the incorporation of soluble salts even in very small amounts may give rise to the appearance of disagreeable efflorescence on the surface of the ware. Still other means of dealing with this problem, such as the exposure of the dug clay to freezing during the winter or drying out in the summer, are not always practicable nor effective. Furthermore, mechanical drying has become a well-developed feature of many industrial processes, and its cost is in part compensated by the resulting regularity of the manufacturing process, the possibility of eliminating objectionable mineral detritus like gravel, lime pebbles, etc., and other desirable features.

II. General Conditions of Drying.

(a) The Plastic State.—The use of clay in the arts depends upon its plasticity, the property of retaining any shape into which it is molded, supplemented by its quality of hardening to a stonelike mass when dried and burnt. The cause of plasticity has been made the subject of elaborate discussions,¹ but as yet no exact explanation has been found for it. The most convincing experimental researches² ascribe the phenomenon of plasticity to the presence of colloidal substances which behave in many respects similarly to the typical colloids, such as silicic acid, ferric hydroxide, aluminum hydroxide, gelatine, glue, etc., in that they show the phenomena of hydrolysis, osmosis, adsorption, the ability to change from the gel to the sol form and vice versa in the presence of an excess of positive or negative ions, the property of shrinking in apparent volume down to a certain point proportionally to the loss of water, and the character of their dehydration and vapor tension curves.

This view therefore appears to offer the most satisfactory basis for explaining the properties of clays and seems to

¹For an excellent summary, see Heinrich Ries: *Clays. Their Properties and Occurrence.*

²Schloesing: *Campt. Rend.* 79, pp. 376-80, 473-77, 1874. Van Bemmelen, *Zs. f. anorg. Chemie*, 18, 14-36, 18, 98-146. Cushman, A. S., *The Colloid Theory of Plasticity*, *Trans. Am. Ceramic Soc.*, 6, 65-78; On the cause of the cementing value of rock powders and the plasticity of clays, *J. Am. Chem. Soc.* 25, 451-468. Ashley, H. E., *Bull.* 388, U. S. Geological Survey.

reconcile some of the older theories which have been proposed.

We may then assume that the cementing substance of clays is represented by some colloid, not necessarily of a definite chemical composition nor always of the same physical character, which possesses a more or less marked micellean structure in which water is held in the free and absorbed condition. Owing to the fact that clays are of different origins and are subjected to various modifying conditions during and after deposition, it is very probable that they are made up of colloidal substances, which vary widely as regards their physical structure. Thus the clay substances of the light burning, plastic clays is bound to differ considerably from that of the red burning surface clays and shales, not only in amount, but in character as well. Again, in many clays, especially those of primary origin, the transition of the crystalline matter to the colloidal condition still goes on, due to weathering and other agencies. This applies particularly to materials of the kaolin type. In other types the colloidal clay substance has been in part "set" by certain geological conditions, though not irreversibly. In these a close and dense structure prevails which does not absorb water until the latter is forced into the pores by grinding and pugging. Clays of this type therefore show but a feeble initial plasticity, but become workable by energetic mechanical treatment. Fire clays and shales are especially apt to show this kind of behavior.

It seems to be a fact, however, that plasticity as measured by the ability of the clay to be molded, and to flow through dies, is dependent upon the development of this water-saturated micellean structure.

Equally important with the degree to which this condition of the cementing substance is developed is the amount and character of the non-plastic constituents of the clay which affect the plasticity as well as the resulting density of the clay body. This inert mineral matter, consisting of grains of quartz, feldspar, mica, limestone, pyrites, augite, hornblende, etc., not only dilutes the plastic clay substance, but by virtue of its granulometric composition, becomes a prominent factor in determining the resulting plasticity, drying shrinkage, ease of drying, and final density.

Since it is necessary to assume that each grain of non-plastic material be surrounded by an envelope of plastic substance, it is readily seen that the extent of the surface exposed by these particles is of great importance in regard to the plasticity and capillary structure.

Considering the subject theoretically and assuming that the crystalline grains are spherical in shape and fill a certain unit volume as compactly as possible, it can easily be shown that the total pore space remains constant at 30.3 per cent. of the total volume, but that the surface exposed by the grains varies. If, for instance, the size of the particles were reduced from a diameter of 0.75 mm to 0.25 mm, the total surface exposed under the above conditions would be three times as great as before. On assuming a reduction in size from 0.75 mm to 0.125 mm, the surface would become six times as large. Or, speaking more generally, the surface exposed by different sizes of grain would be inversely proportional to the diameter. The surface of compactly arranged spherical particles in unit volume would vary as $4.1845 (1 \div d)$, i. e., proportionally to the product of a constant and the reciprocal of the diameter.

Assuming that each particle must receive an envelope of plastic matter of uniform thickness, it is evident that the

smaller grains would require a larger amount of this material than the particles of greater diameter. It is conceivable, therefore, that a definite volume of clay might prove insufficient to coat a large number of very fine grains, while the same quantity would be ample for an equivalent volume of larger, non-plastic particles. In the latter case, therefore, we should expect to find greater mobility of the mass as a whole owing to the thicker enveloping layers which are made possible, i. e., the larger grains reduce the plasticity of the clay less than the finer. By analogy it appears, then, that the tensile strength of the clay would be the greater the larger the average size of the granular matter, provided the total amount is kept within proper limits.

If the non-plastic particles are not uniform in size, it is evident that the pore space between the granular skeleton is decreased and it is possible to assume a combination which will result in maximum density. Of two sands mixed with the same weight of clay the one producing the smaller volume of clay-sand mixture will show the greater density. The granulometric relations holding between the various sizes of granular matter in clay are similar to those applying to cements, as shown by the experiments of Feret,³ although, however, there are certain differences inherent in the nature of clay.

It is seen, hence, that not only the amount and character of the colloidal clay matter, but also the amount and sizing of the non-plastic constituents govern the resulting plasticity. In addition, other factors are bound to be of more or less influence, such as the shape of the non-plastic particles, the presence of organic matter, various salts, bases or acids.

(b) The Evaporation of Water from Clay.—In making up dry clay with water to form a plastic mass which may be shaped and molded, the resulting volume is somewhat greater than the sum of the volumes of clay and water. In this condition the clay particles, both plastic and granular, are surrounded on all sides by a film of water, while small pools or drops fill the cavities and pores between the grains. A tortuous system of capillaries is thus established which are wider in some places and narrower in others. When placed in an atmosphere saturated with moisture, equilibrium conditions are reached when no flow of water whatever takes place in these minute channels. As soon as the humidity is lowered, however, evaporation begins to take place on the surface, and every particle of water thus removed must be replaced through the capillary channels from the interior. The rapidity of this movement depends upon the structure of the clay—i. e., whether the capillaries are fine and intricate or coarse and short—and upon the temperature and humidity of the outside air. Open structure, high temperature, and low humidity result in maximum capillary flow and vice versa. Since the spongelike colloidal matter with its immense surface and fine pores offers the greatest resistance to the passage of water, it is obvious that in highly plastic clays the movement of the water through the capillaries must be very slow, it having been estimated that the resistance to this flow is inversely proportional to the fourth power of the diameter of the channels. The capillary flow continues to grow weaker until the films become very thin and finally break altogether.⁴ The water remaining within the colloidal interstices and within the pores in isolated films is expelled with increasing difficulty, and, owing to its low vapor pressure, requires a high temperature for its complete expulsion.

Considering now the drying of clay from the experimental standpoint, the relation between shrinkage and loss of water during this process might be examined in a specific instance. The curves of figure 1 represent the linear shrinkage of a clay sphere in terms of the diameter in the dry state and the

loss in weight expressed in per cent. of the dry weight plotted against the time of drying in hours.⁵ The sphere was 7.11 cm in diameter in the wet state and was carried through the drying stage in an oven maintained at a constant temperature of 60 degrees C. When a loss in weight was no longer observed, the temperature was raised to 120 degrees, and finally to 200 degrees. In each case the same temperature was maintained until the weight was constant. It is noted that down to a certain point the rate of shrinkage is proportional to the rate of the loss in weight, then the shrinkage becomes less than the loss of water, and finally it ceases, while the clay continues to evaporate water. The point at which shrinkage no longer takes place and where the clay grains are supposed to come in contact with each other is used to discriminate between two kinds of water. On drawing through this point a line parallel to the abscissa, the water lost above it represents the shrinkage and that below it the so-called pore water. Neither term is rigidly exact, since in some materials, especially of the porous, feebly plastic type, the first loss in water is not necessarily equivalent to the shrinkage, and again the pore water includes also the adsorbed water and the water of imbibition.

The loss of water continues at a decreasingly slower rate until the weight is constant at the given temperature. Upon raising the temperature more water is expelled and this continues until finally the last residual portion is set free. The

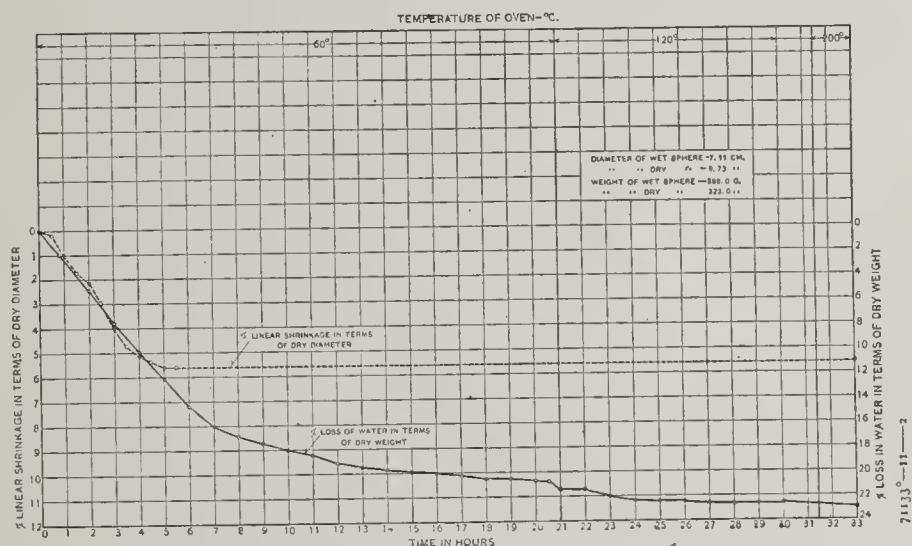


Fig. 1. Relation Between Loss of Weight and Shrinkage in the Drying of Clays.

decreasing rate of the water loss is evidently due to the decreased capillary conductivity⁶ brought about by the reduction in the number of the capillary paths, the effect of surface tension and adsorption phenomena and with them the decrease in vapor pressure.

Upon bringing clay dried at atmospheric temperature again in contact with water the latter will at once be absorbed and the air within the network of capillaries expelled with the evolution of heat. The colloidal matter will swell in taking up the water so that not only the pores of the clay mass become filled, but a certain amount of the water is absorbed into the micellean structure. Clay invariably takes up water more readily in the dry than in the moist condition.

The water of the clay, as may be inferred from the fact that its vapor tension constantly becomes smaller, is by no means expelled completely when the specimen has reached the "bone-dry" condition at the temperatures of the commercial dryers. According to the nature of the clay and its structure more or less mechanical moisture remains, which is given off only at higher temperatures. This so-called hygroscopic water which is held so tenaciously usually remains to be driven off in the kiln. It is evident therefore that this moisture is readily absorbed by dry clay from the air. In

³Bull. de la Societe d'Encouragement, 2, p. 1604; 1897.

⁴Studies on the Movement of Soil Moisture, E. Buckingham, Bureau of Soils, Bull. No. 38, p. 41.

⁵E. F. Lines, Note on the Drying of Clays, Trans. Am. Ceram. Soc., 10, p. 146.

⁶Edgar Buckingham, Bull. 38, Bureau of Soils, p. 43.

TABLE I.

	Loss in Dry Weight on Heating.											
	—In Per Cent.. of the Dry Weight—											
	1	2	3	4	5	6	7	8	9	10	11	12
Loss at 200 degrees..	0.23	0.11	0.10	0.42	0.10	0.48	0.49	0.06	0.06	0.33	0.58	0.30
Loss at 150 degrees..	.17	.005	.16	.004	.10	.006	.34	0	.06	.001	.40	.12
Loss at 110 degrees..	.25	.11	.14	.40	.32	.32	.18	0	0	.11	.27	.005
Loss at 100 degrees..	1.56	.75	.93	1.17	1.30	1.28	1.36	.277	.24	.64	.85	1.20
Loss at 60 degrees...	59.84	20.17	37.92	38.84	45.61	42.40	29.19	28.72	45.87	24.59	30.72	49.80
Total loss.....	62.05	21.15	39.25	40.83	47.43	44.49	31.56	29.06	46.23	25.67	32.82	51.43

table I the results of drying 12 clays at temperatures from 60 degrees to 200 degrees C. are shown; at each temperature the drying was continued until the weight became constant.

The increase in volume on the addition of water to dried clay is practically equal to its previous shrinkage on drying, provided the material has not been subjected to a higher temperature while in the dry state. If this has been the case the amount of water again taken up and the increase in volume will be distinctly less, and this is the more pronounced the higher the heating has been carried.

This is in accord with the results obtained by Van Bemmelen⁷ with silicic acid gels in which he noted a distinct lag in the absorption of water on rehydration. He found that at first the liquid between the pores of this colloidal material left at a rate corresponding to the evaporation of free water. This was found to hold true for a water content of from 120 to 125 molecules.

Below this point the liquid within the micellean interstices evaporates at a continually slower rate owing to the narrowing of the capillaries. Also the vapor tension of the colloid decreases steadily, corresponding to the decrease in the content of absorbed liquid. At the same time constant changes occur in the physical condition of the substance which are slow at ordinary but accelerated at higher temperatures.

Van Bemmelen studied the inversion points by placing the silicic acid gels into dessicators containing 36 concentrations of sulphuric acid and hence corresponding to 36 aqueous tensions. He found several inversion points in the resulting dehydration curve. First, the substance becomes dull and fluorescent, then white like porcelain, and finally opaque white, like chalk, without gloss. This inversion changes the dehydration curve, since for a distance it runs parallel to the abscissa. The capacity to hold water then decreases more rapidly than before the inversion point. On continuing the dehydration still further the dimness disappears just as it appeared. The gel becomes porcelainlike, of bluish fluorescence, and finally as clear as glass, remaining thus until the final dehydration. Also, when the gel is at once exposed to higher aqueous tensions, after the inversion, it becomes gradually homogeneous and clear as glass. These inversions may be repeated, and they are hence reversible under certain conditions. It is evident therefore that certain changes occur in the micellean structure of the colloid at these inversion points, forming new coagulations, which disturb the continuity of the dehydration curve.

By taking now the silicic acid pats which have been carried on to the lowest aqueous tension (most concentrated sulphuric acid), and placing them in the dessicators containing the more dilute sulphuric acid solutions rehydration takes place. Van Bemmelen in again plotting the molecules of water at each stage against the aqueous tension then found that the dehydration curve was not reproduced, but that a distinct lag was observed analogous to hysteresis, i. e., while a certain aqueous tension in the case of the fresh silicic acid corresponded to a certain amount of water, the same tension in the rehydrated substance was equivalent to a smaller amount of water.

While a homogeneous substance like silicic acid is not

strictly comparable to a heterogeneous mixture like clay, certain observations bearing on the one might be utilized in connection with the other. The question which naturally arises is to what extent the plasticity of clays and its related phenomena, such as shrinkage, are reversible on heating clays up to temperatures still considerably below the dehydration point at which practically all clays lose their working quality completely. It has generally been understood that, up to the temperature at which the combined water is expelled, the plasticity and water absorption are to a large extent reversible; that is, the clays are able to resume a large share of their original plasticity. On the other hand it has been realized that a certain lag is observable since in pottery work it has been found that the dried ware which is again returned to the plastic state does not possess the same working quality on the jigger that it possessed originally. Whether on sufficient working and ageing the clays would resume their initial plasticity is an open question, though it would seem very likely that this would be the case as far as the usual dried clay is concerned.

(To be Continued.)

A NEW FIRM IN THE FIELD.

The Trautwein Dryer and Engineering Company, which has been recently incorporated, has entered the clayworking and dryer field under the most favorable conditions. They will engage, not only in the designing and equipment of waste heat dryers, but will also act as engineers for the construction of clayworking plants.

The name Trautwein has long been prominently identified with the waste heat dryer branch of the clay industry. Mr. J. O. Trautwein, the president of the company, has been prominently connected with the L. E. Rodgers Engineering Company, of Chicago. He has designed some of the most successful dryers using the heat from cooling kilns ever erected in America, and the Trautwein system is the outcome of his past work. Through long experience and practical training he has acquired a knowledge of this branch of the business which has made his services of great value to clay products manufacturers. He is a recognized authority on drying of clays, especially by the use of waste heat from cooling kilns.

The construction of power plants for the economical use of fuel with proper piping facilities, has been carefully developed by Mr. Trautwein. He is a member of the American Society of Heating Engineers, composed of the most able men in that profession, and in the past has designed the heating systems of almost every type of building. His technical education has been added to by special studies, of which he has made a specialty.

While the application of waste heat to the drying of clay products has been used for a number of years, its more practical use was made possible by his careful and persistent study. Special systems, both in dryer design and apparatus, have been carefully devised by him, and the same policy will be carried out by the new company that has made Mr. Trautwein's past work so successful.

In addition to the drying of clay ware, this company will conduct a general engineering business for the design and supervision of modern clayworking plants, and will be glad

⁷Zs. f. anorg. Chem. 18, 14-36; 18, 98-146; 20, 185-211.

to correspond in an advisory capacity with clayworking concerns regarding difficulties of manufacture which they may wish to overcome.

The Trautwein Dryer and Engineering Company occupies offices in the Plymouth building, at 417 South Dearborn street, Chicago, where clayworking manufacturers will always find a hearty welcome.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BUILDING operations in Cleveland received a temporary setback this month when between 800 and 1,000 union bricklayers went on strike. They laid down their tools on Saturday evening, May 8 and refused to go to work again until demands are met. The contractors are holding together in strong shape and it is possible that the strike may be of considerable duration.

The men are demanding a half holiday on Saturdays and also want to be paid on Saturday mornings at 11:30 o'clock for the work done up to Friday night. In addition the union demands 70 cents an hour for fireproofing and tiling instead of 62½ cents as now provided. The contractors say that with the short building season and the rush of work the bricklayers should help in getting the jobs out of the way instead of asking holidays, when they spent much of the winter idle. As to paying Saturday morning, the contractors, when they have several jobs on hand find it a physical impossibility to get to the banks get their money, and to get the payroll completed and the envelopes around to the men on the different buildings. As for the raise for fireproofing the contractors maintain that the Cleveland workers are being paid a fair and reasonable price as compared to existing wage scales in other cities.

The open shop principle exists in a number of industries in Cleveland and it is said to be the intention of the mason contractors to enforce the same provision in regard to bricklaying. If such an effort is made or if non-union bricklayers are brought from other cities the union men declare that the strike will spread to other branches of the building industry. In the meantime most of the building operations about the city have been suspended and may remain so for some little time. It was hoped that a strike could be avoided but the contractors felt that the demands of the men were unreasonable and made up their minds to fight them.

Though the setting of brick has ceased temporarily the various manufacturers and dealers report that business is good for this time of the year and that many large orders are being secured for delivery within the next three months. Operations are ahead of those of last year and indications are ahead of those of last year and indications are that the volume of building for 1911 will be the greatest in the history of the city.

Some important tile and brick contracts are to be awarded within the next month. These include the twelve-story \$2,000,000 hotel for the Statler Co. at E. 12th st. and Euclid Ave. and the \$500,000 central Y. M. C. A. building at E. 22nd st. and Prospect Ave. Excavating has begun on both projects and the mason and steel contractors are now busy figuring both jobs. It may be a month or two before the \$4,000,000 interurban depot job is gotten under way but the latest reports are that the financing has been about completed and the D. H. Burnham Co. of Chicago has been instructed to proceed at once with detailed plans for the structure, which is to include a twelve story hotel, a sixteen story office building and a waiting room and interurban train arcade.

One of the largest new projects to be announced this month is a \$200,000 market building for the Cleveland Model Market Co., to be erected on Euclid avenue just east of the

Euclid Garden theater. It is to be ninety feet wide, 490 feet long and two stories high, with a glass vaulted roof. The exterior is to be of white glazed terra cotta and the interior of the same kind of terra cotta, glass, and marble. There will be 144 stalls, each refrigerated from a plant in the basement. The plans for the big structure are being completed by Architects Knox & Elliott and it is expected that work on the new structure will begin within the next two weeks.

Fifteen buildings of different sizes and built of different colors of brick are to be included in a huge plant to be erected on thirty-four acres of land in the heart of a residence section in east Cleveland by the National Electric Lamp Co. of this city, one of the largest producers of incandescent bulbs in the world. The plant will not be used for manufacturing in any sense but will house the executive offices, the selling force and provide laboratories and schools for the experts and employes, of whom there are several thousand. The grounds will be laid out attractively and the landscaping will be elaborate. Plans for five or six of the buildings have been completed by Architect Frank E. Wallis of New York city. They call for brick throughout with terra cotta trimmings. It is expected that contracts on this work will be let within the next thirty days. Most of the buildings will be two and three stories in height and of attractive architectural design.

Something absolutely unique in home architecture is to be built in a fashionable suburban section, just outside of Cleveland, within the next year from plans by Frederick Wm. Striebinger, architect of this city. It is to be a large two or three story residence and is to be of white glazed terra cotta throughout. The house is to set on an eminence, overlooking a wide stretch of country, and is to be of fireproof design, costing in excess of \$150,000, it is said. It is for Harry Coulby, wealthy vessel owner and manager of the Pittsburg Steamship Company of this city. It is expected that as the sunlight strikes the white terra cotta building on the hill that it can be seen for miles around. Attractive landscaping is to be made an aid to the general beautification of the house and adjoining property. It will be the first house of this type near Cleveland and if it is the success expected it is likely that more of the same kind will be built.

By a court decision just handed down the city is permitted to proceed with negotiations with the railroad for the erection of the new \$12,000,000 union depot project for Cleveland. The building itself will not cost more than \$3,000,000, but the grades will have to be changed and much filling in done so the cost will be at least \$12,000,000 according to railroad officials. The exterior will be of stone, but millions of shale brick will be employed in the foundations and interior walls.

Two new theaters, each costing about \$75,000 apiece and accommodating regular dramatic productions or vaudeville and moving pictures are to be built during the coming summer. One is for George Canfield, and is at Broadway and East Fifty-fifth street, and the other is for Salesbury & McLaughlin and Emil Raus, and is at Broadway and Harvard avenue S. E. The first will accommodate about 1,500 and the other about 1,800. They will be ready for occupancy in the fall. The exteriors of both structures will be of brick with steel fireproofing clay and concrete interiors.

County Engineer Frank Lander, in charge of the brick road construction work which is being done by Cuyahoga county, the best paved county in the world, has been honored in an unusual way, by being tendered the position of superintending construction engineer of a 102-mile brick road improvement, which is to be built across the state of New Jersey. The Cuyahoga county brick road specifications were selected from a host of others as the best that could be found. The position offered Lander guarantees three years' employment at his own salary. The 102 miles of pavement will cost in excess of \$2,000,000 and will be paid for equally by the state of New Jersey and T. C. DuPont, head of the powder trust. Lander will go East this month to look over the entire situation. He has not indicated, however, that he will accept the position.

A. BUCKEYE.

Written for THE CLAY-WORKER.

BUTTON HOLE TALKS.



HE "DOC" was dead; Lying stark and stiff on his cot in a ten cent rooming house they found him in the morning, ragged, destitute and wan, but with a smile on his rigid dead face that was a wonder to the rough attendants, who, hardened and calloused as they were by their surroundings, stepped softly as they moved by. A rough pine box and the Potters Field finished the scene. No one followed to the grave and when the clods of earth covered the box the "Doc" had finished his race and no one mourned and no one missed him.

And this was the end for "the richest man in the world."

I knew this was so for "Doc" had told me himself. Told it with a happy contented smile, a generous benevolent smile, that told of long effort of successful conquest and ultimate victory.

Twenty years ago I knew "Doc" when he was a patent right promoter. Then in his vigor and impetuosity he could "Talk an arm off" any likely customer and convince him, off hand, that this was time to get in on the ground floor, the one time that opportunity was knocking at his door. How he could talk and how he could coax the hoarded coin from its hiding place.

It is probable he never tried the experiment, but I am convinced that had "Doc" but exercised his talent on one of the Cigar Store Wooden Indians, it would have resulted in the prompt handing over of the cigar bunch that the aborigine had long successfully held out in his wooden hand. But the "Doc" had judgement and never wasted his talent on wooden men, but caught the live kind, and those of the live ones who had the spoils with them, and then bent his talent to separating them from those spoils.

Then twenty years later he drifted into my office with the same old happy smile, the same old cordial beneficent manner, the same old ready flow of language—and apparently the same old suit of clothes he had worn twenty years prior.

Beaming benignly on me, he told me of his success, that I must keep still about it, but he could buy and sell Rockefeller, and was without doubt the richest man in America and for that matter in the world. That he had just been over to the City Hall and had put the entire Police Force on his pension roll. That he had remembered me all these years and wanted me to stop my work, wearing my life out "chasing the dollar." Why should I continue the weary chase, the long chase, the stern chase after the elusive coin, when it was so easy for him to fix it for me, and he should so delight in so doing—tomorrow. He very lightly touched on the fact that this engrossing plentitude was only to come on the morrow. That little incident did not at all mar his present happiness, it was only a minor incident; one of those little affairs that lofty natures throw off as of the small affairs of life, that a real man of affairs should not bother himself about as he moves among the great matters of large finance.

Appreciating something of the practical difficulties that attend the financing of eating and sleeping, of today's practical wants as sternly proceeding tomorrow's arrival of wealth. I arranged a transfer of small silver for the days needs—without hurting his feelings. He then passed out to the outer office and, with a benevolent smile, arranged his pension list so as to cover all my office force and, happy and benevolent as ever, passed out on the street to carry his benevolence further.

And now the end had come and he was buried. He had dreamed his dream to the very end. To him it was real and positive. His wealth was where no thief could take it, for it was safe locked in his mind. Rockefeller had to guard his millions, but not so with "Doc" no one could touch his. His pension roll was always open and his gratification in adding a new name was greater by far than could be that of the candidate.

He had lived his life in the clouds and kindly nature pro-

vided that he should not emerge until he entered that mysterious land to which we all go and of which we know nothing.

"Doc" was dead but his dying eyes had seen no surroundings of a cheap lodging house but held the dream to the very last.

Of course I knew "Doc" was crazy this time and of course I know that he was crazy twenty years ago when he cleaned the money out of my pockets, and for that matter I know now that I was crazy twenty years ago when I let him do it. The "Doc" never got over being crazy, and, horrible thought, have I ever recovered?

GATES

HOW LOUISVILLE BOOSTS BRICK.

THE Louisville brick people caught the publicity spirit at the annual meeting held there in February and since that time have organized the Louisville Building Brick Association and have been doing some real live-wire work in the way of boosting brick for building operations. The organization includes brick manufacturers and dealers and also prominent brick contractors who have joined hand in hand with them to encourage the use of brick for building operations, and has a meeting every Tuesday evening at the office of Owen Tyler where they discuss plans to keep up the spirit of enthusiasm.

The method they have followed so far has been that of some very catchy advertising and boosting in one of the local papers, the Louisville Herald. They have chosen the Monday morning issue of the daily Herald and have one page headed with a conspicuous and unique heading relating to the building brick world. On this page is carried the advertising of local brick manufacturers, dealers, and contractors of which we give a reproduction on the opposite page, and along with it goes reading matter pertaining to the brick building industry, including articles of interest on news about and plans of attractive brick buildings and general gossip of the building trade, especially when it relates to the use of brick.

It is a very attractive method and presents a mighty strong feature in the Monday issue of the Louisville Herald and it certainly should result in good both to the brick business generally and to those who are contributing to it in the way of advertising. This is an example that might well be followed by brick manufacturers and contractors in not only the other large cities throughout the country, but even in the smaller towns brick manufacturers and contractors might all get together and make a feature of this kind not only out of brick advertising but of brick news and brick features calculated to arouse the public interest to building with brick.

BRICKMAKERS OF NEW YORK TO ORGANIZE.

A score of the brickmakers of central and western New York held a meeting at the Lafayette Hotel, Buffalo, April 21. The purpose of the meeting was to discuss an extensive advertising campaign to exploit the advantages of brick as building material.

Among the prominent brickmakers of the country who were present were W. H. H. Rogers of Rochester, vice president of the National Brick Manufacturers' Association, and Morris E. Gregory, of Corning, and R. G. Eisenhart, of Horseheads, both past presidents of the National Association. Mr. Gregory is a member of the board of directors of that association now and is engaged in a country-wide publicity campaign. Mr. Gregory gave his views of advertising to the meeting.

"You must advertise," said he. "Manufacturers of other building materials have made the people believe that their goods are superior to ours. They have emphasized a few points. We have the material that stands the test, but the people must be made to know that as well as we do. Brick is just beginning to come into its own. But we have got to advertise to hasten the brick age."

Several brickmakers from Syracuse and Rochester were among those present. It is planned to form a permanent organization of the manufacturers of brick in this section.

THE BEST BRICKS AVAILABLE

A Beautiful \$4,000 Brick House

CHAS. YANTZ & BRO.

**Contractors and
Master Bricklayers**

914 Charles St. (Home Phone 4714-J) Louisville, Ky.
Neat, Prompt and Satisfactory Work Guaranteed

FRED E. DILLMAN

Contractor Brick Layer

ESTIMATES CHEERFULLY GIVEN

913 Barrett Avenue
Office, 8226
Phone, Res. 7312

H. Kiehmeyer, Pres. H. C. Kiehmeyer, V. Pres. W. K. Seip, Treas.
A. Bishop, Mgr. Bishop Works. H. Herpel, Asst. Sec. T. Bishop, Sec.
SOUTHERN BRICK & TILE COMPANY
Incorporated
Manufacturers of all kinds of
Building Brick and Drain Tile
Office, Thirteenth and Ormsby
Capacity 50,000 Brick Per Day • Works at Bishop, Ky. and Hoeftz, Ky.
Home Telephone 547 • Cum. Telephone S. 1022 Y

OWEN TYLER

Agent for the sale of Hydraulic Press Brick: Plain,
Ornamental and Enamel Bricks; various colors, shapes
and sizes.
303-304 Tyler Building.

Chas. Akers, Pres. Rodt L. Akers, Sec. Treas. Chas. Akers, Jr., Mgr.
JEFFERSONVILLE BRICK COMPANY
Incorporated
BUILDING BRICK
JEFFERSONVILLE INDIANA

Brick Houses

—Need No Paint

An average saving of
\$50.00 annually.

Brick Houses

—Do Not Deteriorate

Another saving on
repair bills.

Brick Houses

—Cost But Little More Than Frame

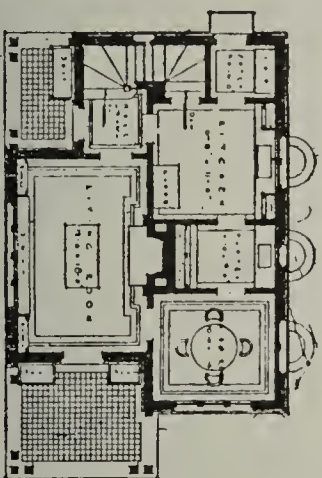
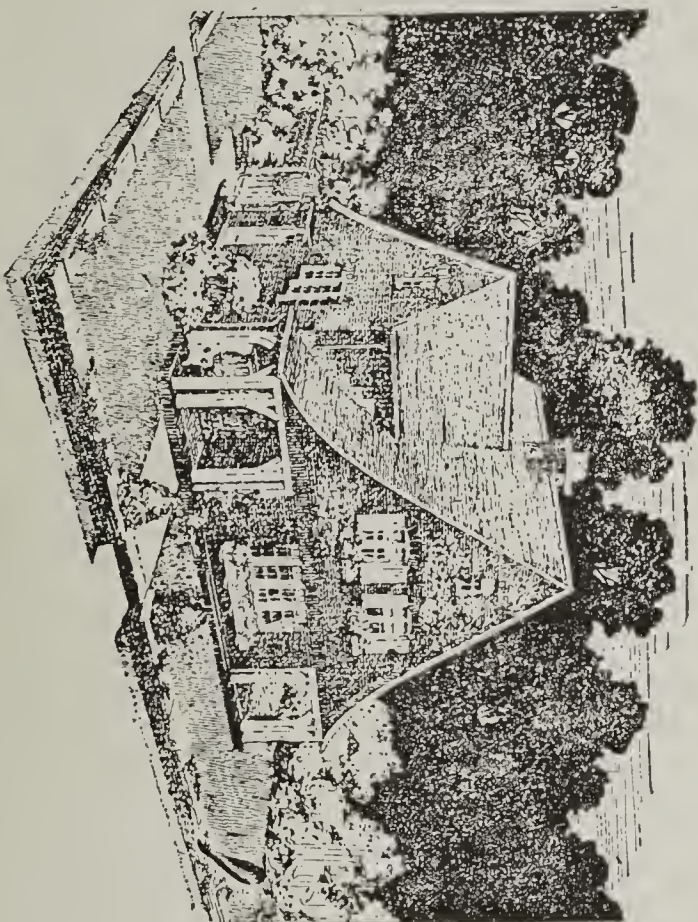
The difference is saved in a few years
on painting and repairs.

After That You Are Money Ahead
Every Year.

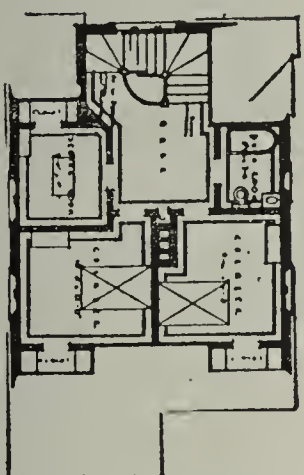
Telephone 547 and we will send you free our Booklet, "A
Revolution in Building Materials," explaining the advantages
of brick as building material

Moral:

**When You Build
USE BRICK!**



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

Designed by **HOWARD A. GOODSPEED**, 87 Pinckney Street, Boston.

HALF PAGE ADVERTISEMENT FROM LOUISVILLE HERALD.

Louisville Brick Manufacturers' Excellent Method for Producing Larger Sales of Their Ware.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Best Pays in the Long Run.

Editor THE CLAY-WORKER:

Dear Sir—I enclose \$3.00 for THE CLAY-WORKER and the Post fountain pen. I think my subscription is due this month and I cannot get along without it. Business is fine; orders ahead to last me four months. It pays to make the best brick. Good things sell themselves.

Wishing you a prosperous year,

Yours truly,

C. B. CHASE.

Making First-Class Paving Brick.

Editor THE CLAY-WORKER:

I recently received an inquiry relative to the percentage of No. 2 pavers made in a first-class paving brick plant. As this is a question of considerable interest, I enclose copy of my reply, which you may publish if you desire.

As to the percentage of No. 2 pavers that are made in a first-class paving brick plant, I beg to say that this is largely a commercial proposition. If the incentive of a high price for No. 1 pavers is sufficient to justify the greater time required, the output of No. 2 pavers can be kept within a limit of 10 per cent. This requires the slow burning of the kiln and the tight closing of the kiln after the burning to give it a long soaking heat. This means, however, an excessive amount of time in tying up the most costly part of the plant, as well as the department that has the highest expense for operation and maintenance. It, therefore, usually pays to drive the kiln faster, cool quicker and make the more usual percentage of 15 per cent. to 25 per cent. of No. 2 brick, as the latter grade now usually brings satisfactory prices as builders and for sidewalks, besides their less frequent use as foundations for No. 1 pavers. These statements are predicated on the use of a down-draft kiln, and its operation by a man who thoroughly understands the art of burning.

The size of paving brick is usually pretty sharply defined in most markets, so that there is usually no choice as to the size. Many engineers now insist on the block size, some prefer the building size as resulting in greater uniformity and usually higher grade brick, while a few engineers are indifferent, provided the brick or block meets the N. B. M. A. tests.

A few brick plants that make both building and paving brick set the bottom four to eight courses in their down-draft kilns with building brick, where they receive ample heat to make a good hard brick for building purposes; while the pavers set above them are expected to all be No. 1 pavers if the kiln is carefully burned. This practice, however, is exceptional, as the majority of paving brick plants specialize on this one output, and there is usually a fair market for the No. 2 brick.

Yours truly,

H. A. WHEELER.

Back from Hawaii.

MY DEAR RANDALL:

It would appear that you were good enough to call upon me during my absence, and I regret exceedingly that I was not here to extend to you the hand of welcome. I returned to the office but a day or two later.

After returning to the coast from Hawaii I visited North-

west cities, making the trip leisurely through the Canadian Rockies and across Canada home by way of Chicago. I had a bully time and feel that I have been greatly benefited by this period of relaxation.

I had no opportunity to observe brick enterprises except a new plant which has recently been built in Honolulu for making brick from lava rock—not a burnt clay product. The company, with a capital of \$100,000, was organized by a promoter.

I have received the convention number of THE CLAY-WORKER, which would indicate that you had a very successful meeting. I really regret that my winter plans of late seem to take me from the country during the annual convention dates. Although I no longer have an active part in the business, yet I would like very much to preserve my happy acquaintance with good friends still active.

I appreciate your continued success in serving the interests of THE CLAY-WORKER. It must be gratifying to you to feel that after twenty-five years of official service in the N. B. M. A. you are stronger in the affections of the brickmaker than ever before.

With kindest regards for your good family, your associates and yourself, believe me

Sincerely yours,

WILLIAM H. HUNT.

American Manufacturers Careless in Caring for Foreign Trade.

Editor THE CLAY-WORKER:

Manufacturers of clayworking machinery and supplies who ship goods to foreign countries will find much of interest in the following letter, which was recently received from our second vice-president:

American Blower Company.

CALCUTTA, March 21, 1911.

American Blower Company, Detroit, Mich.:

Gentlemen—I have now traversed Japan, the Philippines, Hong Kong, Java, The Straits Settlements and Burmah to India. This covers the possessions of the United States Holland and Great Britain in the East, as well as Japan. I cannot say that thus far I have found any prejudice against American goods. Indeed, certain classes of American products have been everywhere in evidence. Among these are sewing machines, typewriters, toilet articles and soaps, locomotives (in Japan), petroleum products and others. These are precisely those that have been most carefully and steadily brought before and kept before the attention of buyers in these various lands. I ought also to add that American cameras and photographic supplies were everywhere except in Java. There no films of any kind could be had, only plates. In many stores finding one article selling, I would ask why not such and such another, only to find simply that they did not know of it, and in some cases to have a note at once made of it.

I have run across horrible neglect in packing even after attention was called to it. In one case oil stoves were formerly bought in America and the American product was considerably better, but, after warning, the American goods were so badly shipped that one-half of one shipment arrived broken. Now the dealer buys in Europe and pays a higher price. He told me he did not want to do this, but he had to, for American makers would not listen to him.

Bitter complaint is made that American houses trust young, irresponsible boys to do their mailing instead of having some clerk of fair responsibility attend to this important service. The result is misaddressed letters, so that responses are not received, and the regular habitual neglect to prepay postage causing extra charges.

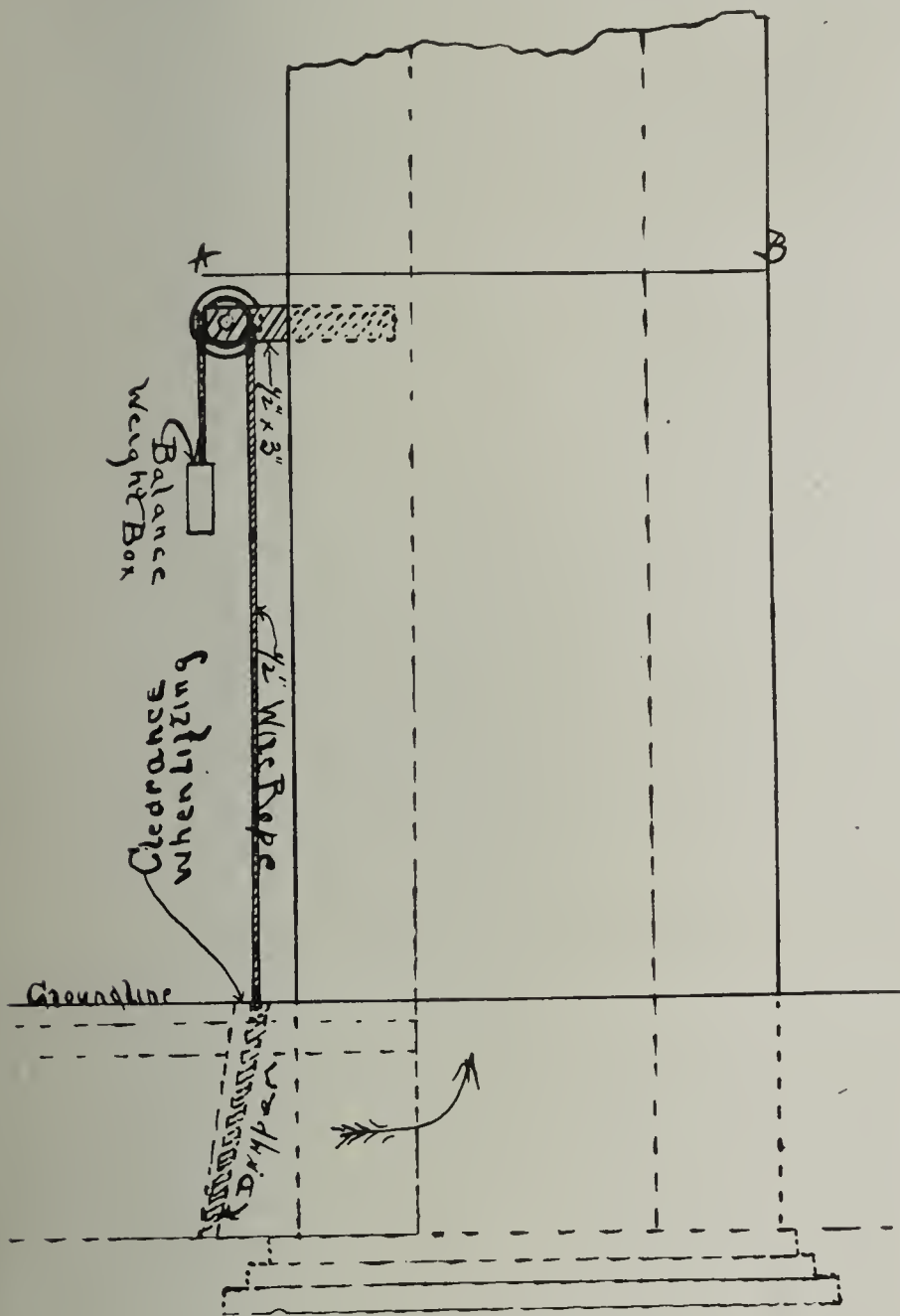
A large Boston house wrote to Manila June 8, and on June 25 followed it up with a sharp letter insisting on an immediate reply. A New York firm referred an inquiry from Panama to its Manila agent. These are some of the things that handicap Americans.

I do not find prices to be the obstacle. Several American

manufacturers I have met tell me their prices are lower than their European competitors. This is true of locomotives, for example.

What I find chiefly needed to greatly enhance our export trade in America is knowledge—knowledge of geography, of the peoples, their ways and needs, their business methods.

Foreign trade does not essentially differ in its basis from domestic trade. A man selling in Michigan studies Michigan needs, offers goods Michiganders want, tells about them in the way the good people of Michigan understand. If he does not do so the wise ones in Michigan turn him down. A man in larger trade does not assume that Texas and Florida use the goods that sell in Maine. He finds out what are wanted or not wanted and acts accordingly. You don't spend much on heating apparatus for Louisiana, and this is all there is underlying export trade, but because it is just outside the



Details for Fixing Chimney Damper.

immediate horizon and men are busy, they often do not even inquire about it, and when they do and find that it takes time and care and patience they take the near and obvious and let the other go. In this way the trade of empires is neglected and great opportunities are lost. Sometimes houses "peter out" and give up the game too soon to win. Two concerns came from America to India, where the prejudice, not so much against American goods as in favor of English goods, is very strong. One, after six months, began to reduce expenses, took a smaller office, then a still smaller one, then closed up. The other lost \$20,000 the first year. They had a good man on the spot and held on. The second year they came out even. The third year they got back the \$20,000. Then they got it back many times with interest, for they had means and courage to stand the gaff. Yours very truly,

WILLIAM C. REDFIELD.

An Improved Chimney Damper.

Editor THE CLAY-WORKER:

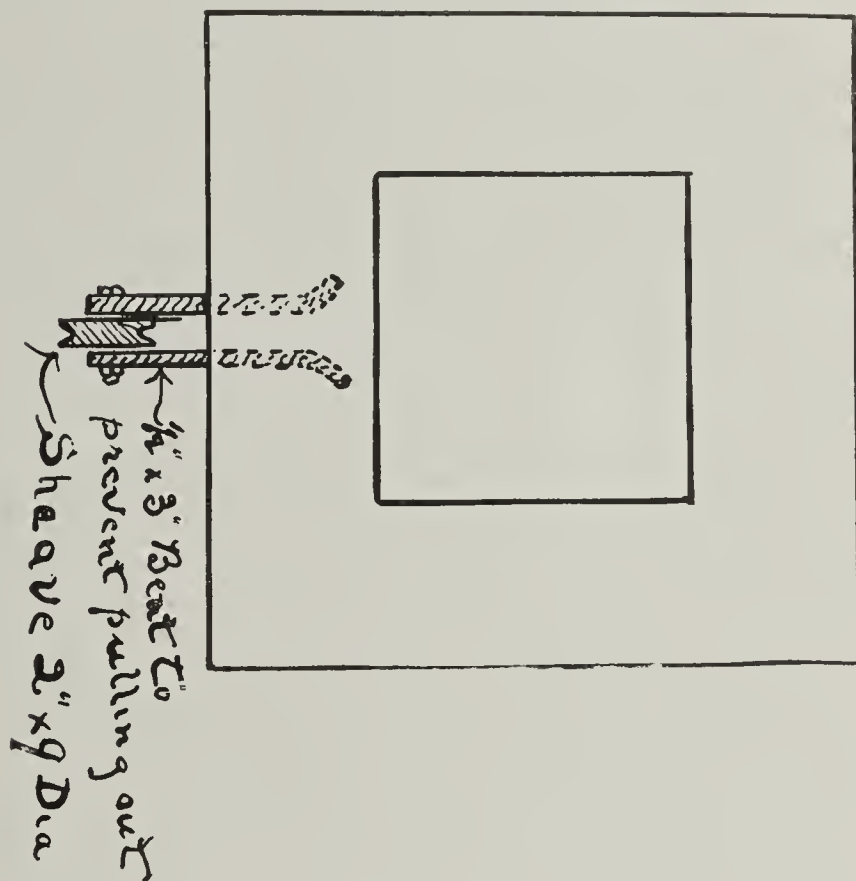
Just received April issue of your valuable paper, which certainly is a grand chapter, brim full of useful information, that no one in the brick trade can afford to be without.

You will please note in my letter, in the April issue, page 626, an error (Fuel, pine, average 100 cords, at 50c.). This should be \$2.50.

Am enclosing a rough sketch of chimney damper, showing irons built into the chimney with $\frac{7}{8}$ -inch round holes, 3 inches from one end, to take a bolt $\frac{7}{8}$ x6 inches to carry the sheave, which must be about 9 inches in diameter and 2 inches thick, grooved to take rope $\frac{1}{2}$ inch and prepared with a $\frac{7}{8}$ -inch full hole in center. Two bars $\frac{1}{2}$ x3 inches and 27 inches long are required, to be built into the side of chimney about 18 inches, leaving 9 inches outside for free working of the damper.

To insure the damper fitting close to the side walls of the flue the groove is shown about 6 inches out of the perpendicular line and inclining towards the chimney. In lowering the damper the same will run down the sides of grooves nearest the chimney and make a much better seal.

This system of fixing dampers I have found easy to oper-



Section at A to B. (See other sketch.)

ate and cheap to construct, and trust it will be of some benefit to Clay-Worker readers.

D. COBB.

New York Real Estate Men's Exhibit.

Editor THE CLAY-WORKER:

A few notes on the Real Estate Men's Exhibit, held at the Madison Square Garden April 26 to May 3, may be acceptable to The Clay-Worker, so they are submitted with the regret that the clay men did not make as extensive a show as their best interests and the important business warranted. The real estate men certainly did their part in great form. Their miniature villages and suburban additions to New York and other towns made for admiration, popularity and sales. This show was so novel, in fact, unique, that I would be tempted to write it up only for the fact of THE CLAY-WORKER not being given to real estate except usually in the baked form.

The National Fireproofing Company had an exhibit of decided merit, and as a whole a decided novelty in the manner it was arranged to show fully the detail of constructing residences of hollow tile. The method as shown at once appealed to any intelligent man not a builder, and for such a

party desiring to build a residence conviction of its excellence came with examination. The National Company did not fail to infuse quite a bit of art into the front of their exhibit, and I must state in passing that the lady visitors admired the art expression and took quite an interest in the details of the structure.

Edward E. Buhler & Co. had a good exhibit of their "Dove-tail" building blocks, roofing and other tile, and their other clay products. Their show was made very attractive by a tastefully arranged layout of their goods.

The Ludowici-Celadon Company made an excellent show with their various styles and makes of roofing tile, both plain and glazed.

The fate of the Madison Square Garden seems to be sealed, and as the famous building is to be razed, it is a pity that the brick, tile and terra cotta men did not take the last chance they may have for a show there to make a more extensive exposition of their products.

Certainly the importance of these industries warranted a rousing show.

New York, N. Y.

Respectfully yours,

DANIEL E. RYAN.

THE REDUCTION OF EXPRESS CHARGES ON SAMPLE BRICK.

"A long pull, a strong pull, and a pull all together," has again resulted in victory for the Ohio Face Brick Manufacturers' Association; this time in the question of express rates on sample brick. Mr. R. L. Queisser, secretary, has favored us with a copy of a communication which is being sent to the members of the organization. The subject is one of such great importance to brick manufacturers in all sections of the country that we publish the correspondence in full. To quote Secretary Queisser, "It is a good example of what concerted action can do when properly handled."

CLEVELAND, OHIO, April 27, 1911.

To Members of Ohio Face Brick Manufacturers' Association:

You will be interested to know that this matter has been finally settled and we have won our suit with the Interstate Commerce Commission. The whole of this victory is entirely due the work of this association and the strong fight that we have put up for the past two years.

The attached copy of letter just received from our attorney, Mr. Henry, explains itself. This practically means a 50 per cent. reduction, and every brick manufacturer in the United States reaps the benefit.

This is the second big victory for our association and means a saving of thousands of dollars to brick manufacturers. This saving alone means more than the cost of your yearly dues. The association is to be congratulated on its good work.

Yours truly,

J. M. ADAMS, President.

R. L. QUEISSER, Secretary.

CLEVELAND, OHIO, April 25, 1911.

Mr. R. L. Queisser, Secretary Ohio Face Brick Manufacturers' Association, City:

Dear Sir—I am just in receipt of a report and findings of the Interstate Commerce Commission in the matter of the Ohio Face Brick Manufacturers' Association vs. Adams Express Company et al., No. 3495.

The syllabus which precedes the report is as follows:

"For the transportation of sample brick the express companies assess merchandise graduated charges. Due to the peculiarly favorable characteristics of this traffic from a transportation standpoint, the charges now assessed are found to be unjust and unreasonable in so far as they exceed merchandise pound rates with a minimum charge of 35 cents."

The report in substance is to the effect that the complainant's members make extensive use of the express companies for the transportation of sample brick over a wide range of territory; that the rates were increased in 1903 from mer-

chandise pound rates to merchandise graduated rates, and that a shipment weighing 12 pounds from Columbus, Ohio, to Chicago cost 35 cents on May 24, 1902, and on November 10, 1910, a shipment of the same weight between the same points cost 60 cents, an increase of over 71 per cent.; that the brick-makers are almost wholly dependent upon the express companies for the transportation of their samples; they cannot be sent by mail because one brick exceeds the weight limit, nor can they be sent by freight, because in most instances time is an important factor; that the express companies have no serious competition for this business, and that they derive a very considerable revenue therefrom.

They further find that the same factors which control in fixing freight rates, should be considered in fixing express rates. No consideration is given by the commission to the claim of the express companies that high rates should be charged because only samples are sent by express. The commission says:

"Moreover, it may be added that what this complainant is seeking is a reasonable rate for the service which it requires, and the question of what other traffic may or may not move has no bearing upon the determination of this particular issue."

The commission finds that, upon the whole, the charges assessed by defendants upon sample brick are unjust and unreasonable, in so far as they exceed charges which are assessed at merchandise pound rates with a minimum charge of 35 cents.

The order of the commission is in substance that the defendants are required to establish on or before the 1st day of June, 1911, and to maintain for a period of two years thereafter rates which shall not exceed merchandise pound rates with a minimum charge not in excess of 35 cents.

As I understand it, the commission has given us the classification that was in effect prior to the change of 1903, with the same minimum charge. While it is not all that we hoped for and believe we were entitled to, still it will be found to be a material reduction and will in most instances reduce the burden approximately 50 per cent.

Yours very truly,

H. H. HENRY, Attorney.

BRICK LEFT IN HUDSON DISTRICT.

There are now about 230,000,000 common brick in the Hudson River district, as compared with the 350,000,000 which were counted at the beginning of the year. This shows that even upon what has seemed to be a rather dull market consumption has been moderately liberal, aggregating 120,000,000 in the first four months of the year. Even in what has often been considered flush times in building operations the consumption of common brick has scarcely exceeded this number, particularly in the winter months.

There are a number of very large construction contracts still to be let. About 80,000,000 are scheduled for New York City alone, not including the new subway construction, amounting to some 25 miles, requiring substantially 120,000,000 of common brick. It is said that architects have on their boards work that will aggregate \$72,000,000, compared with about \$70,000,000 at the same time last year, and perhaps \$60,000,000 on the corresponding day the year before.

These reasons may be taken as the governing influence in the brick market's plans for the future. The dullness which has characterized the building trades in the East for the past few months seems to be breaking. While actual structural work has not yet been started to any considerable extent, the plans for it are in course of preparation and the work itself will shortly begin. During April there was more or less disturbance in the New York building trades, as is usual at this season of the year, caused by the discussion of possible strikes among the workmen. None of these materialized, and prob-

ably the work of construction in all lines will proceed without interruption for at least the next year.

The total number of brick sold in the New York market during the first four months of the year was about 94,000,000. The largest deliveries were made by the John B. Rose Company, which is handling alone the municipal building contracts that require nearly 7,000,000. They are using 600,000 a week, an average of almost three barge-loads. All the brick thus delivered is coming from the Roseton plant.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF MILWAUKEE.



WHILE THE volume of spring building in Milwaukee did not assume quite the proportion that was anticipated earlier in the season, conditions are entirely satisfactory. A record breaking number of building permits were issued this spring, but it is generally understood that considerable building has been held over in the effort to discredit the present Socialist administration in Milwaukee, a situation that is entirely plausible in view of the fact that the Socialists have made a hard fight against the contract system of carrying out public works.

One fact stands out prominently in the Milwaukee situation, more large downtown buildings are being constructed of brick than was the case a year ago. While the use of concrete seems to have made some gains among the factory builders, the use of brick in office structures has made remarkable headway, according to well-known contractors. Another bright feature is the fact that an unusual number of flat buildings, apartment houses and residences are going up this spring, and, of course, most of these are being constructed of brick.

The building situation in the smaller cities and towns about the state is very satisfactory, reports arriving from one nearby city that a large number of brick stores and residences are being erected there this spring.

Practically all the brick manufacturing plants about the state are in busy operation. Several of the larger concerns at Fond du Lac, Washburn and other points, have enlarged their plants and increased their facilities for a larger output, an indication of the general confidence that is expressed in the Wisconsin brick field.

Brick and tile manufacturers of Milwaukee are highly pleased at the announcement that the contest between the Western railroads running out of Milwaukee and Eastern trunk lines, regarding through rates between Milwaukee and eastern trunk line territory has finally been settled. Charles N. Turner, chairman of the transportation committee of the Merchants' and Manufacturers' Association of Milwaukee, has been notified that an agreement had been reached between the two systems under which proposed rates, which would have gone into effect on June 15, effecting local freight between Milwaukee and Chicago, will be withdrawn. The contest, which extended over several years, was prompted by the western roads, the Chicago, Milwaukee & St. Paul and the Chicago & Northwestern lines, which advanced the claim that they were not getting a fair share of the rate on through freight to the east from Milwaukee. As a result, the eastern roads announced that the through rate to the east from Milwaukee would be abolished and local rates between Chicago and Milwaukee become effective. This would have caused a heavy advance on freight. On first class freight, there would have been an increase of 25 cents per hundred pounds and a 3-cent advance on the commodity rate.

The Wisconsin Brick Company of Madison has been incorporated with a capital stock of \$40,000 by C. W. Dobelin, T. E. Werdenbeck and E. J. Frautschi.

Considerable criticism has been aroused at Stevens Point

because of the fact that brick manufactured in that city have been adjudged unfit by the federal authorities for the new postoffice building at Oshkosh. Although the contractor in charge was confident that the bricks were entirely satisfactory, it was decided to secure bricks from Chicago at a much higher freight rate.

The plant of the Washburn Brick Company at Washburn, has been thoroughly overhauled and several additions are being erected. It is planned to keep the plant in steady operation throughout the summer, and several new varieties of construction brick are to be added to the output. The company is also contemplating turning out a complete line of paving brick.

The Zimbal Brick Company, of Sheboygan, has purchased fourteen acres adjoining its brick yards at Georgia avenue and South Seventeenth street, and will use the addition for yard purposes.

The Menomonie Hydraulic Pressed Brick Company of Menomonie recently received the contract for furnishing the colonial brick to be used in the erection of the new Young Men's Christian Association building at Eau Claire. About 100,000 face brick will be used at the contract price of \$11.40 per thousand. The brick will be laid in Flemish bond and will be of five different shades, all dark.

The Two Rivers Brick Company of Two Rivers, has decided to go out of business. The buildings will be razed and equipment will be offered for sale. The concern was organized only a few years ago, and is now retiring only because the members of the company have other interests which require practically all their time. An excellent line of brick was turned out and found a ready sale.

An ordinance is now pending in the common council at Eau Claire for the paving of a new portion of Wisconsin street with brick with concrete curbing. Property owners along the street were decidedly in favor of brick.

The common council at Columbus has decided to pave James and Ludington streets with brick and has awarded the contract to the Advance Construction Company of Waukesha for \$15,964.20. Various paving material was under consideration and the matter was left to a vote of the property owners on the streets in question with the result that brick won out by a vote of three to one. Work started May 1 and will be completed by August 1.

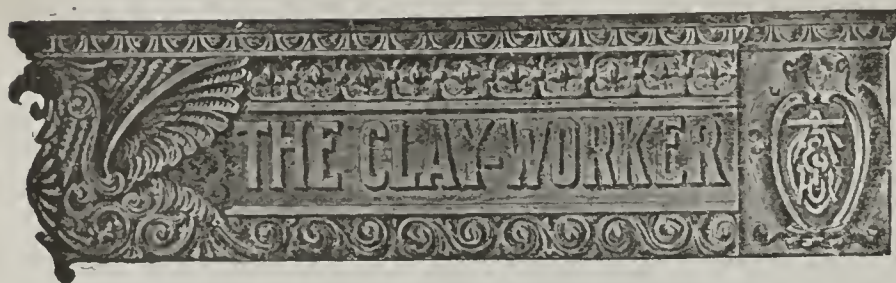
Arrangements have been completed at Kenosha for the construction of a trunk sewer and members of the bricklayers' union of that city have presented evidence to show that brick will be more satisfactory than concrete in the construction work.

A. BADGER.

BUSY DAYS FOR THIS KILN BUILDER.

Mr. F. W. Dennis, inventor and patentee of the Dennis down-draft kiln and dryers, is experiencing very busy days. In March he erected two down-draft kilns on the C. A. Stuck & Sons plant, at Jonesboro, Ark., which are now being most successfully burned. All the brick from the No. 1 kiln are hard burned from top to bottom. This first kiln has a capacity of 240,000, while the second holds 450,000. The owners are well pleased with the Dennis kiln and claim it has many advantages over the old type, as less skill in the burning is required, the draft being under perfect control, making it easier to force heat to any part of the kiln and practically burn all brick hard. This is not the only firm, however, that thinks well of the Dennis kiln, for the inventor has erected kilns in many different plants in the United States, and from each has testimonials proving that they are most satisfactory, the parties all agreeing that they would not be without them. At the present time Mr. Dennis is building two of his down-draft kilns for Mr. John B. Prullage at Vincennes, Ind.

One may have the same right to name a trust company or bank after the great library giver as he has to name a child or pet dog, but the effects may not be the same in each case—nor the motives.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	- - - - -	\$ 2.00
One copy, one year (if not paid in advance)	- - - - -	2.50
Six copies, " " " " " "	- - - - -	10.00
Ten copies, " " " " " "	- - - - -	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LV.

MAY, 1911.

No. 5.

CURRENT COMMENT.

It is almost time to change the name of Pennsylvania from the Keystone State to the Brick State. It is the leader in brick production.

* * *

In the fight for paving favors in which asphalt and wood blocks are quite conspicuous now, brick can unquestionably put up the strongest front and the hardest face.

* * *

Are you profiting by the lecture given and the pictures shown on sewer construction at the Louisville meeting of the N. B. M. A. and extending the use of brick in this work?

* * *

The missing link that connects the mineral and the plant world in their fibrous nature is asbestos. It is an important mineral product, too, that is coming into wider use every year.

* * *

A headline in the United States Geological Survey Bulletin says, "Seven Million Dollars for Mineral Waters." Pshaw, that's nothing; you ought to see the booze bill of the country once!

* * *

The king of England may not have any more power than the President of the United States, but just the same the coronation of a king attracts lots more attention than the inauguration of a President.

* * *

The fireproofing idea is making progress as well as noise. It is given special attention in a report of the U. S. Geological Survey on the clayworking industries by Jefferson Middleton. He says the enormous fire tax on the United States imposed by flimsy buildings has aroused public sentiment on the subject of fireproof construction with the result that the demand for fireproof structures is increasing materially. Out of this,

of course, is coming a larger use of brick and other clay products.

* * *

If this matter of bribery probing keeps on we will eventually reach the point in discrimination where it is an actual disgrace to be a political grafter.

* * *

When we can get a machine that will set brick with something like the same capacity as the new machine for handling brick into the kiln there will be something doing in the brick building world that never was heard of before.

* * *

Not only has there been an increase in hollow clay building tile, but the fire brick business itself has been growing some of recent years, in fact, perhaps, growing more in proportion than any other branch of the clayworking industry.

* * *

The furore created by the arrest of labor leaders on the charge of dynamiting recalls to mind an opinion expressed in these columns previously, that while the laboring man is the backbone of the country, he is often afflicted with bad counsel and poor leadership.

* * *

Ohio is some pottery center with a total annual production in 1909 of \$13,416,356 worth, and is second in brick production with a total of \$16,929,885. The brick business itself looks big, but the pottery business of Ohio is a shining monument to the progress of this industry in the United States.

* * *

Now the Germans have got the Chinese interested in the sand, lime and brick business, and our consular reports tell us of a very elaborate formal opening of a sand-lime brick industry in China. As a rule the Chinese do everything backwards, and it is a wonder that they don't try to dry their brick before they press it.

N. B. M. A. REPRESENTED AT LONDON SHOW.

Theo. A. Randall, senior editor of The Clay-Worker, left New York City, April 26th on the White Star Line Steamer Oceanic for a hurried trip to London to visit the British Builders Exhibition and obtain notes and pointers which may be of assistance to the members of the International Brick and Clay Products Association in their promotion work for the Clay Products show to be held in the Coliseum at Chicago, Ill., March 5th-13th, 1912, in connection with the annual convention of the N. B. M. A. At the last convention Secretary Randall was selected as the Association's representative in this publicity movement, and at the solicitation of the Executive Committee he has gone to England for a brief visit with our brother clayworkers on the other side of the Atlantic.

RIVALRY IN PAVING MATERIAL.

There is hardly ever a permanently clear field for any material in any line of work. Therefore, it is but natural to expect rivalry in paving material, and it is nothing unusual for the brick manufacturers to have to be prepared to meet competitive materials at all times. One of the most persistent and insidious competitors has been asphalt, but for some time now there has been a rival in the wood block idea, which is being aggressively boosted by the lumber papers, because the sawmills need the business. They need an outlet for wood products and wood blocks to increase the demand for sawmill products, because the lumber trade has been a little slow for several years, and that is the explanation of the aggressive pushing of wood blocks for paving. Also, they have an opening through the desire for less noise than the old granite paved streets in congested downtown districts. The present conditions, however, are that this aggressiveness on the part of wood block will encroach more on the field of asphalt than

anything else, and that brick paving will be used more and more almost everywhere. The progress in brick paving, though, depends some on keeping eternally at it, at boosting it and supplying a product that is beyond criticism and demonstrating its merit to all city authorities when street paving is being contemplated.

THE EXPLOITING OF KNOWLEDGE.

It is being pretty thoroughly demonstrated now that the right way to promote brick and other clay products is through the exploitation of knowledge. The clay manufacturing trade itself has known of the qualities of its material and the comparative ease with which it can be used in place of flimsy material, but until this knowledge is widely exploited it is not doing the good it should. It is making other people, the general public, know these things that does good for the industry. That is why proper promotion consists in exploiting knowledge.

This is true with almost everything in the way of merchandise offered the public, and of practically all forms of advertising. The best and most lasting advertising is that which consists in exploiting knowledge. One may by catchy phrases and misrepresentation build up a temporary trade and gain a passing advantage, but real good of the permanent kind only comes from a basis of knowledge. Knowledge of a thing and presented in such a way as to appeal. In other words, the use of facts, attractive facts, if you have them, but facts none the less.

There are two sides to this thing of exploiting knowledge. One is that knowledge is the only rational basis, knowledge of facts for the permanent upbuilding of the trade, and the other is that a knowledge of any kind or of anything is not of material value until this knowledge is exploited and made public.

To make a great study in scientific research is of itself important to the world only when the knowledge is exploited. That is the way it is with the knowledge and new facts developed in connection with the brick and clay products business. The way to promote the industry and to insure its growth is to exploit all this knowledge and get it before the public. Through the use of printer's ink, through talking and through every means calculated to properly exploit knowledge that is of value and use to the public and will contribute to the progress of these products.

THE CONTRACTOR AND THE BRICKMAKER.

One excellent result of the movement in the different building centers for the promotion of brick and other clay products has been to bring in closer touch the brick manufacturers and the contractors and builders. They get together for a common purpose and work together shoulder to shoulder to promote the use of brick and other building materials in this class and in so doing they cultivate a closer acquaintance and better harmony generally. This of itself is so beneficial that if nothing else had been accomplished it would be worth the time and effort expended in the promotion of brick products. In other words, this is an indirect result that like the side issue in connection with many an undertaking gives promise of amounting to more in the end than any other one thing in connection with the movement.

It is perfectly logical that the brick manufacturer and the contractor and builder can work together for each other's mutual benefit and progress, but it has been a fact too often in the past that instead of working together in harmony they have been in the attitude of antagonizing each other. The antagonism is unreasonable and uncalled for and will never result in good for either. It promises to be all wiped out now and a general effort made at promoting brick products. It may and probably should result eventually in more mutual

gatherings of brick producers and brick users for the sake of keeping in touch and keeping acquainted. Even with or without the brick promotion business this is an idea that should be fostered and encouraged, this getting together of the men that make the brick and the men that put them into the walls. It is a thing that will not only help the progress of the brick business, but will make life pleasanter, easier and more worth while to the brick manufacturer and to the building contractor.

THE ANNUAL DAY OF CONTENTION.

We have several annual days of commemoration that have been purposely set and we have others that have been gradually developed by practice. One of these latter is the first day of May, which has come to be recognized as a sort of day of contention between the man that works and the man that pays.

It is a pretty general custom now to adjust or readjust labor schedules, sign contracts for the year, and do all the wrangling, arranging and settling on schedules and things of that kind on the first of May.

As a result there is seldom a May day that rolls around but what brings with it more or less uneasiness and worry, and usually leaves behind some strikes, contentions and disturbance that it takes often a fourth or a half of the summer to straighten out. Sometimes we think it is a pity that these contentions are not taken up the first of the year, so that they can all be straightened out before the busy summer-time. But the practice has made of the first day of May a sort of day of reckoning between labor and capital.

This year brought with it a fair crop of contentions, some of which have already resulted in strikes, some of which have been settled and others still a matter of deliberation at this writing.

In some of the cities the building trades are involved, but not everywhere. The building world feels it indirectly, however, no matter whether they are directly involved or not, and every year this day of contention wields a sort of baneful influence for a while until all difficulties are straightened out. The general indications are that the building operations will be settled down in pretty good shape, however, by the first of June except in a few instances. There are strikes that have developed in some of the building lines. This applies specifically to the larger cities. Agricultural districts are comparatively free from disturbances of this kind, but with the cities there is enough of it that it results in not only much uneasiness to labor and capital in the early summer, but it really means a financial loss to all, and it will be a happy day when we can either change this day or arrive at a point of arbitration or some means of robbing this day of contention of its terrors.

TERRA COTTA.

Sales of architectural terra cotta in and about New York have received a fresh impetus this spring. Never before have building interests figured upon as extensive use of this type of material. And this seems to apply to all companies alike.

One of the reasons given for this activity is the change in fronts of buildings on a considerable number of the streets in upper New York City. In reconstructing these fronts the builders are using architectural terra cotta in replacing the facades and cornices. The tendency this spring, at least, seems to be almost wholly toward the use of terra cotta for this purpose rather than whatever material has been used heretofore.

Recently the building departments of New York and its suburbs have been deluged with requests to authorize the reconstruction of stairways in business buildings of fireproof material. Terra cotta and fire brick enter into this recon-

struction to a considerable extent and these naturally have their influence in the demand. Whether or not this demand will continue is a question that only time can determine. The recent holocausts in Newark and New York whereby some hundreds of employes lost their lives in burning buildings has been a potent influence in this increased demand. The present stimulation which tends to improve safety of such buildings is commendable, and it is to be hoped that builders will consider the dangers of inflammable stairways not only now while these disasters are fresh in their memories, but will continue long in the future.

It might be that manufacturers of terra cotta and other fireproof material could assist in maintaining the demand at present by judicious advertising. The subject is at least worth consideration. The cost need not be large, though the benefits to the manufacturers, as well as the workmen who might be imprisoned on upper floors by burning stairways would be sufficient to warrant almost any expense in developing the business.

There are commissions in New York and some other large cities to revise the building codes in accordance with the plain requirements of safety, and these revisions may have the effect of increasing the demand for fireproofing and terra cotta.

TRADE LITERATURE.

THE THEW AUTOMATIC STEAM SHOVEL CO., of Lorain, Ohio, has recently issued to the trade a finely printed catalogue, setting forth with excellent illustrations and descriptive matter the many merits of their several types of steam and electric shovels. Clayworkers wanting a more economical method of digging clay should get in communication with them. They will send catalogue to any interested party on request.

TATE, JONES & CO., INC., Pittsburg, Pa., a well-known firm in the clayworking field, mailed us two interesting and attractive catalogues, one a reference book of formulas, expert methods and general information gleaned from practical experience in the heat treating of steel, while the second is a catalogue of furnaces for annealing, hardening and tempering. Anyone desiring either or both of these catalogues should write the Tate, Jones & Co., Inc., Empire building, Pittsburg, Pa. This firm handles fuel oil-burning equipment for ceramic industries.

VOLUME NO. 1 OF THE CLAY CRAFTER.—The C. W. Raymond Company, of Dayton, Ohio, favored us a few days ago with a complimentary bound volume of the Clay Crafter. This volume contains the first six issues of this well-known firm's bi-monthly magazine attractively bound in a red cloth cover. This magazine has been a welcome visitor and we hope the Raymond Company will continue in their good work for many years to come.

BUTTON, BUTTON, WHO LOST THE BUTTON.

The cuff-button which was reported lost at the last national convention, held in the Seelbach Hotel, Louisville, Ky., has been found by one of the hotel employes, and is being held by the management for information relative to the owner's name and address. The party who lost this piece of jewelry valued it as an heirloom. We remember hearing of the loss during the convention, but are unable to recall the name of the owner. If he will write the Seelbach Hotel, giving a description of same, the button will be forwarded promptly.

BULLETIN ON PREHEATING OF STICKY CLAYS.

The Bureau of Standards has issued a bulletin dealing with the changes which a clay undergoes on being dried as it comes from the bank. It has been found that such a pre-heated clay undergoes a curious alteration in its properties, and many materials which can now be worked only with difficulty become much more workable. This bulletin has been written by A. V. Bleininger and may be had free of charge by writing to the Director Bureau of Standards, Washington, D. C., asking for reprint No. 152.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 790.]

FOR SALE, WANTED, ETC.

WANTED—Position as burner or superintendent of paving or building brick plant. Best of references. Address CONTINUOUS KILN, 5 tf d Care Clay-Worker.

FOR SALE.

Martin "A" power brick machine.
Pug mill and belt sander.
1 Potts clay crusher.
10,000 wooden pallets, 34-in. long and 10 in. wide, with a strip 2-in. wide and 4½ in. high nailed on each end.
140 24-in. gauge 6 ft. Atlas brick cars.
Cummer dryer fan, 20-in.-blade, 54½-in. high, for a 2 7-16-in. shaft.
• 2 Atlas car transfers.

JOHN WILSON,
3031 Stillson Ave., S. E.,
5 tf d Cleveland, Ohio.

For Sale, Wanted, Etc., Ads Continued on
pages 780, 782, 783 and 784.

"A Quality Above All Others in Clayworking Machinery."

The Question of Quality Solved

When all represses have been weighed in the balance;
When all presses have been through the stress of daily grind;
When the daily record of bricks has been checked for each press;

When the quality of the work is compared;

When the repair bills have been audited and paid.

When these and a lot of other important points have been considered, it will be found that The Eagle Repress is far and away the best Repress on the market, and a cheaper press, in the long run, than two of most any other kind.

The Eagle Repress is first of all built upon quality. It has the attributes in building and operation which have won it a world-wide reputation and which has and always will maintain it as the world's leading and best Repress.

The first Eagle Repress built years ago is still in satisfactory operation, a glowing testimonial of Eagle quality and performance.

For paving and face brick there is no press which will give the daily and yearly output of the Eagle at anywhere near as low cost.

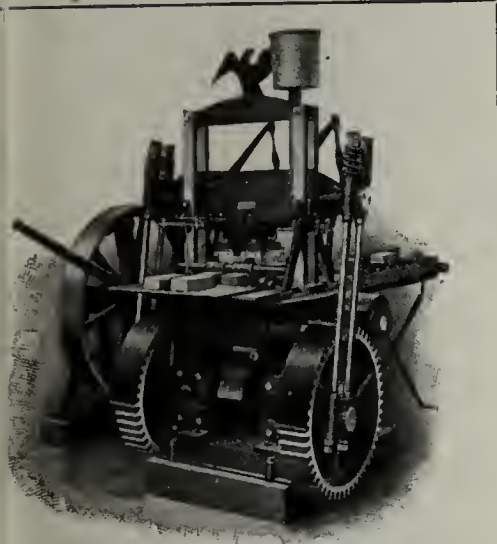
In a word, you will make no mistake in pinning your faith to the Eagle Repress. It belongs to a worthy line of Clayworking Machinery and is a credit to the line. It is "Built Right and Runs Right," and what is more, it keeps at it day in and day out without repairs.

Send for full particulars about the Eagle. We also build every machine and appliance needed for the manufacture of Clay Products by all processes.

The American Clay Machinery Company
Bucyrus, Ohio

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.



The Eagle

NOT THE ONLY REPRESS BUILT,
BUT IT IS—

The only Repress giving unquestioned satisfaction.

The only Repress never thrown out of incompetency.

The only Repress receiving the unanimous approval of the trade.

The only Repress where repair bills are the exception.

The only Repress with a record of twenty-two in one factory.

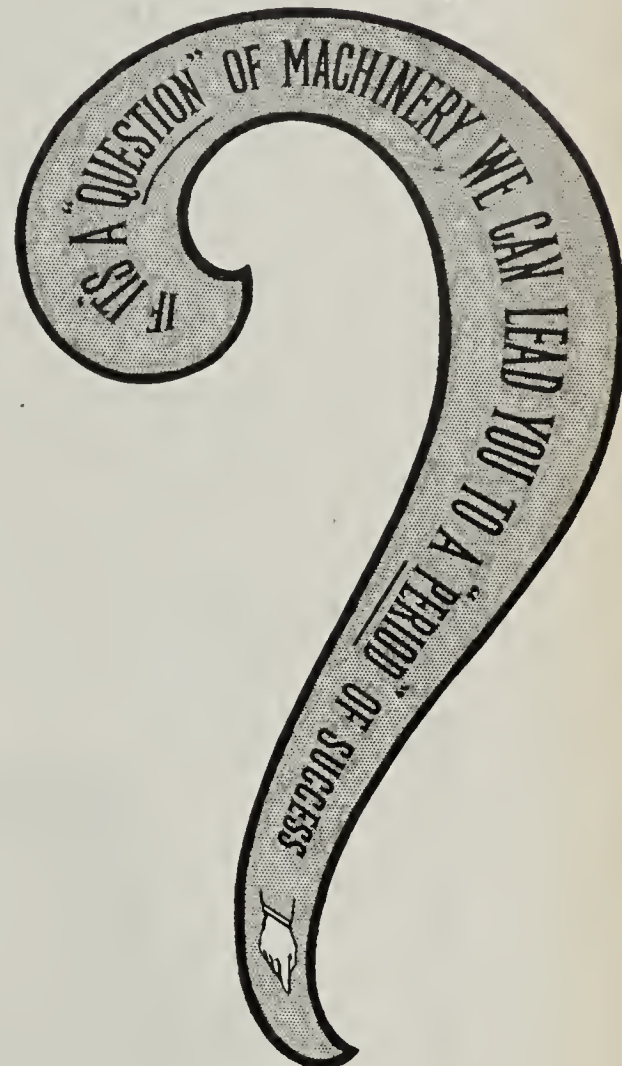
The only Repress with a record of constant use for years without a cent for repairs.

The only Repress that "Never Disappoints."

The only Repress without a superior.

The only Repress built for service rather than to sell at a profit.

The only Repress where the profit is greater to the buyer than to the manufacturer.



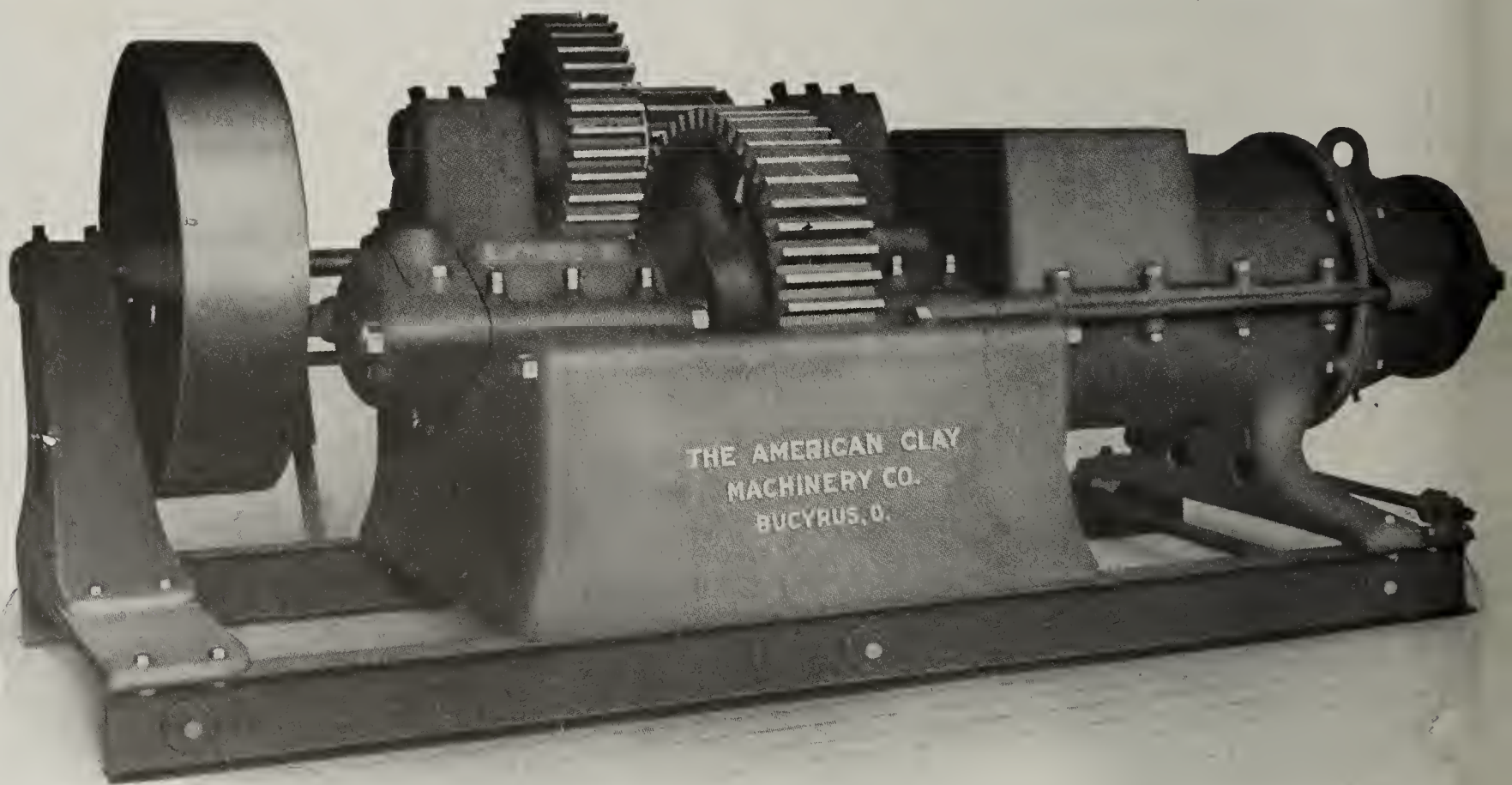
"A Quality Above All Others in Clayworking Machinery."

THE GREATEST AUGER BRICK

The greatest brick plants in the country—the plants where capacity and quality go hand in hand, and where the most up-to-date machinery and methods are installed to raise the clay trade to its highest plane. In such plants the No. 65 Auger Machine here shown is doing its part toward elevating and enriching the business. In all cases where the No. 65 Machine has been installed they attain the highest record of capacity ever known in these plants, and without sacrificing the quality. Here then is a machine that has made good and will make good again wherever it is installed. Where machines of less capacity are desired we have them embodying the same high grade of excellent construction which makes them able to run up to and beyond their rated output. No matter what machinery or appliance you may want and no matter for what process or product you may want it, so long as it is used in the clay trade we can supply it.

The No. 65 Auger Brick Machine is designed for the manufacture of brick, tile, hollow blocks and similar products. The construction of the machine is high class throughout, the material used is of the best quality and the workmanship of the highest standard. The machine is built with a high factor of safety.

It is entirely self-contained, being mounted on heavy steel I-beams. The massive self-contained gear frame contains all the principal journal bearings which are long and well babbitted. The end thrust bearing is secured to the gear frame by heavy steel bolts. This bearing consists of two large chilled plates between



BOTH SIDES OF THE NO.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

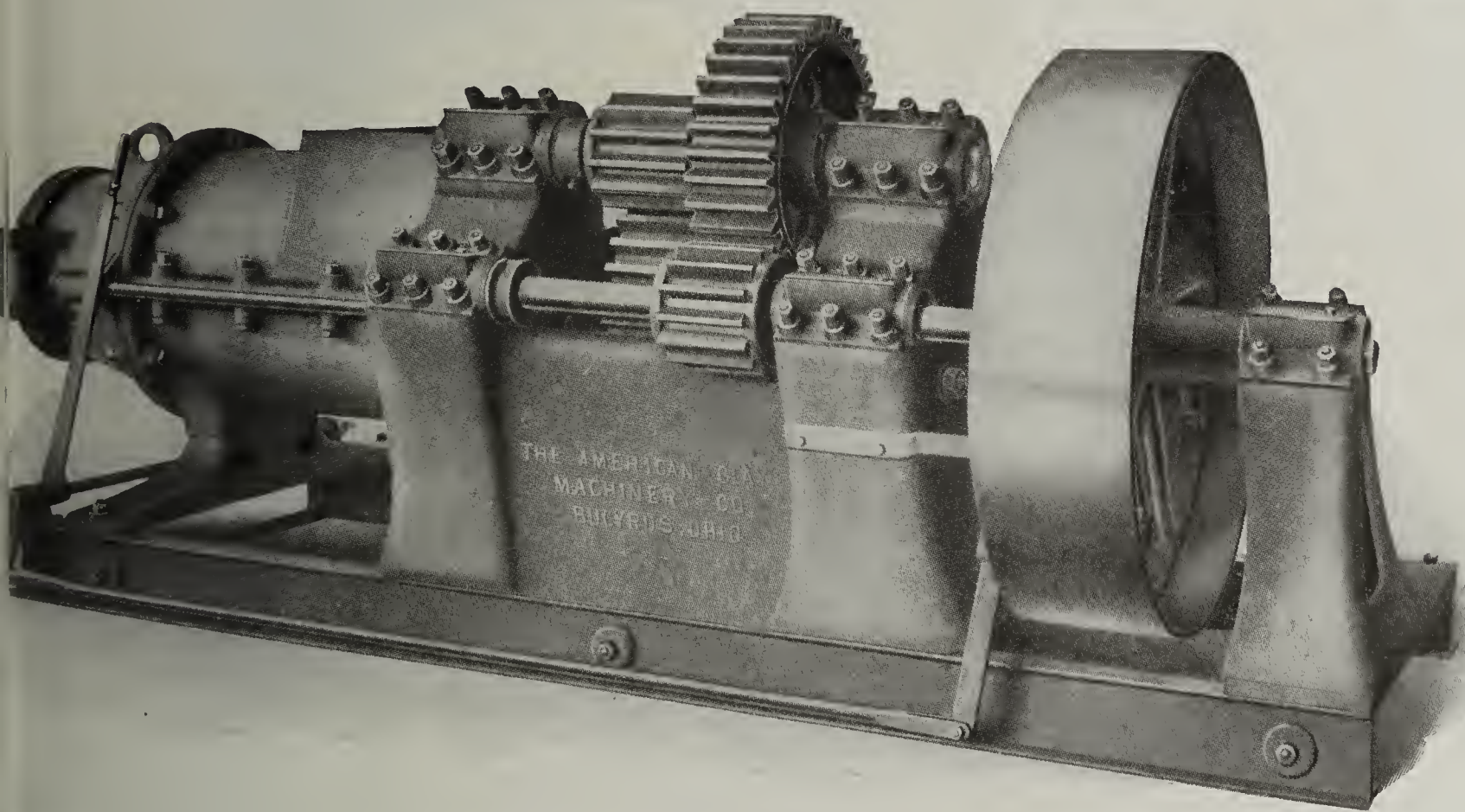
MACHINE ON THE MARKET

which is a phosphor bronze wearing plate revolving in a bath of oil. The main shaft is hammered steel 6¼ inches in diameter. The hammered steel intermediate shaft, is mounted in the gear frame above the main shaft where the bearings are accessible and the gears may be protected from the dirt. The gears are covered with a neat steel housing. The gears are heavy and made with strong teeth, designed for smooth and quiet operation. All end thrust is taken on steel rods which parallel the main shaft and pass through the gear frame. The nozzle is fitted with a renewable corrugated lining made of a special mixture of white and gray iron which is also used in making the auger and knives. This special mixture, we have found, gives great strength and wearing quality. The die front is hinged to the nozzle and provided with a safety-pin attachment which will shear off should the clay become too stiff and the strain excessive, thus preventing serious damage to the machine.

The machine is driven by a friction clutch pulley 48 inches in diameter, 12 inches face operating at from 250 to 300 revolutions per minute, capacity ranging from 7000 to 9000 standard size cut brick per hour.

We also equip this machine with automatic oiling system if desired.

THE AMERICAN CLAY MACHINERY CO.
BUCYRUS, OHIO.



65 AUGER BRICK MACHINE.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

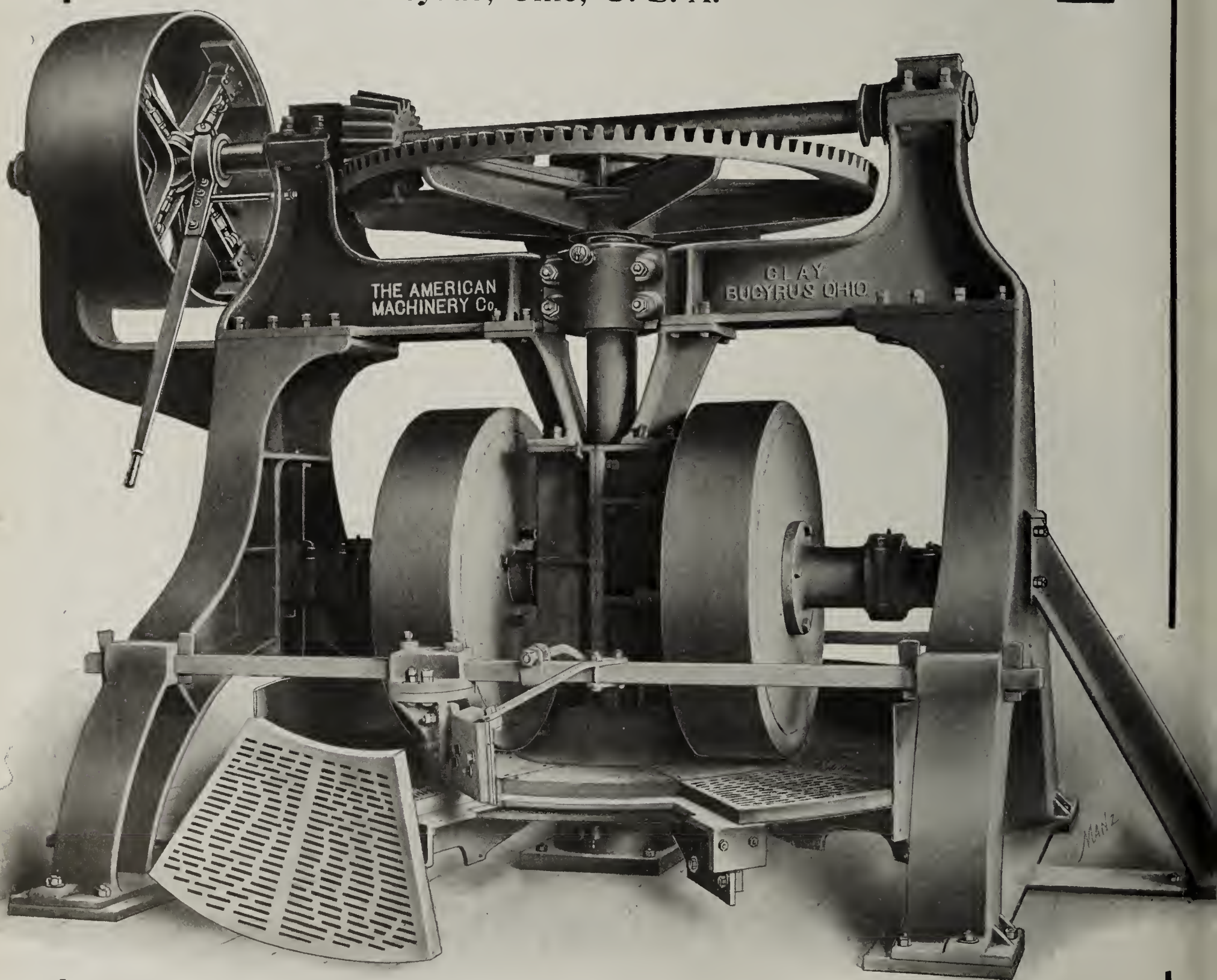
"A Quality Above All Others in Clayworking Machinery."

BUY CAPACITY AND QUALITY

When you buy a pan you are most interested in the capacity and the ability of the pan to stand up under that capacity. A pan which will grind 200 tons of clay a day and grind it to a satisfactory fineness without delays for breakages, is worth much more to you than a pan which will grind from 25 to 50 per cent. less material and maintain even that speed at the cost of frequent repairs. The one pan may be cheaper at first, but in the long run it is far more expensive. Our pans are most carefully built to insure a uniform, never-lagging capacity. They are built to make them exempt from repair bills, and will perform up to and beyond their rated capacity without frequent annoying and expensive delays. There are features in our pans which are interesting to know about, because they make up that quality characteristic of the American Company pans. We will be glad to tell you all about them on request. We build several dozen styles and sizes and can exactly meet your requirements. There are no better pans built anywhere than ours, and few, if any, as good.

Our line includes every machine and appliance needed by the clayworker.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

THE "MAKE GOOD" DRYER

We are building a "Make Good Dryer." ¶ When we designed this dryer we called it a Steam Pipe Rack Dryer, but those for whom it was installed have dubbed it "The Make Good Dryer," and as the title has come unsolicited, from those who know, we feel that it must be deserved.

Our Pipe Rack Dryer has many patented features which protect it from infringement, and it is by far the most economical system of drying on the market today for plants where it is adaptable. We have cut the drying cost in two for some manufacturers and can do it for others if the conditions are right.

Our Dryer Department will be glad to take the matter up with you and will look over your plant and give you an estimate of the possible saving together with an estimate of the cost. If we can build you a dryer that will save its cost in a few years it is apparent that such a dryer would cost you nothing, because it would pay for itself. Moreover, after it has paid its own bill, it would bring you dividends even though you had your money back and had really nothing in the dryer. We solicit an opportunity to take up this Dryer with you. We have a new catalogue just issued covering this Dryer both in text and pictures. Its a worthy piece of printing and on a worthy Dryer. Its yours on request.



Here is an unsolicited letter from one of many satisfied users of the "Make Good Dryer."



Sandusky, Ohio, April 5, 1911.

The American Clay Machinery Co., Bucyrus, Ohio.

Gentlemen—We have operated the new pipe rack dryer long enough to understand that it is all that can be expected, in the way of steam dryers. The capacity of the dryer that you furnished us is 36,000, at present we are averaging 32,000 per day. I do not see how a dryer could be arranged requiring less labor. The vacuum system you installed for returning the water to the boiler, is without doubt the most effective manner of keeping the pipes clear of water. Having used the various systems of returning condensed steam to the boilers, am satisfied you will never find anything that will be as simple and effective as the vacuum system. We will be pleased to have you send prospective buyers to inspect the equipment you have installed for us or we will lend you assistance as will be of mutual assistance to you and the trade. Thanking you for the many courtesies received from you.

We remain yours truly,

THE HINDE BRICK & TILE CO.,
James J. Hinde, Pres.

We Build Every Machine and Appliance Required to Manufacture Clay Products by All Processes

The American Clay Machinery Company
Bucyrus, Ohio



Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

Written for THE CLAY-WORKER.

BRICK NEWS FROM NORTHWESTERN OHIO.



DEMAND for paving brick in northern Ohio is perhaps greater this summer than it has been for many years. Street improvements are being made in almost every city of any consequence in this part of the State. Legislation by municipalities is being hurried through and there are very few delays occasioned by lack of funds. Money for legitimate investments appears to be plentiful and all kinds of bonds are selling readily at a fair premium. A generally prosperous condition has brought about a large amount of municipal work of all kinds, including paving, sewerage and other public utilities. In Toledo there is an exceptionally large amount of this work on hand. Many streets are being paved and a large number in process of preparation for paving, and the year will undoubtedly show the expenditure of a great deal more money than any season of recent years.

Building operations for the month of April are also entirely satisfactory. March was not an encouraging month from the standpoint of the brick manufacturer and the season up to that time showed a decrease in the volume of new structures as compared with last year. April came to the front in a surprisingly pleasant manner with an increase of about 67 per cent. over April, 1910, bringing the total amount of new work considerably above last season during the same period. Total new buildings of an estimated valuation of \$1,071,555 are shown by the records up to April 30, the month of April alone being \$446,228, as compared with \$267,417 last April. All of the Toledo manufacturing plants are now operating at capacity and most of them report all the business that they can well take care of. The supply of building brick in Toledo at this time is very low, but it is expected that there will be a plentiful supply by the first of June, according to present indications. It is reported that there is a large surplus of brick in Detroit at this time and the effect has been felt here to some extent by local concerns that have for some time found a ready market in that city. Prices on brick remain unchanged with the exception of slight temporary vacillation. Present quotations on common building brick range from \$7.00 to \$7.50 per thousand.

Toledo brick shippers are generally interested in the proposed increase of rates on less than carload shipments which is now being considered by railways of this section. L. G. Macomber, of the traffic committee of the Chamber of Commerce of Toledo, representing that body, recently attended the meeting of the official classification committee in New York City, armed with authority to protest against the proposed increase of freight rates.

One of the finest stables in that section of the country is now being erected by B. M. Verity, of Middletown. The structure will be of brick and cost about \$12,000. It is equipped with modern heating and plumbing systems and is thoroughly up-to-date in every respect. George Steckrath, of that city, has the contract for the brick masonry.

The Collingwood Brick Company, of Toledo, reports a splendid demand for its output and but little bad results from the present strike of members of the building trades which is now being waged. "The present supply of building brick in Toledo is very light," said the manager of the concern. "Fewer brick were made last year and not nearly so many were carried over. The present outlook is good."

N. C. Ralph, of Conneaut, and F. W. Rose, of Greenville, Pa., are promoting a company, the purpose of which is to erect a large shale brick manufacturing plant at Ashtabula. The plant will have a daily capacity of 50,000 brick. The company will be organized and incorporated with the capital stock of \$100,000 to carry on business.

That there is an enormous amount of public work pending in the city of Toledo is shown by the fact that it will be necessary to issue bonds for \$133,271.30 for street paving and \$4,918 for sewer improvements to cover the city's proportion of the

expense of improvements for which legislation has already been passed. This statement is made in a report to Council last week by Public Service Director Cowell.

The city of Marysville, Ohio, will furnish a market for an enormous quantity of sewer tile during the coming season. Plans have been perfected for the installation of a large sanitary sewage system and sewage disposal plant to cost in the neighborhood of \$100,000.

An unusually nice paving contract was recently landed by Fred B. Davies, at Ironton, Ohio. It comprises several streets of the city and was awarded at his bid of \$19,252.70. The work will be pushed to completion as rapidly as possible.

"We have more business than we can take care of at the present time," is the report from the Hydraulic Press Brick Company, of Toledo. "The local supply of building brick is down. We are now running at capacity and the demand is heavy. This condition appears to be general all over northwestern Ohio."

A contract that will require a large number of building brick will soon be awarded at Kenton, Ohio. The city will erect a \$40,000 brick pumping station this season, plans for which have already been completed.

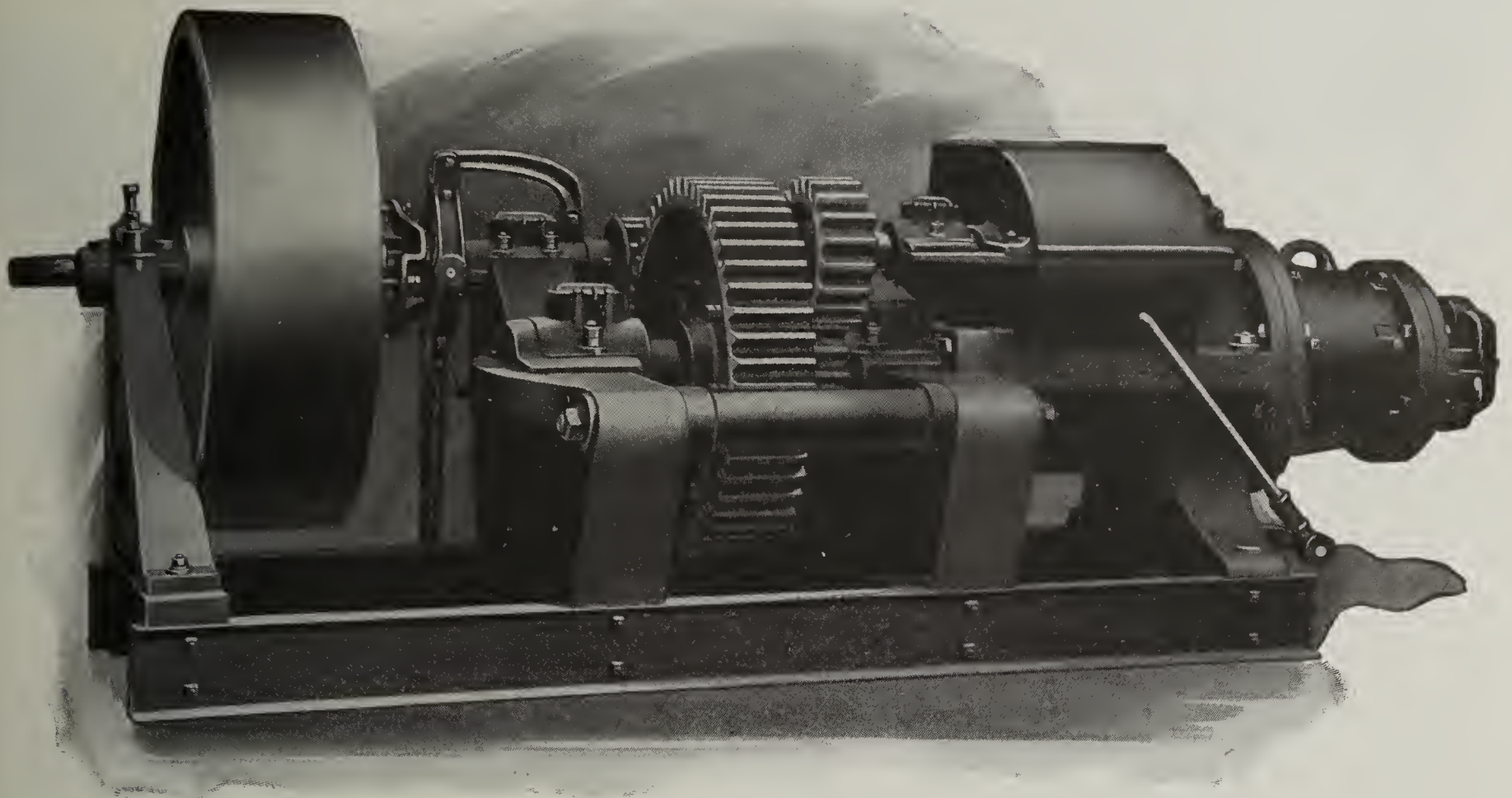
A peculiar situation confronts the Toledo City Council in connection with the construction of a sewer recently in Kelastone Heights addition. J. Proctor Coates owns all of the lots assessed. Mr. Coates also secured the contract to construct the sewer. He now says that he took the job too cheap and lost \$1,200, which amount he asks the city to make up by increasing the assessment on his own property. Because of the precedent to be established his request is meeting with some opposition.

That the strike of the building craftsmen of Toledo has settled down to a stubborn contest of endurance is evidenced by the fact that all efforts of Secretary Joseph Bishop, of the State Board of Arbitration to bring any of the contractors and representatives of the union together this week failed and Mr. Bishop has left the city, giving up the job as a hopeless task. The strike involves a demand on the part of nearly all the members of the various building branches for an increase in wages ranging from 10 to 25 per cent. and the adoption of the universal card system, which means in effect a closed shop. The bricklayers are not affiliated with the organization, but in their own behalf they demanded a substantial increase of wages. Their demands were met by the various contractors and the bricklayers are again at work. Necessarily they will be affected more or less by the strike of other departments of the building business, as brickwork cannot well proceed without carpenters, lathers, plumbers and other tradesmen. Up to this time building business has suffered but little as a consequence of the strike, which has been waged for several weeks, and contractors claim that they are rapidly filling the places of the strikers with non-union men.

The Business Men's Club and the Chamber of Commerce, two of the leading commercial organizations of Toledo, will be merged. A meeting has been called for May 9 to complete the details. The merged organization will be known as the Toledo Commercial Club. The dues will be \$16 per year for active membership, with an initiation fee of \$20. The membership will be 1,259. The rooms of the Business Men's Club will be used and the dining-room and other social features will be retained. One of the purposes of the organization is to promote new enterprises, and its influence is of especial benefit to all those connected with the brick business. T. O. D.

A NEW HOME FOR FISKE & CO.

Fiske & Co., New York City, having entirely outgrown their quarters in the Flatiron building, on May 1 moved to the Arena building, on Thirty-second street, one door east of Broadway, where they will occupy the entire upper floor. They are now fitting up what they say will be the largest and most artistic display of brickwork in existence, and which they will be pleased to exhibit to visitors at any and all times. Fiske & Co. are the proprietors and manufacturers of the famous tapestry brick, which has enjoyed such wide popularity ever since its introduction to architects and builders.



Model "GA" Auger Brick Machine

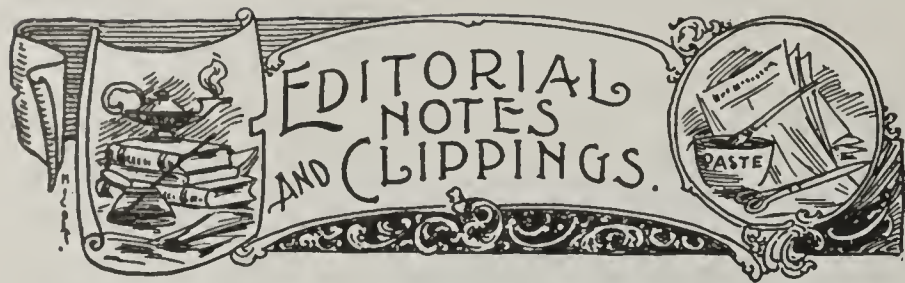
In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 816-819.



H. J. Gerhardt expects to start a brick plant at Neenah, Wis., in the very near future.

T. W. Fuller has purchased an interest in the Grundy Center (Iowa) Brick and Tile Company, and together with E. A. Crary, will operate the plant to full capacity.

The Lockland Brick Company, of Lockland, Ohio, has been incorporated with \$25,000 capital stock. Those interested are J. E. Smith, John Mueller, John B. Albert, F. D. Reilly, John Singer and others.

A company to be known as the Central Manufacturing Company has been organized to take over the business of the Prewitt Brick Company at Taylor, Texas. Same will be improved and enlarged and operated to full capacity the coming summer.

A company is being organized at Los Angeles, Cal., by H. D. Wade and others to erect a plant for the manufacture of a fine grade of press brick and tile. It is planned to spend about \$125,000 on the plant and equipment.

A company has been organized at Marshall, Texas, for the purpose of manufacturing brick and a charter applied for. The new company will have a capital of \$40,000 and will manufacture 50,000 brick daily. The company is composed of Marshall and Gilmer men.

Albert Ohlemacher, superintendent of the Ohlemacher Brick Company's plant at Michigan City, Ind., was seriously injured recently by being caught in the belting and whipped around a shaft. The machinery was stopped in time to save his life, but he sustained very painful injuries.

The Houston Brick and Tile Company, the new concern which recently was granted a charter, has its plant at Houston, Texas, in operation. A large and modernly equipped plant has been installed adjoining the ship channel water front near the foot of Race street, and is filling orders.

The Ashtabula Shale Brick Company, of Ashtabula, Ohio, has been incorporated by N. C. Ralph, of Conneaut, Ohio, and F. W. Rose, of Greenville, Pa. A plant of 50,000 daily capacity will be erected at once for the manufacture of paving brick. The company will give the trade name "Bula Block" to their product.

The incorporation papers of Morton Bros. & Co., of Washington, Ind., have been filed with the Secretary of State. The capital stock of the corporation is \$10,000, and the directors are L. E. Hamersly, P. A. Hastings, Zed Morton, Quill White and J. A. Colbert. The company is engaged in the manufacture of drain tile and building blocks and its factory has been in operation for a few months.

M. E. Gregory, proprietor of the Brick, Terra Cotta and Tile Company at Corning, N. Y., writes that they have no complaint to make in regard to business, that orders are coming in fine and they have taken some very good contracts. In fact, if trade continues, they will be compelled to turn down inquiries. Mr. Gregory believes in advertising and practices what he preaches and reaps the result accordingly.

Daniel E. Reagan, of Terre Haute, Ind., president of the Ayer-McCarel-Reagan Clay Company, was recently elected president of the Hocking Valley Clay Products Company. The new company is the reorganized Columbus & Hocking Clay and Iron Company, with a capitalization of over \$6,000,000. While the new company will produce oil, gas, clay and iron, the larger part of the capital will be used to establish an immense brick plant, which, the promoters say, will be one of the largest, if not the largest, in the world. Mr. Reagan will move to Columbus, Ohio, for permanent residence in the near future.

Frank G. Beastrom, a laborer in the brickyards at Bernice, near Hammond, Ind., was killed recently while at work on the traveling mud belt in the yards. He was standing near the flywheel that drives the belt and was just about to leave the machine preparatory to eating dinner when his right sleeve caught in the wheel. His arm was drawn into the wheel and literally wrenched from his body, and he died in a few minutes. He had been an employee of the company for

about nineteen years. He was an expert brickmaker and was known as a careful workman. He leaves a wife and small daughter.

The South Michigan Brick Company is a new concern recently incorporated at Kalamazoo, Mich., with \$40,000 capital. The incorporators are John L. Jackson, Sheldon Ruby and S. C. Church.

Henry Schmidt, a pioneer brick manufacturer at Manitowoc, Wis., died recently following a short illness. He was 74 years of age and had been engaged in the brick business for nearly fifty years.

Suit has been brought against the Webster City Brick and Tile Company, of Webster City, Iowa, by Frank Taylor for \$10,000, which is asked for alleged injuries which it is claimed Mr. Taylor sustained while working for this company.

After remaining idle for several months the plant of the Pinegrove Fire Brick Company, Pinegrove, Pa., resumed operation May 1. The company has on its books a large number of contracts for paving brick which will keep it busy for some time to come.

Wm. R. Hammond, a well-known brick manufacturer of Dutchess Junction, N. Y., was struck by an automobile while crossing a street in New York City recently and badly injured. Two ribs were broken, one ankle fractured and one wrist badly sprained, and while the injuries are not serious, Mr. Hammond will be confined to his home for some time.

Willis Edson, general manager of the Capital City Vitri-fied Brick and Paving Company, of Topeka, Kas., died at the St. Francis Hospital May 1, following an operation. Mr. Edson was 74 years old and had resided in Topeka for 41 years, having been manager of the Capital City Vitri-fied Brick and Tile Company since 1895. A wife, one son and a daughter survive.

The Brockway Brick Company, Brockway, N. Y., has leased the McNamara and Covert brickyards, at Dutchess Junction, N. Y., for the period of ten years and have taken possession of same. Mr. McNamara, who is one of the oldest brick salesmen in New York, having represented the Hudson River yards in that city for many years, will devote his entire time to his New York office.

There has been discovered at the mines of the California Clay Manufacturing Company, at Alberhill, Cal., a four-foot vein of coal which is very promising. Specimens of the coal have been analyzed and it is found to be superior to any coal found hitherto in that section. Mr. Caskey, manager of the Clay Manufacturing Company, believes the deposit underlies all of the company's property, and states that they will probably have the mine in working order for next winter's business.

Allen B. Kline, son of John Kline, brick manufacturer at Wickliffe, Ohio, narrowly escaped serious injury recently while at work in his father's plant. While standing near the shaft which operates the cutting machine Mr. Kline's jacket caught in the shafting and gradually wound around it. His signal of distress was answered by other employes, who turned off the power just as he was about to be hurled around the shafting. His clothes were torn from his body, but he escaped with a bruised shoulder.

The Rochester Industrial Exposition Association has been organized at Rochester, N. Y., the chief object of which shall be the promotion and direction of an annual industrial exposition to be held at Rochester. Our good friend, W. H. H. Rogers, vice-president of the N. B. M. A., has been elected president of the association. Mr. Rogers is quite prominent in the industrial life of Rochester, being president of the Builders' and Traders' Exchange after having served as treasurer the previous year. With such an energetic man at the head, we bespeak great success for the association and its exposition.

Through a misunderstanding our Puget Sound correspondent announced in the April issue of THE CLAY-WORKER that Raymond H. Bond, connected with the C. W. Raymond Company, was interested in the Coast Shale Brick Company, of Vancouver, B. C. Mr. Bond advises us that he is not in any way connected with the company, the superintendent being Mr. John Bond, and the similarity of names is evidently the cause of the misstatement. The Coast Shale Brick Company's plant is equipped throughout with the Raymond machinery, including their new model low-frame dry pans, pug mill, 777 brick machine, semi-automatic cutting table, improved radiated metallic dryer and a Youngren compartment continuous kiln will be installed as soon as enough brick can be secured for its construction. Mr. Bond says he has repre-

sented the C. W. Raymond Company on the coast for several years and he expects to remain in that capacity for many years more.

The brick plant of Richard A. Kent at Fluker, La., was totally destroyed by fire, entailing a loss of \$35,000, which is partly covered by insurance. Several houses near the plant were also burned.

The Anchor Tile Company, Covington, Ky., has been incorporated by Frank Braunstein and Jesse A. Koch, of Cincinnati, Ohio, and L. A. Braunstein, of Covington. The capital stock is given as \$100,000.

James V. Rose, president of the Rose Fire Brick plant, at Sharon, Pa., died at his home in that city recently. Mr. Rose was 59 years old and had been living in Sharon since 1883. a widow and two sons survive.

The George C. Crossley Company, of Trenton, N. J., has purchased a forty-four-acre farm containing valuable clay deposits, which they will mine. This company makes a specialty on the selling of fine clays, both domestic and foreign, to potteries and other large users.

At a recent meeting of the stockholders of the Queens Run Fire Brick Company, of Lockhaven, Pa., Geo. H. Diack was elected secretary and treasurer to succeed F. D. Halstead, who resigned after having served as secretary-treasurer and general manager for 11 years.

The Sumter Brick Works, Sumter, S. C., which was destroyed by fire four months ago at a loss of more than \$25,000, resumed operation recently after having been practically rebuilt and equipped with new machinery. I. A. Rytenburg, the principal owner of the plant, has taken a partner in with him, Mr. J. P. Maurer. The new plant will have a capacity of 50,000 brick a day.

At the annual meeting of the Baltimore Brick Company, held recently at Baltimore, Md., the following officers were elected: Carroll Van Ness, president; Richard Cromwell, Jr., vice-president; Samuel R. Busey, general manager; Harry A. Remley, secretary and treasurer, and Warren Griffiss, assistant secretary and treasurer. The directors declared a dividend of 1¼ per cent. on preferred stock, this being the second dividend for that amount paid within twelve months.

The Carbon Coal and Clay Company, at Carbon, near Brazil, Ind., contemplates the erection of an immense clay plant to be operated in connection with the company's present plant. The company has 220 acres of land which is now being mined and shipped, but the company desires to erect a plant for the manufacture of clay products. W. C. Shoemaker, of Brazil; John W. Holtzman, C. A. Hilgenburg, Louis Coleman and Edward W. Zarser, of Indianapolis, are interested in the company.

Jas. P. Williams, for some time special representative for the Youngren kiln, built by the C. W. Raymond Company, of Dayton, Ohio, has severed his connection with that company and gone back into the brick business again, having taken the management of the Copeland-Inglis paving brick plant, at Birmingham, Ala. Prior to his connection with the Raymond Company he was in charge of the North Side yards of the Hydraulic Press Brick Company, at St. Louis. THE CLAY-WORKER wishes him success in his new field.

A company composed of East Liverpool, Zanesville and Marietta (Ohio) men has recently taken out a charter with capital stock of \$50,000, to mine manganese ore near Newport in eastern Tennessee. The company is now installing machinery and mining will be started extensively within the near future. The officers of the company are: President, John M. Doan, Marietta; vice-president and general manager, John Sant, East Liverpool; secretary, Thomas H. Sant, East Liverpool; treasurer, F. W. Young, Zanesville. The product to be mined by this new company is used extensively in the manufacturing of ceramic products.

The concern recently organized at Belle Plaine, Iowa, is the Reliance Brick and Tile Company. It has an authorized capital stock of \$400,000. W. R. Law is president; P. W. Smith, vice-president; H. E. Law, treasurer, and R. A. Law, secretary of the company. An immense brick and tile plant covering five acres and modern in every particular will be completed at once for the manufacture of common and press brick, drain and sewer tile. It is expected when in full operation the plant will have a capacity of 100,000 brick per day. The clay property has been analyzed by Prof. S. W. Beyer, of the Iowa State University, at Ames, and he pronounced it to be of the finest quality found in the State. Prof. Beyer estimates that the clay on the 100 acres owned by the company

is sufficient to run about three hundred years if the plant is run to full capacity day and night. A switch is being built to the Chicago & Northwestern Railroad, which will give the company ample shipping facilities.

Chas. W. Hoff, a well-known brick manufacturer of Terre Haute, Ind., was recently honored by being elected to the presidency of the Terre Haute Manufacturers' Club, an organization of much influence in that city.

The extensive improvements planned by the Brazil Face Brick Company, which took over the plant of the defunct Sheridan Brick Works, at Brazil, Ind., have been started and will include the erection of ten large kilns and the installation of new machinery.

A number of business men of Sulligent, Ala., have formed a clay company for the manufacture of brick and building material to be known as the Sulligent Brick Manufacturing Company, of which A. W. Hollis is president. The plant is to have a capacity at the start of 30,000 brick per day.

W. A. Anderson writes that a company is being organized at Wickliffe, Ky., for the purpose of manufacturing stoneware china. A plant will be built as soon as possible and the company will be in the market for machinery. Interested parties are requested to address Mr. Anderson direct.

Foundations for the new plant to be built at Sebring, Ohio, by Fred Sebring, general manager of the Limoges China Company, are about complete. The new concern, which will be known as the Saxon China Company, will manufacture a general line of ware, which consists of dinner ware and specialties. It will be three or four months before the new pottery will be ready for operation.

The National Capital Clay Products Company is a new concern recently launched at Washington, D. C. The plant, which is erected at 38th and U streets, Northeast, is nearing completion and will be equipped throughout with modern machinery and appliances and have a capacity of 100,000 brick per day. Hugh J. Phillips is president; Chas. P. Grandfield, vice-president; A. E. L. Leckie, treasurer; Robert H. McNeill, secretary, and Geo. K. Denmark, assistant secretary. They expect to have the plant in operation early in the summer.

RATTLER

We are now prepared to furnish the New Standard Paving Brick Rattler, with several Superior Features and at the very lowest price consistent with Good Design, Strength and Durability. Price, description, etc., sent upon application.

THE CERAMIC SUPPLY & CONSTRUCTION CO.
COLUMBUS, OHIO

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



JUDGING from the official records, building does not appear to be especially active at the moment, either in San Francisco or Oakland. The total valuation of building permits for April in this city was \$1,882,158, compared with \$2,090,703 for March and a slightly larger figure for April last year. There has, in fact, been

more or less decrease in permits issued in all the larger cities of the Coast, though Portland, Ore., is keeping up fairly well. Dealers in materials, however, feel no discouragement over the apparent reduction, and are more confident than ever that the season will be a busy one. For one thing, there seems to be a tendency to use fireproof materials, and especially brick, to a larger extent than for some time past; and judging by the number of buildings now being planned or figured, there is every indication of a material improvement during the next few months. Quite a number of large buildings which have been contemplated for some time are expected to be let within the next few weeks, and new plans for brick and terra cotta apartment houses are being announced nearly every day. The Board of Public Works is now taking action in regard to the temporary buildings which were permitted inside the fire limits after the fire of 1906, and those not occupied are rapidly being replaced by permanent structures. It is believed that the site of the Exposition will be definitely settled within a few days, and this will bring out a fair volume of work that has been temporarily delayed.

The common brick situation is more satisfactory than for many months past, and while prices are not as high as at some periods in the last few years, underlying conditions are more favorable than at any time since the end of 1906. There is increasing firmness as to prices, which have just been advanced to \$6.75 per M in the city, and are likely to go still higher in the near future. The demand has been surprisingly good, and contracts on hand will take up the output of a number of plants around the Bay for some months to come. The production of many outside plants is larger than last month, but it is considered doubtful whether some of the local concerns will be able to produce on their usual scale this summer. A large amount of brick is still required in other parts of the state, and there has been some inquiry for shipment up the coast, but it is doubtful whether much brick will be available for shipment except to points within easy distance.

Other descriptions of brick and clay products are finding an unusually good demand. Architectural terra cotta is more popular than ever as a facing material for buildings of all kinds, some good contracts having been taken recently for work on public buildings, banks, and stores, as well as apartment houses. The steady increase in the use of fuel oil and the growth of industrial activities is causing more demand for fire brick, especially for some of the improved lines made by local concerns. Sewer work is rapidly increasing. Several new contracts have been let by this city, and the city of Oakland is preparing to start work soon on over 60 miles of sewers in the newly settled districts in the east end of town.

The United Materials Company, agent for the Los Angeles Pressed Brick Company and the Port Costa Brick Works, reports an extremely heavy business for the last few weeks. The output of the Port Costa plant for some time to come has been disposed of, and it has been necessary to buy a large amount of material from other concerns to fill orders that have come in, while business on some of the Los Angeles company's products has been about all that can easily be taken care of.

The exterior of the new Hearst building is now about

complete. This will be one of the finest examples of terra cotta construction in the city. The first two floors of gray Tennessee marble are surmounted by a lot of very elaborate polychrome decoration, and the remainder of the building is faced with large blocks of matt-glazed cream colored terra cotta.

The Steiger Terra Cotta & Pottery Works is bidding on a number of large terra cotta jobs, and has taken on a substantial volume of business of a general nature in the last few weeks, keeping the plant at South San Francisco well occupied. This company is shipping quite a lot of material, especially pressed brick and fire brick, to points in the interior.

The Ione Fire Brick Company of Ione, Cal., has had its plant in active operation for nearly a month past, and its first kiln of fire brick for the new season will be ready for shipment in a few days. The material to be produced this season will be slightly different from the former output, as the company has been experimenting with the object of producing a brick which will stand up well under the severe conditions of oil-burning furnaces, and has found a mixture which seems peculiarly well adapted for such purposes. Owing to the large demand for its material last season, the plant will be run on as large a scale as possible this summer.

The Vallejo Brick & Tile Company, Consolidated, is again working on paving brick. For a year or more past it has made little effort in this direction, owing to the ready demand for its ordinary product for sewer purposes, but with an increasing opportunity for the introduction of pavers, efforts are being made to produce a material which will hold its own with stock brought from other places. This year the company is trying a mixture of its shale, etc., with a small amount of other material, by which it expects to improve its product materially. A small experimental kiln of this mixture has shown good results, and a full kiln is now being burned. So far San Francisco has taken little interest in brick pavement, but it is very likely that the material will be considerably used in neighboring towns in the next few years, and there is a fairly steady demand from private concerns, most of which get their supplies from distant points.

The Livermore Fire Brick Company, at Livermore, Cal., is now in full operation, and has had all it could do to keep up with its orders for the last month. To take care of the increased demand, a number of improvements are being installed, including three large down-draft kilns. A large deposit of raw material has also been secured. The company is shipping its brick to many places in the interior of the state, and has taken some business at more distant points.

The Winsor Pottery Works of Oakland, Cal., has filed articles of incorporation, with a capital stock of \$1,000,000. Those principally interested are H. C. Stevens, T. T. Crittenden, M. T. Moses, P. F. Gilroy and W. J. Kappler. The company will continue the business founded many years ago by the late Serrill Winsor.

J. D. Wade is working on a project to organize a new pressed brick company at Los Angeles.

The Burton brickyard at Salem, Ore., has suspended operations, and several parties are looking into the situation with a view to starting a new plant there.

Marcus H. Merrill, one of the oldest brick manufacturers of the state, died April 10 at his home in Stockton, Cal., where he has resided for 59 years. With his brother, Bernard Merrill, he came to California from Connecticut in 1852, and has been interested in brick plants at several towns in the interior of the state.

The Sacramento Sandstone Brick Company at Sacramento, Cal., a sand-lime brick concern, which operated for a time last fall, has been out of commission all winter on account of high water. Additional machinery is being installed, however, and the plant will resume operations very soon.

The Taft Brick Company, of Taft, Cal., J. W. Key, president, is about ready to put in the last of its equipment, and expects to commence producing early in the summer.

B. S. Baine has about completed negotiations for a 42-acre site near Sutherlin, Ore., on which he expects to erect a large brick and tile plant.

San Francisco, Cal., May 5, 1911.

SUNSET.



Barrett's PAVING PITCH



Purchase Street, Boston, Mass., Granite Block Pavement Filled With Barrett's Paving Pitch in 1904.

How Pitch Filler Saves Money for Cities

Pitch filler should be used in brick, wood block or granite block pavements, because it is more economical than other fillers.

As contrasted with cement filler, pitch saves money by eliminating repairs. The cement filled pavement frequently cracks on account of expansion or contraction, no matter how carefully expansion joints are arranged. It cracks also because if the foundation settles, the pavement does not follow the depression, but arches over it, and will not support the heavier loads.

Pitch Filler has none of these faults because it is plastic.

As contrasted with asphalt filler, paving pitch saves money by its greater adhesiveness and plasticity. When the bricks contract in cold weather asphalt is not sufficiently plastic and adhesive to adjust itself to the widened joints, and leaves cracks between the brick and the

filler, permitting water and frost to reach the foundation. Paving Pitch on the other hand has great tenacity and is plastic. When the joints widen, the pitch simply settles a little lower in the joints, but keeps the waterproof seal unbroken.

No expansion joints are necessary with paving pitch. "Every joint is an expansion joint." Each brick rests on a proper foundation and cracks are impossible. Despite its plasticity, paving pitch is permanent, and will be found still doing its work satisfactorily whenever an opening is made. It is the best possible protection against water and frost, making a continuous and unbroken seal that protects the foundation perfectly.

Booklet exhibiting some of the wonderful records made by pitch filled brick pavements and containing also a model specification will be sent free on request.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cincinnati Cleveland
Pittsburg Minneapolis Kansas City New Orleans Seattle London, England

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE BUILDING and clayworking operations of the Puget sound and adjacent territory is rather quiet for this time of the year. The permits for Seattle for the month of April were below the million-dollar mark, while the total for Portland reaches \$1,800,000. In the selling of brick the prices have not been much better than last month, and while some of the yards are picking up on orders, the general tendency is to keep the stock down as much as possible.

Local improvements are occupying the interest of the general public. In Seattle the civic center idea is having a rapid growth. In several of the districts organizations favoring this idea are formed, and they show remarkable energy. Current topics of interest, such as State and municipal questions, the subject of playgrounds, beautifying the city, betterment of the schools and others of a similar nature assist in bringing the people of a neighborhood together. These meetings are usually held in the district school building, and they help to become acquainted and to foster a friendly and neighborly spirit.

One of the best and finest schools to be built in Portland will be the Lincoln High School, for which a permit was taken out this month amounting to \$500,000. The building will be a steel frame constructed fireproof building, and will be completed this year.

The Washington State Capitol Commission, in connection with advisory architect, C. H. Bebb, is working out the plans for an open competition in order to secure for the State of Washington a group of capitol buildings which will surpass anything of its kind in the country as far as architectural beauty and convenience is concerned.

Convict-made brick seem to be in demand lately. The Washington State Board of Control will probably move the brick plant which is now located at the penitentiary of Walla Walla to Sedro-Woolley in order to make brick for the new insane hospital at that place. This move is contemplated on account of the high price of cement. There is plenty of wood

in the vicinity and brick can be made cheap, as the State has an excellent clay bank.

In Oregon the situation is somewhat different. At Salem a brick famine was threatened, due to the local brickyard discontinuing business. The local bricklayers' and masons' union requested the Governor to put the prison-made brick on the market for local demand. The union stated in their letter to the Governor that they would have no objection in laying prison-made brick as long as there was no private concern in the vicinity to supply the demand. The penitentiary at Salem has some million and a quarter brick on hand.

The Western Clay Company was organized in Portland to take over the business of the Western Clay Manufacturing Company, which was owned by the Smith Bros. The Western Clay Company is largely controlled by the Denny-Renton Clay and Coal Company, of Seattle.

Mr. J. T. MacKintosh, president of the Washington Clayworkers' Association, has resigned his position as general manager of the Little Falls Fire Clay Company, of Tacoma.

The Dallas Brick and Tile Company has commenced work on the construction of a brick and tile plant east of the city. G. M. Partridge is the general manager, and will conduct the business himself, being largely interested in the company.

One of the largest public buildings in which brick has been used to a great extent for exterior decorations is the new Union Depot at Tacoma, which was thrown open to the public on the first of May.

The Sidney Brick and Tile Company, of Sidney, Manitoba, is enlarging its red brick plant in order to take care of their large and increasing business. They are supplying the local demand and shipping many brick to western towns.

The Alsip Brick, Tile and Lumber Company has made a splendid exhibit in the rotunda of the Winnipeg Builders' Exchange. The architects and contractors have been greatly interested in this exhibit, as it shows what can be done with the products of this company.

Large inducements are offered by the Commercial Club of Grants Pass, Ore., for the location of some brick company at that place. At present large amounts of brick are shipped there from outside points.

SIWASH.

WANTED, FOR SALE, ETC.

FOR SALE—Cheap: Six piano-wire screens in first-class condition; good as new. Address BOX 5—OHIO, 5 1 d Care Clay-Worker.

WANTED.

Superintendent for a new brick plant, daily capacity of 80,000. All high-grade ware. Must be well recommended and with some money to invest in company. Address BOX 4—P. D. G., 4 3 d Care Clay-Worker.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address, BOX 3, B. T. CO., 3 tf d Care Clay-Worker.

FOR SALE.

Complete modern tile plant, 4 new 40-foot kilns, steam and open dryers, 23 acres clay land; \$500 worth of coal on hand. Plant ready to start. Owner sick. Will be sold cheap; part cash.

HARRY A. VAN AUKEN,

309 Hodges Bldg., Detroit, Mich.

5 2 cm

FOR SALE—Cheap; one six-mold soft-mud brick machine and one Ohio tile machine. Both good as new.

G. J. CLARK, Box 95,
5 1 cm Wauseon, Ohio.

WANTED.

Position by a technical graduate, 33 years old. Experienced in construction, installation of machinery and operation. Address BOX 3, T. H., 3 tf d Care Clay-Worker.

WANTED.

To buy a brick plant having shale or fire clay, raw material and round down-draft kilns. Give complete description. Address LOCK BOX 743, 4 tf d Uhrichsville, Ohio.

FOR SALE

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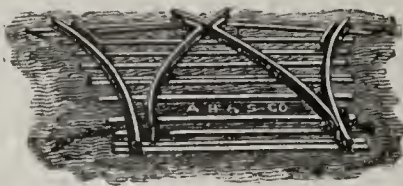
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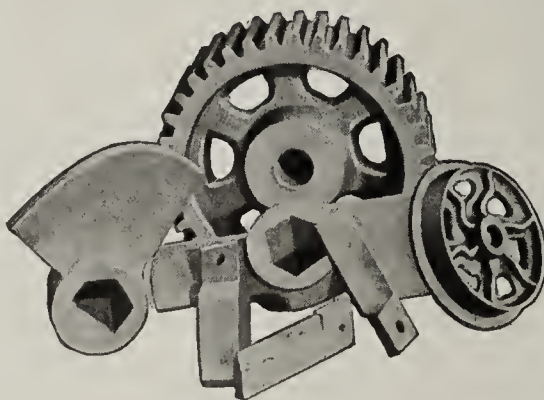
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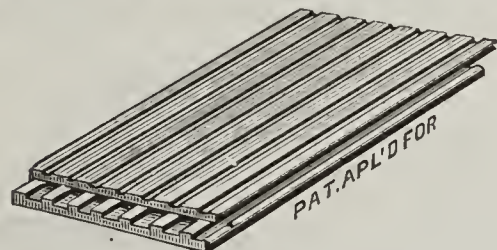
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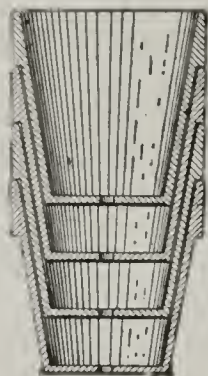
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County and State Rights For Sale.

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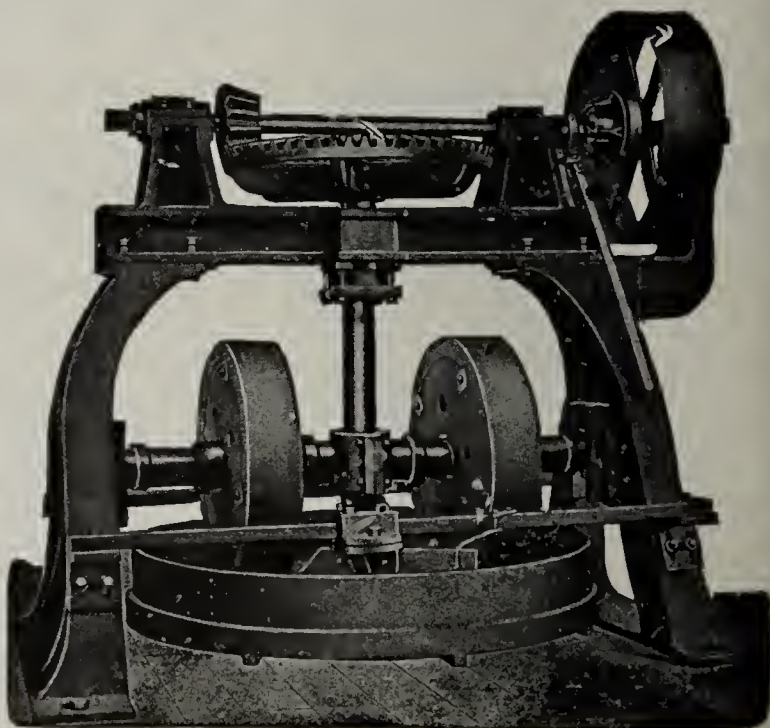
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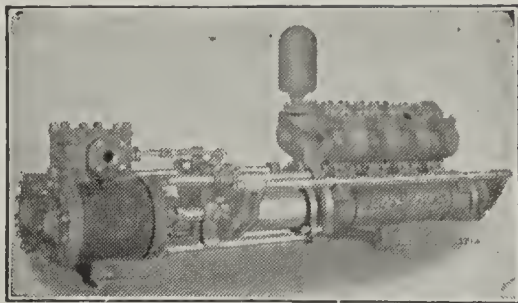
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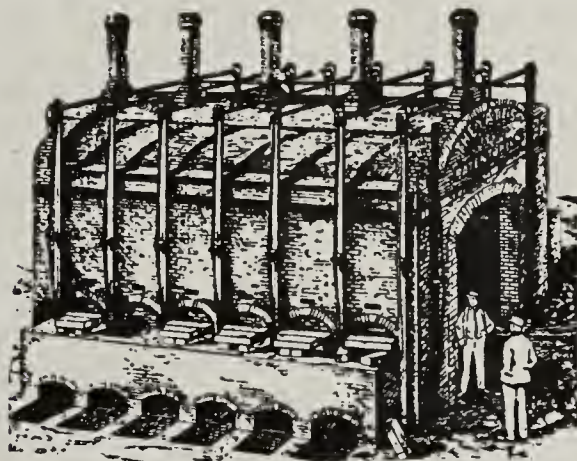
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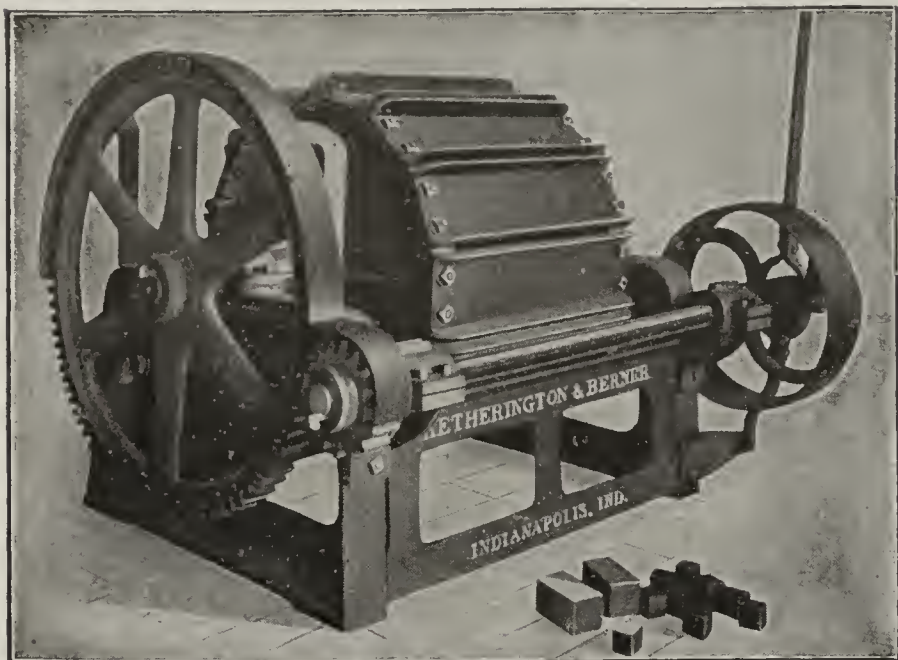
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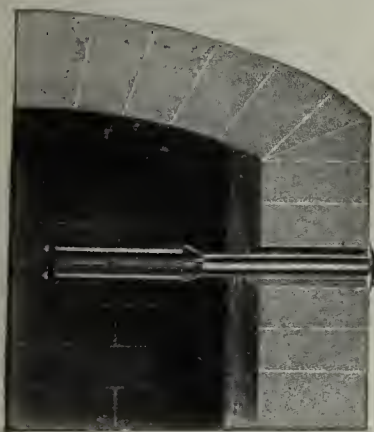
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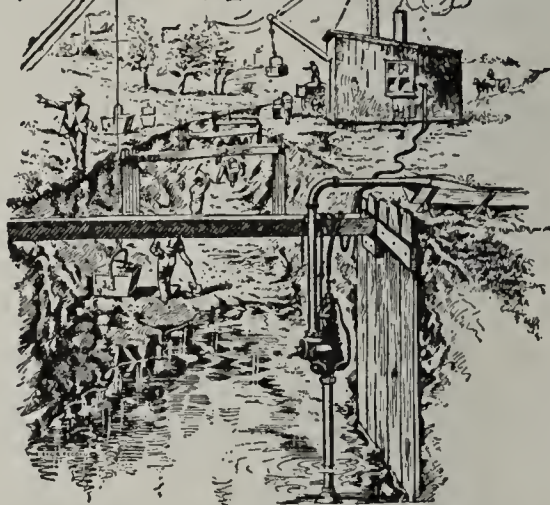
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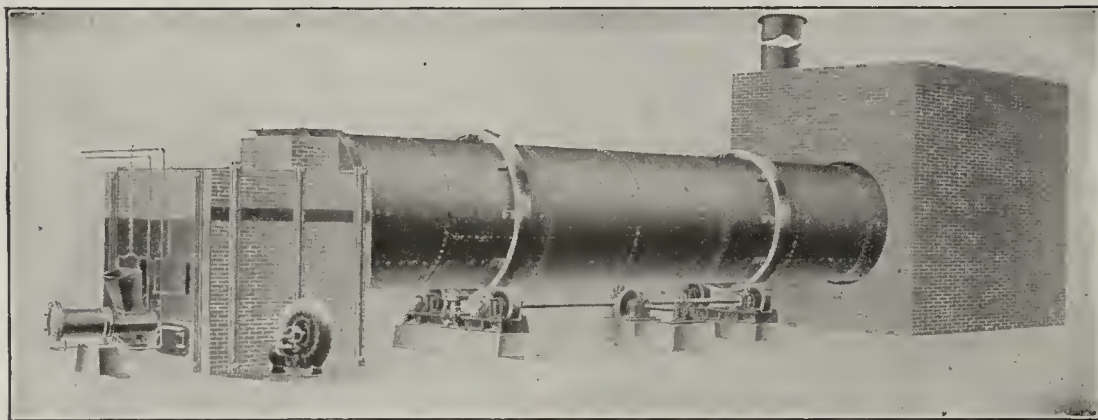
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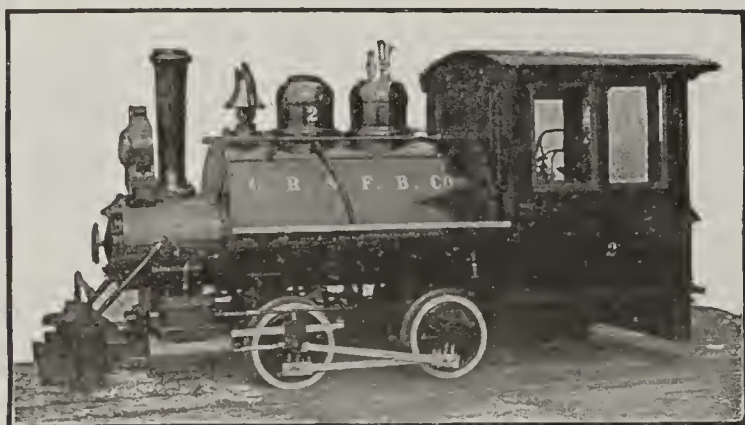


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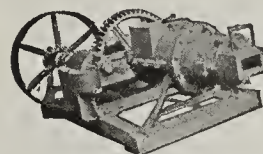
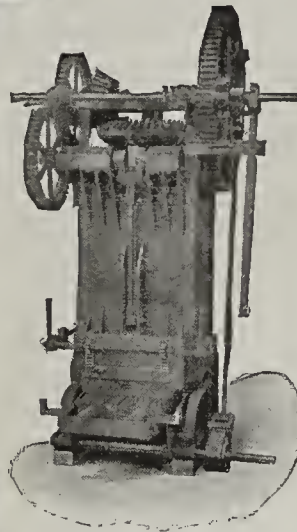
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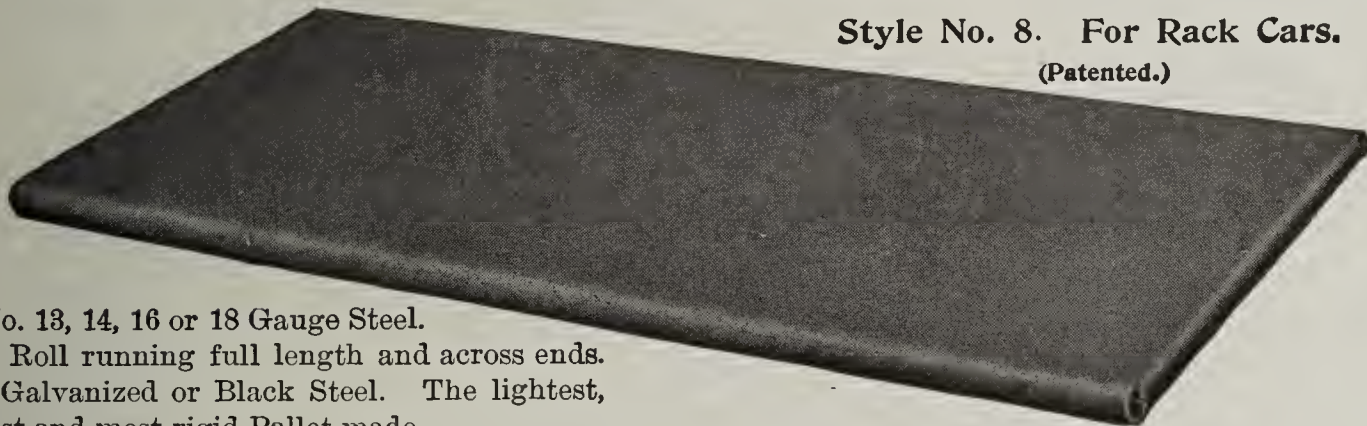
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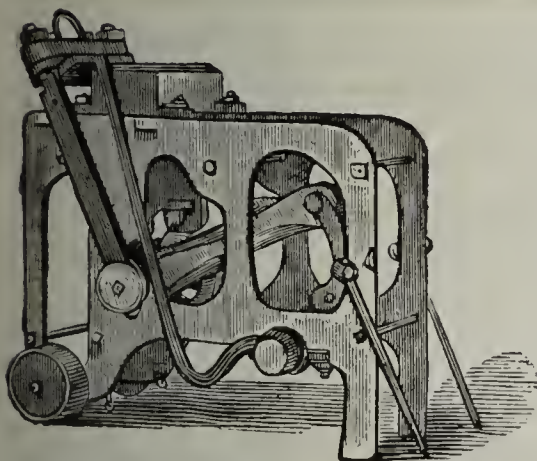
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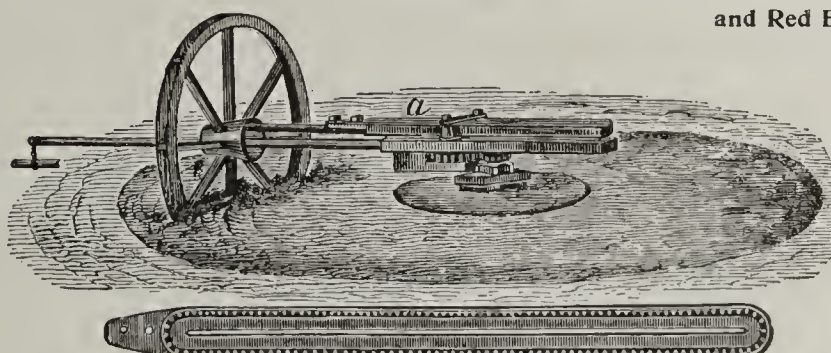
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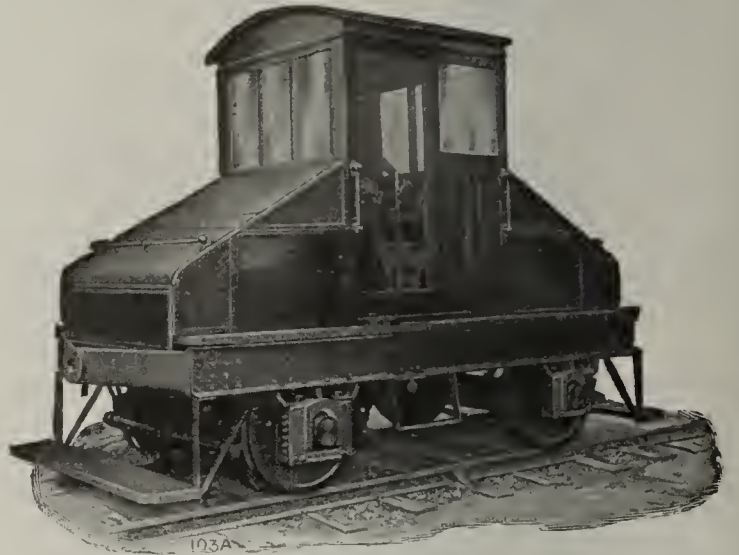
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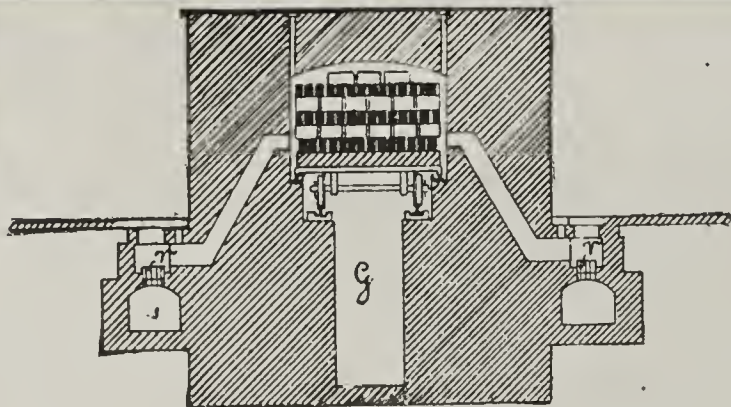
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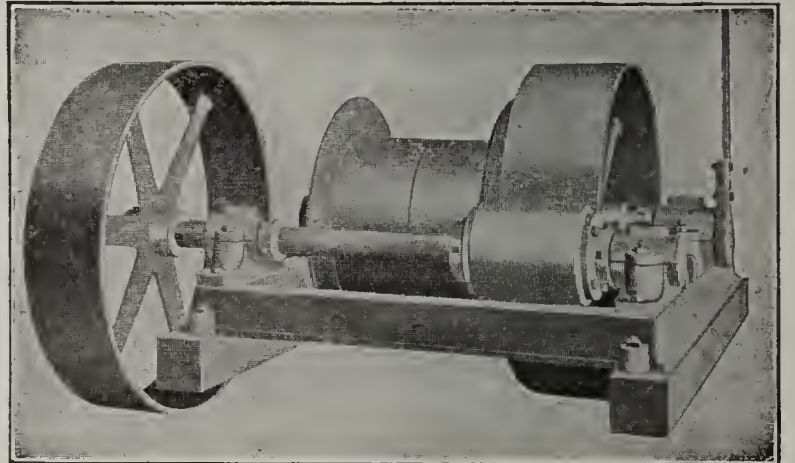
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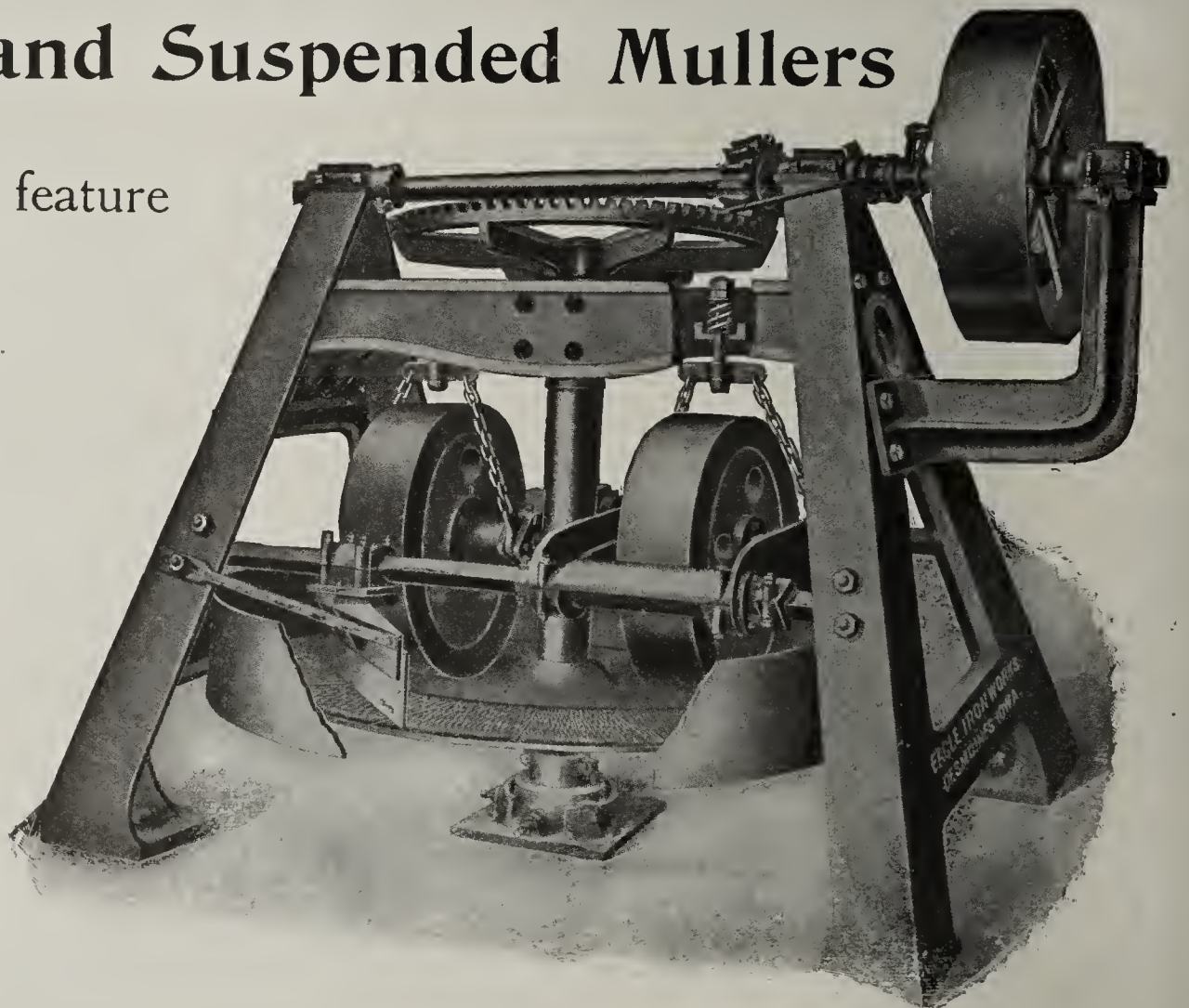
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Buhrer's Shortened Kilns are the most suitable for burning ordinary and enameled goods, lime and cement.

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The Buhrer Fan increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

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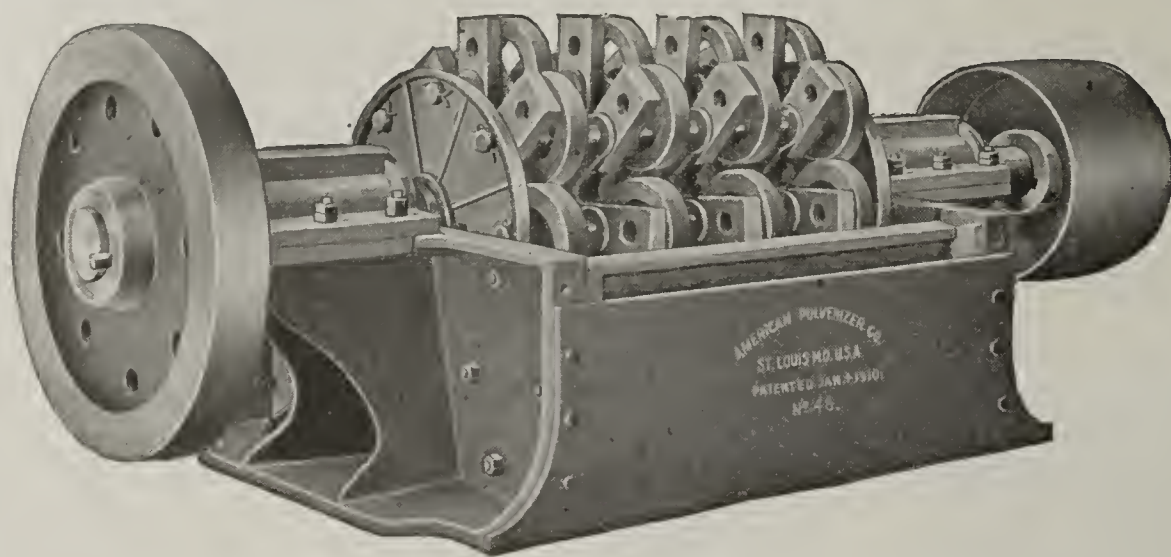
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It does its work with less cost of operation, does more and better work, withstands more rugged work, and is doing work other types of mills cannot do.

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Model 35—C. H. Klein Brick Co., Chaska, Minn.

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For moderate outputs, this is the most economical machine, as it can be operated by one man.

OUR STANDARD SHOVELS

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The material and workmanship entering into the construction of our Excavating Machinery is the best the market affords, therefore it is **EFFICIENT, RELIABLE AND DURABLE.**

We also build

ELEVATOR AND DIPPER DREDGES—DRAG-LINE EXCAVATORS—BALLAST UNLOADERS.

THE MARION STEAM SHOVEL COMPANY, Dept. 3, MARION, OHIO

Chicago: 1442-3 Monadnock Block.

New York: 50 Church St.

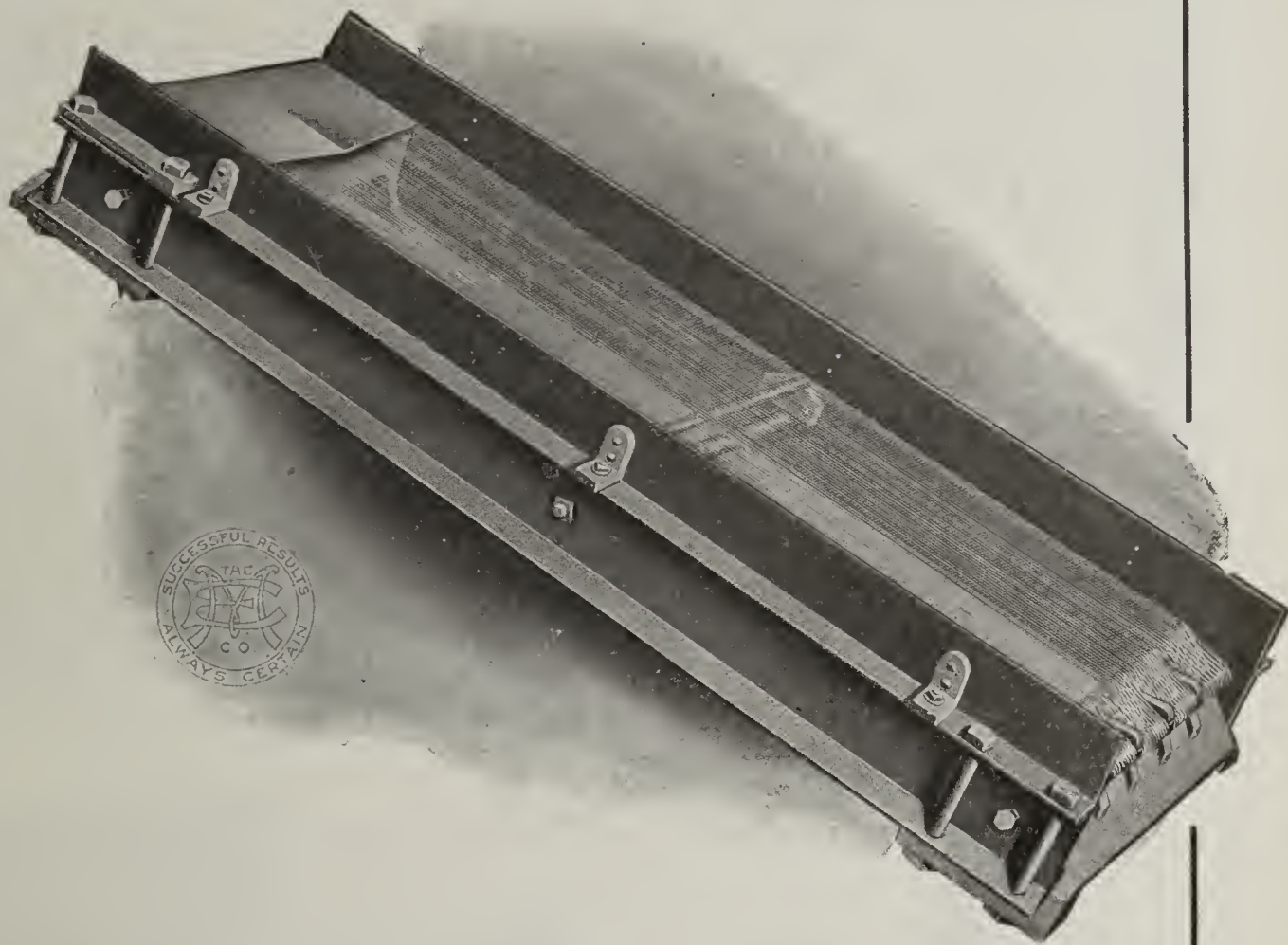
San Francisco: 718 Monadnock Bldg.

Mention THE CLAY-WORKER.

If you are considering the purchase of a screen and are undecided which will best serve your purpose, let us help you out of your difficulty by installing the

"MECO PIANO WIRE SCREEN"

It is properly designed and is the most substantially built Screen on the market today, and is so arranged that the wires can not spread and can be replaced without buying especially designed wires from the manufacturer at prohibitive prices. We guarantee the capacities for which the different size Screens are sold. Write for Bulletin No. 2, which briefly sets forth the merits of this Screen, and presents in an interesting manner the subject of screening clay by this process.



Every manufacturer of clay products is interested in the subject of drying clay wares. This is an inherent feature of the industry and it is certainly to the interest of every manufacturer of clay ware to install that system which will do the work at the least cost and with the most uniform success, both as to quality and quantity of the dried product. We have no hesitancy in saying that the only system that will meet the requirements of the most exacting is the

JUSTICE RADIATED HEAT DRYER

We know this is a rather broad statement, but if given the opportunity we will be able to convince you of its truth. This Dryer will dry a larger variety of clays and produce a greater quantity of uniformly dried ware than any other. It is an economical Dryer to install, because there is no expense for upkeep; the fuel consumption per ton of dried ware is less than in any other; only the mini-

mum amount of labor is required to operate it; conditions are always under full control of the operator. Successful results are always certain. Our Bulletin No. 1 will tell you all about it and it will be a privilege to send it to you, which we will be glad to do upon request.



THE MANUFACTURERS EQUIPMENT COMPANY

Sales Agents for

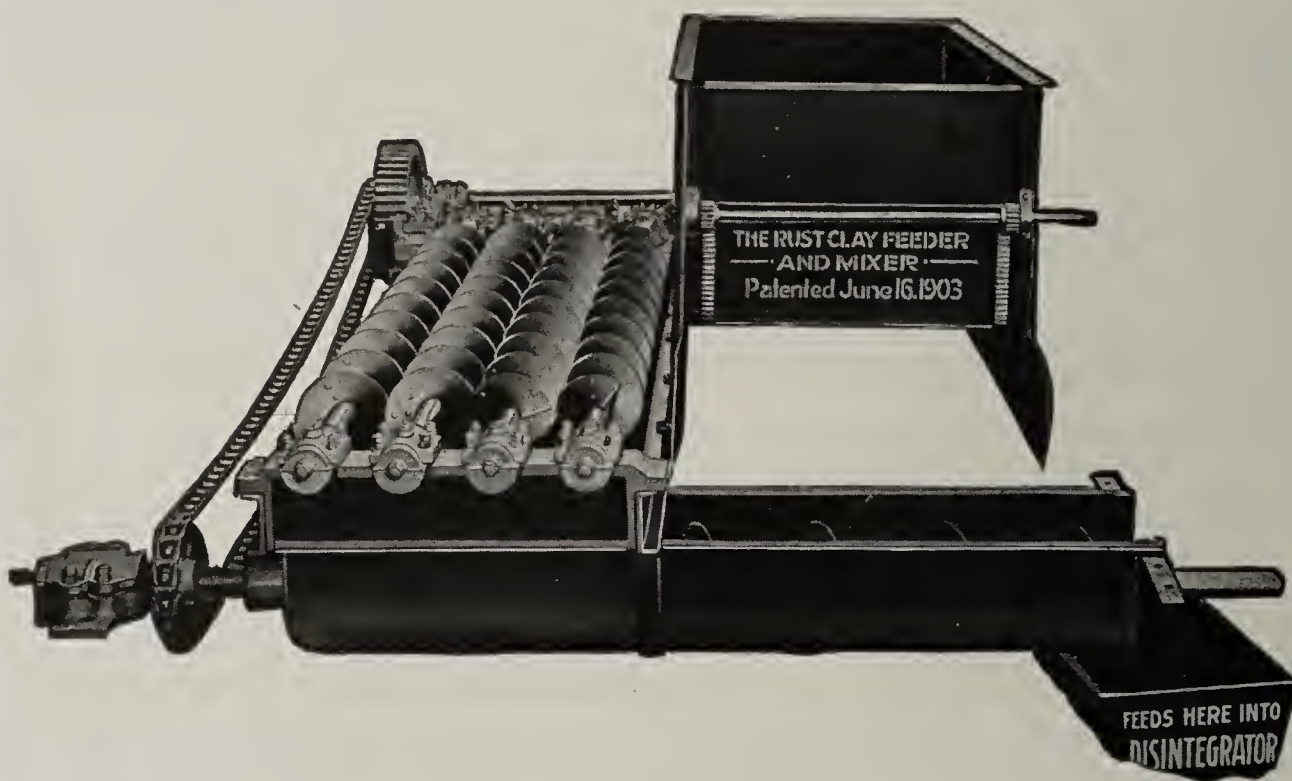
THE FATE LINE OF CLAYWORKING EQUIPMENT
THE ELWOOD DRY PRESS. THE JOPLIN ROCK CRUSHER

Dayton, Ohio, U. S. A.

Hundreds of Clayworkers Use The Rust Clay Feeder and Mixers

THEY WOULD NOT DO WITHOUT THEM
FOR MANY TIMES THE COST.

WHY The principal reason is because it saves them the labor of one to two men, and pays for itself the first year from the wages thus earned. That is enough reason. But there are others. The quality of the work is another. It mixes the clay perfectly and tempers it for further use to which it is put. The feed is so regular that it does not vary ten bricks per hour, and the machine has a capacity of from 10,000 to 100,000 bricks per day, the quantity being regulated at will by raising or lowering the end feed gate, or by increasing or lessening the speed of the pulley. It requires only 2 H. P. to operate a full load, and this power is more than saved because of the steady and even feed.



Type A, Extra Heavy Right and Left Side Delivery Rust Clay Feeder, Box Removed

The Rust Clay Feeder has been brought out in response to the demand for a better method of mixing and feeding clay in brick and tile factories and all clayworking plants. It has been in successful operation for seven years. The saving in labor, increase of production and improvement in product which it effects, makes it a necessity to the up-to-date clayworker.

WRITE FOR OUR LATEST CATALOGUE

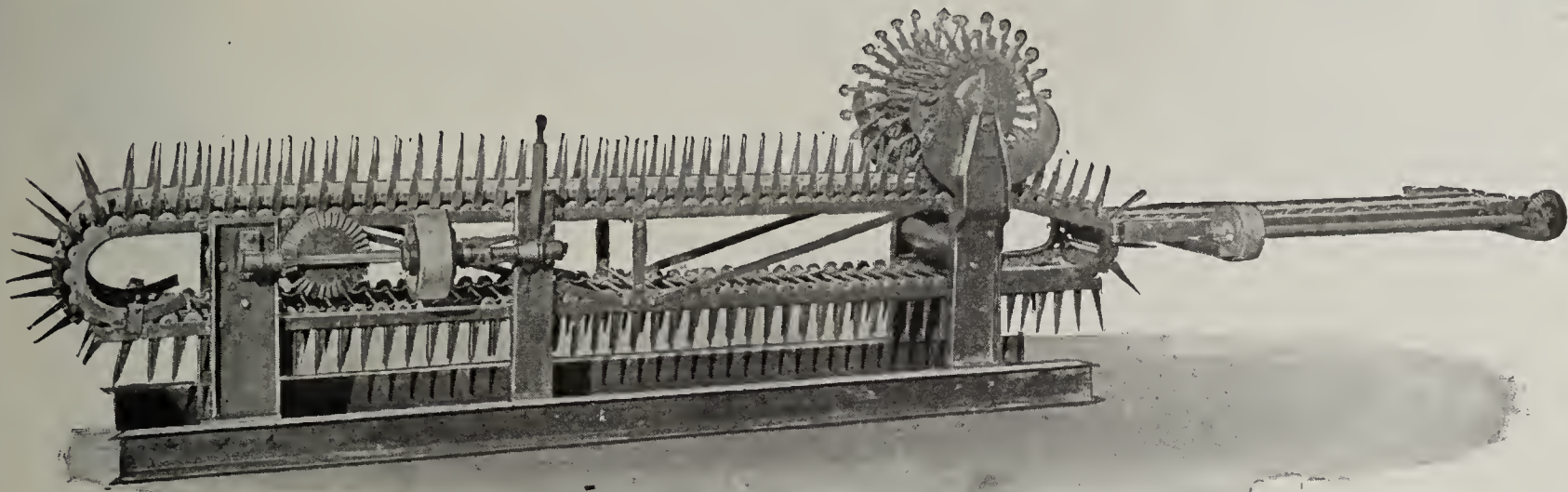
Marion Machine, Foundry and Supply Co.

P. O. Box 156, MARION, INDIANA

All Canadian Orders will be shipped from our Canadian Branch

JUST THE CUTTER YOU ARE LOOKING FOR

It is the Simplest Automatic Side Brick Cutter on the Market. It has many advantages over any other type of cutting table. Let us send you our latest Catalogue with complete information.



NO. 25 MARION AUTOMATIC SIDE CUTTER.

An important feature of this cutter is that the length of cut can be changed to suit requirements.

MANUFACTURED UNDER BECHTEL'S PATENTS.

MARION MACHINE, FOUNDRY AND SUPPLY CO.

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P. O. BOX 156
MARION, IND.

OUR FLUE BLOWER WILL REDUCE YOUR COAL BILL

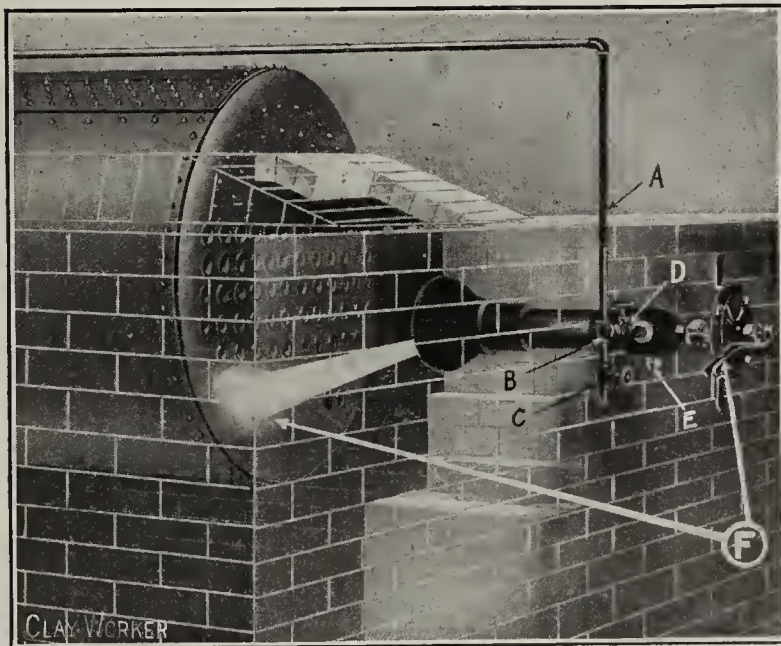
WHAT WE SAY:

The MARION FLUE BLOWER will remove every particle of soot from your boiler tubes without fuss or labor and do it at a guaranteed saving of 10 per cent.

You do not have to take anyone's word but your own, because we agree to send it to you on

30 Days' Free Trial

and if it fails to make good, simply send it back and we pay freight charges both ways.



WHAT USERS SAY:

After thirty days' trial, our engineer reports satisfactory results and a great saving of fuel and labor.

Seymour Water Works
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W. F. Peter, Supt.

We are saving at least \$2.00 every day over the old system of cleaning the tubes.
C. H. Kellogg, C. E.,
Syracuse, N. Y.
Onondago Hotel Corporation

Herewith enclosed find check in payment of Flue Blower. Never before has it afforded us so much pleasure to send a check. Your blower does all you claim for it, saves more fuel than your estimate.

Sumter Brick Works
Sumter, S. C.
I. A. Ryttenberg, Prop.

WE SAVE OTHERS MONEY—WHY NOT YOU?

REMARKABLE OFFER

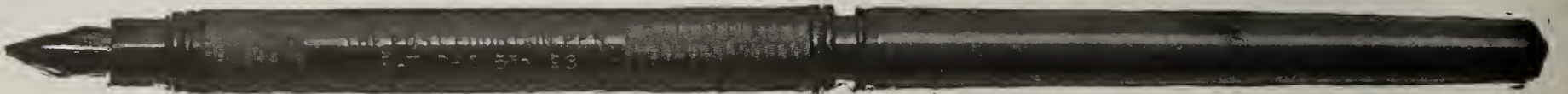
We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

GEN. LEW. WALLACE: The author of "Ben Hur" wrote, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."

JUDGE LUTHER L. MILLS, CHICAGO: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.

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**THE CLAY=WORKER, INDIANAPOLIS,
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You will please send me THE "POST" FOUNTAIN PEN and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued, beginning with

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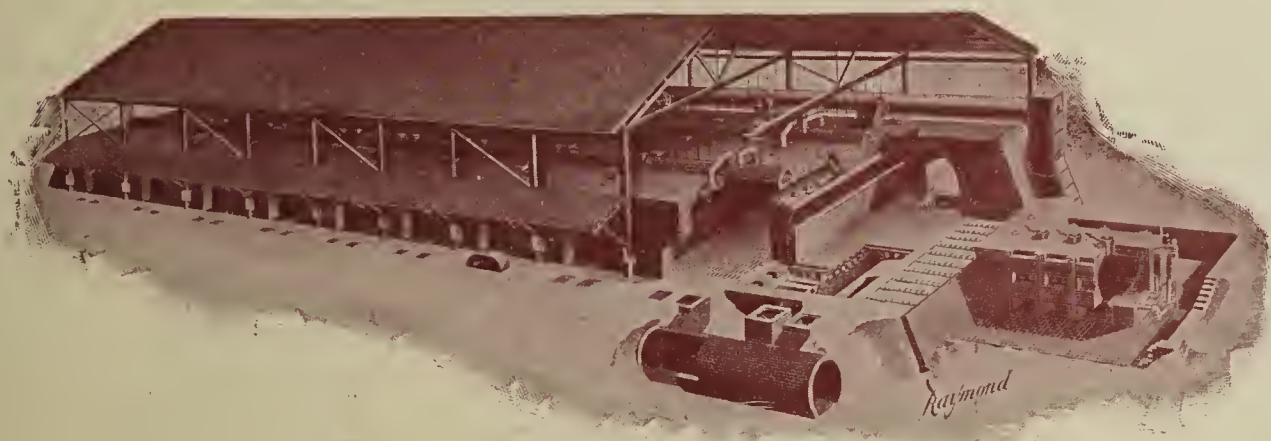
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The Youngren Continuous Kiln Producer Gas Fired



OUR NUMEROUS installations of the YOUNGREN KILN are giving splendid results. On the strength of the proven results, we are now constructing these kilns in all parts of the United States. A saving of 60% of the cost of burning, combined with absolute uniformity of burn and minimum kiln losses makes this Kiln an absolute necessity to the up-to-date clayworker.

It is built in two types—COMPARTMENT or TUNNEL, and is successfully burning all classes of clay and all the principal products.

Literature fully covering the Youngren Kiln will be mailed on receipt of your request.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

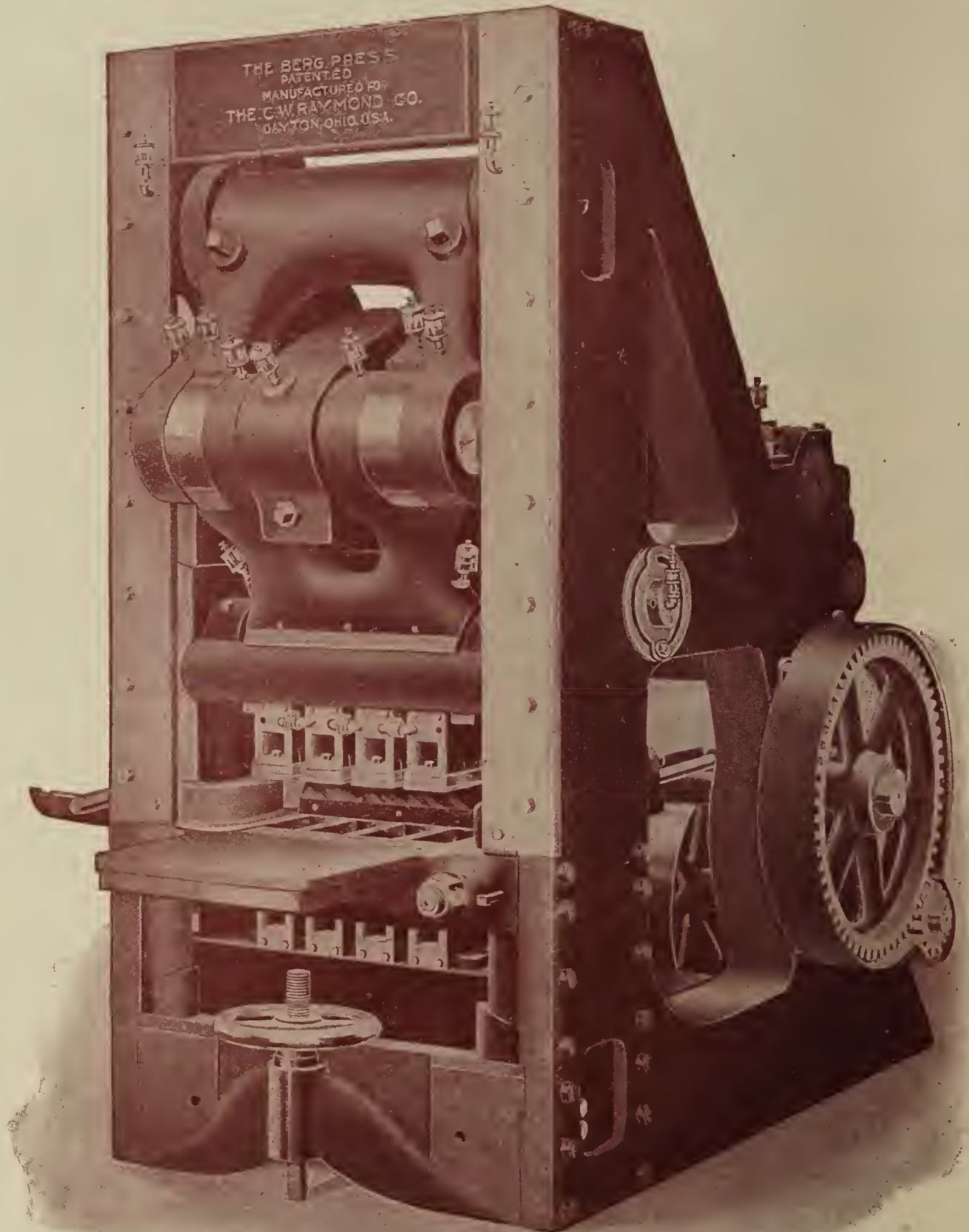
The Berg Dry Press

The New Model Berg Press is the acme of dry press construction. Stronger than ever, yet simple in its massiveness, it stands farther in advance of all other machines of this type than ever before.

Consider These Points:

- (1) Greater pressure and fewer working and wearing points than any other machine.
- (2) Brick with granulated surfaces absolutely impossible.
- (3) Self-contained—No out-board bearing.
- (4) All working parts above clay line.
- (5) Instantaneous adjustment, to take up wear of plungers, close to operator's hand.
- (6) Each press shipped complete in one piece.

Our Exhibit No. 2111
gives complete
details.



THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery
Dayton, Ohio, U. S. A.

THE RAYMOND "777" BRICK MACHINE

AND

THE RAYMOND No. 2 AUTOMATIC CUTTING TABLE

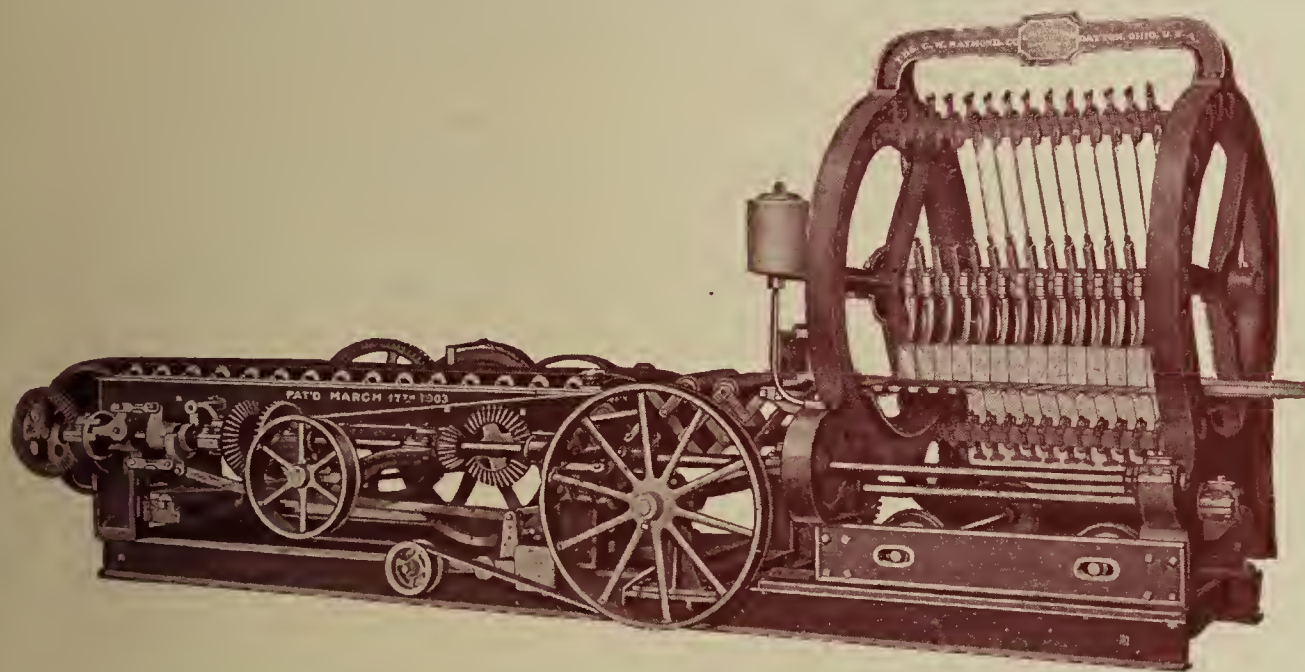
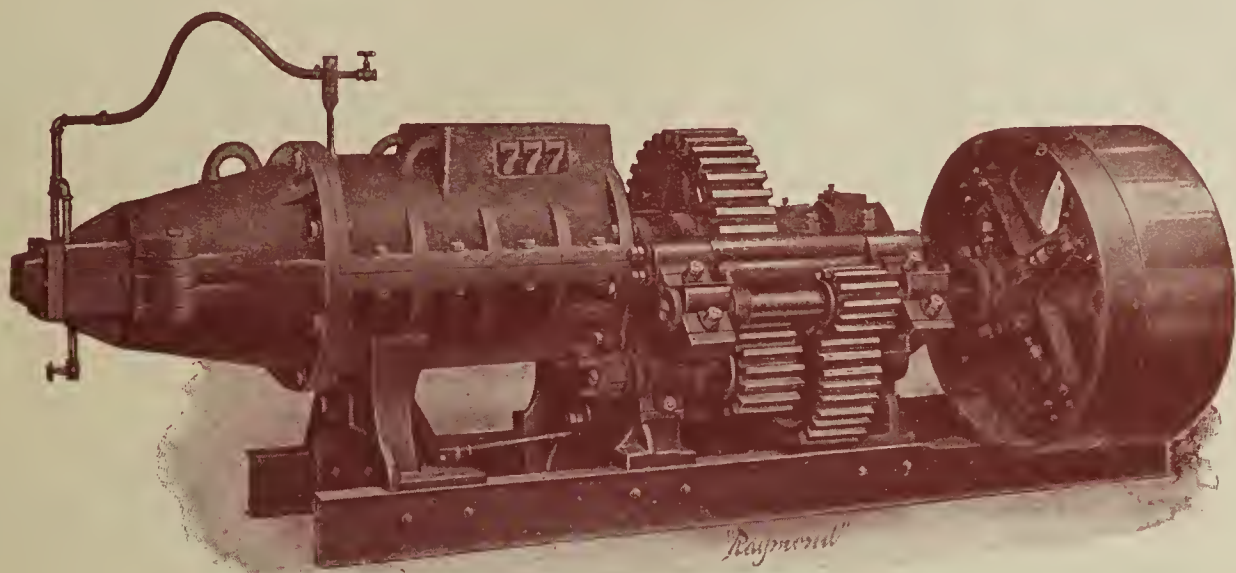
Our "777" is a brick machine of unapproached record. It will make more brick and better brick than any other machine of equal rated capacity.

Entirely self-contained and every part "Get-at-able."

A product of the best Engineering skill, it contains every desirable feature known to the modern clayworking machinery builder. Its capacity is 40,000 to 60,000 standard size brick per ten hours.

Our No. 2 Automatic Cutting Table is a step in advance of all other

machines on the market to-day. Working parts reduced to a minimum. The continuous motion of the reel makes it free from rack and jar. Its capacity is limited only by the brick machine.



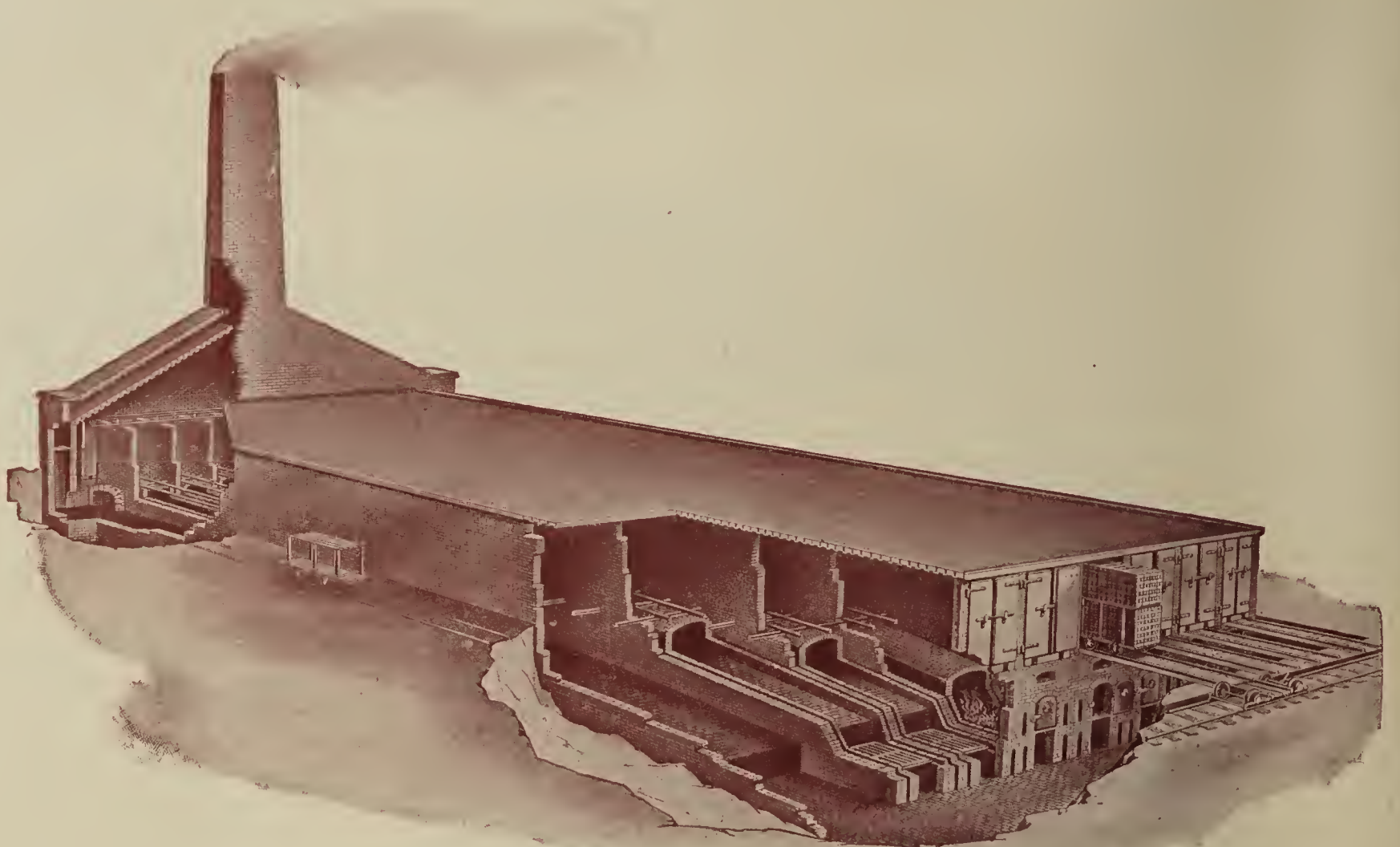
Our Exhibits explain these machines fully.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The Raymond Radiated Heat Dryer



Are You Having Drying Troubles?

The Raymond Systems of drying clay products have been a boon to the clayworker with drying troubles.

Our Raymond Radiated Heat Dryer is simplicity itself—no fan or engine troubles—temperature and air circulation in each tunnel under absolute and separate control. Ware only in contact with pure air. Cars never in contact with gases or acids. Fuel cost per ton of dried ware less than in any other dryer.

The tenderest clays can be dried without injury, and the same successful results are obtained with every description of clay ware.

Exhibit sheets covering our Drying Systems sent upon request.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

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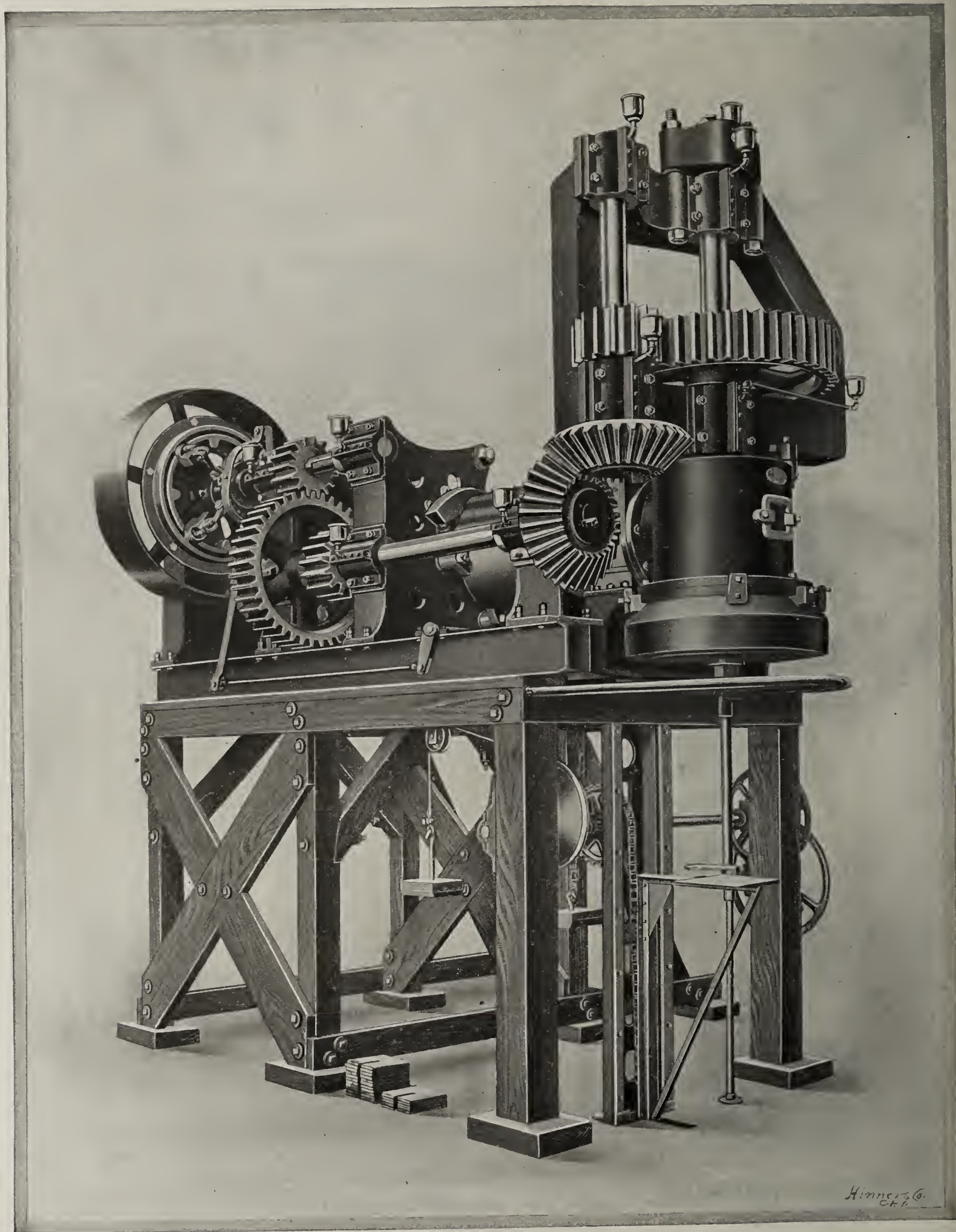
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IF INTERESTED IN A LARGE, HEAVY, DOWN-DELIVERY MACHINE FOR
LARGE TILE, TAKE A LOOK AT THIS AND FOR PARTICULARS WRITE

H. BREWER & CO. **BREWER** TECUMSEH, MICH.

Mention THE CLAY-WORKER.

Handle Your Clay With One Man and a **THEW SHOVEL**

For ten years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



A Typical Thew Shovel

ONE MAN OUTPUTS

Our 13 Ton Shovel with $\frac{5}{8}$ yard dipper will handle any ordinary clay for outputs up to 100 M brick.

Our 20 Ton Shovel with $\frac{7}{8}$ yard dipper will handle any ordinary clay for outputs up to 150 M brick.

Our 30 Ton Shovel with 1 yard or $1\frac{1}{4}$ yard dipper will handle any clay for outputs up to 200 M brick.

Our 40 Ton Shovel with $1\frac{1}{4}$ yard or $1\frac{1}{2}$ yard dipper will handle any clay for outputs up to 250 M brick.

Any of the above machines will handle double the output specified with a full working crew of engineer, fireman and two laborers on the ground.

WE BUILD

SPECIAL SHOVELS FOR SHALE

Our 35 Ton Shovel with $\frac{3}{4}$ yard dipper is suitable for all ordinary shales up to 125 M brick per day.

Our 50 Ton Shovel with $1\frac{1}{4}$ yard dipper will handle any shale you may encounter.

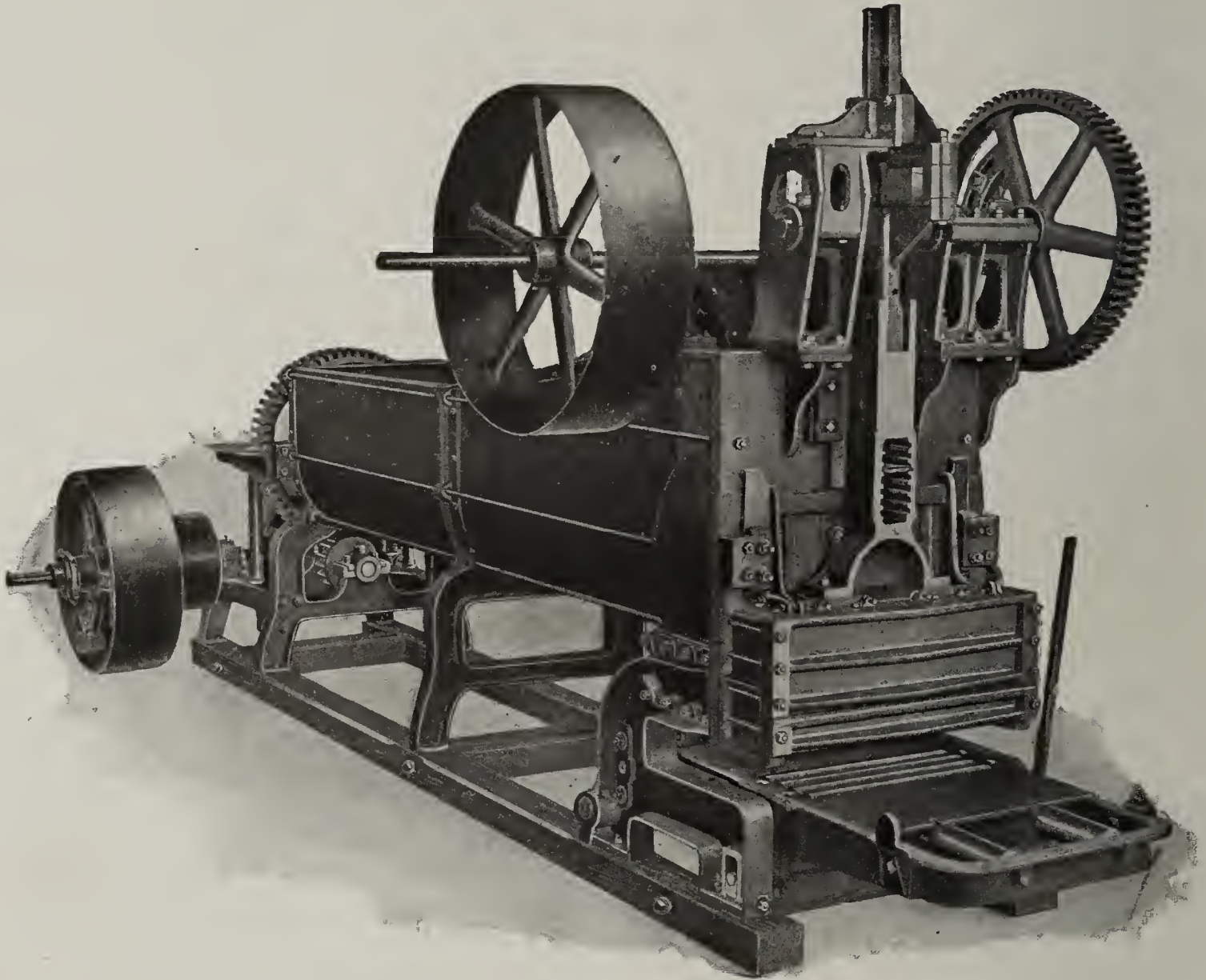
We can give you high lift booms if desired.

We equip with electric motors if you wish.

Write for information.

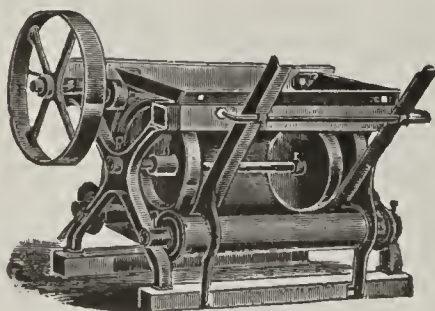
THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

The Potts Sand Mold Horizontal Machine



THE ONLY MACHINE HAVING CAST STEEL GEAR
THE BEST CONSTRUCTED MACHINE MADE

A machine well built, of the best material, by skilled workmen. You cannot make a mistake in purchasing this machine. It cannot be equaled for quality and quantity of brick made. It will run steadily every day, making a given number of brick with little or no cost of maintenance.



POTTS MOLD SANDER

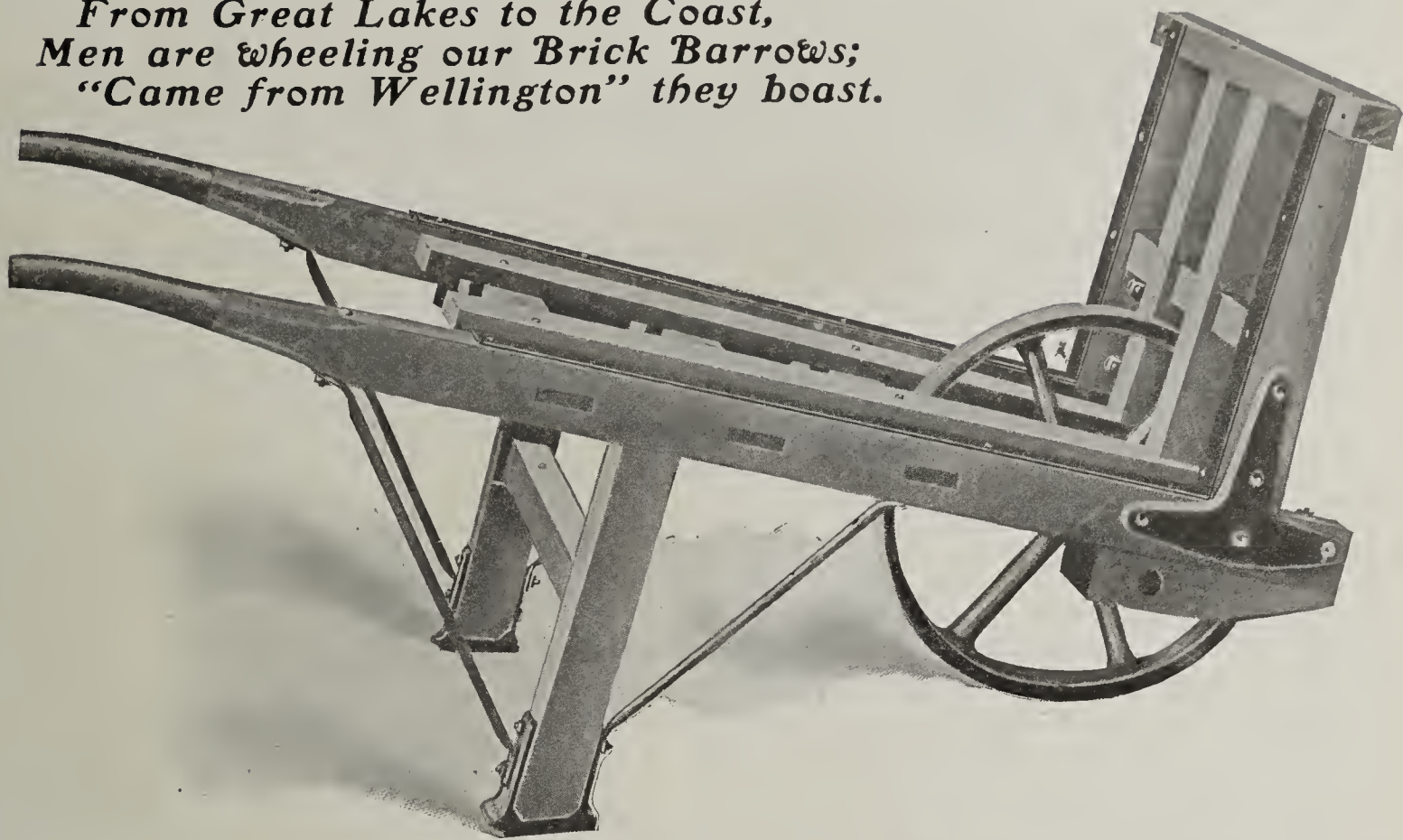
We manufacture the most complete line of SAND MOLD machinery, and are prepared to erect modern and up-to-date plants of any desired capacity, guaranteeing results.

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C. & A. Potts & Co.

INDIANAPOLIS, IND.

*From Maine to California,
From Great Lakes to the Coast,
Men are wheeling our Brick Barrows;
"Came from Wellington" they boast.*



Over One Solid Mile

of our Barrows and
Trucks sold last year in
the United States and
Canada.

Detail of case-hardened end
Roller Bearing.



The very best roller bearing
on the market.

BARROWS

For Green Brick, Burnt Brick, Tile, Pallets or Sand; Steel Slat Barrows; Barrows with or without Springs; Barrows with or without Roller Bearings.

Send for catalogue describing our
19 Different Styles.



The Wellington Machine Co., Wellington, Ohio

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BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

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Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

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A review of present practice of the manufacture, testing and uses of Vitrified Paving Brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

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A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen, and enable them to do difficult work in the best manner.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 cents.

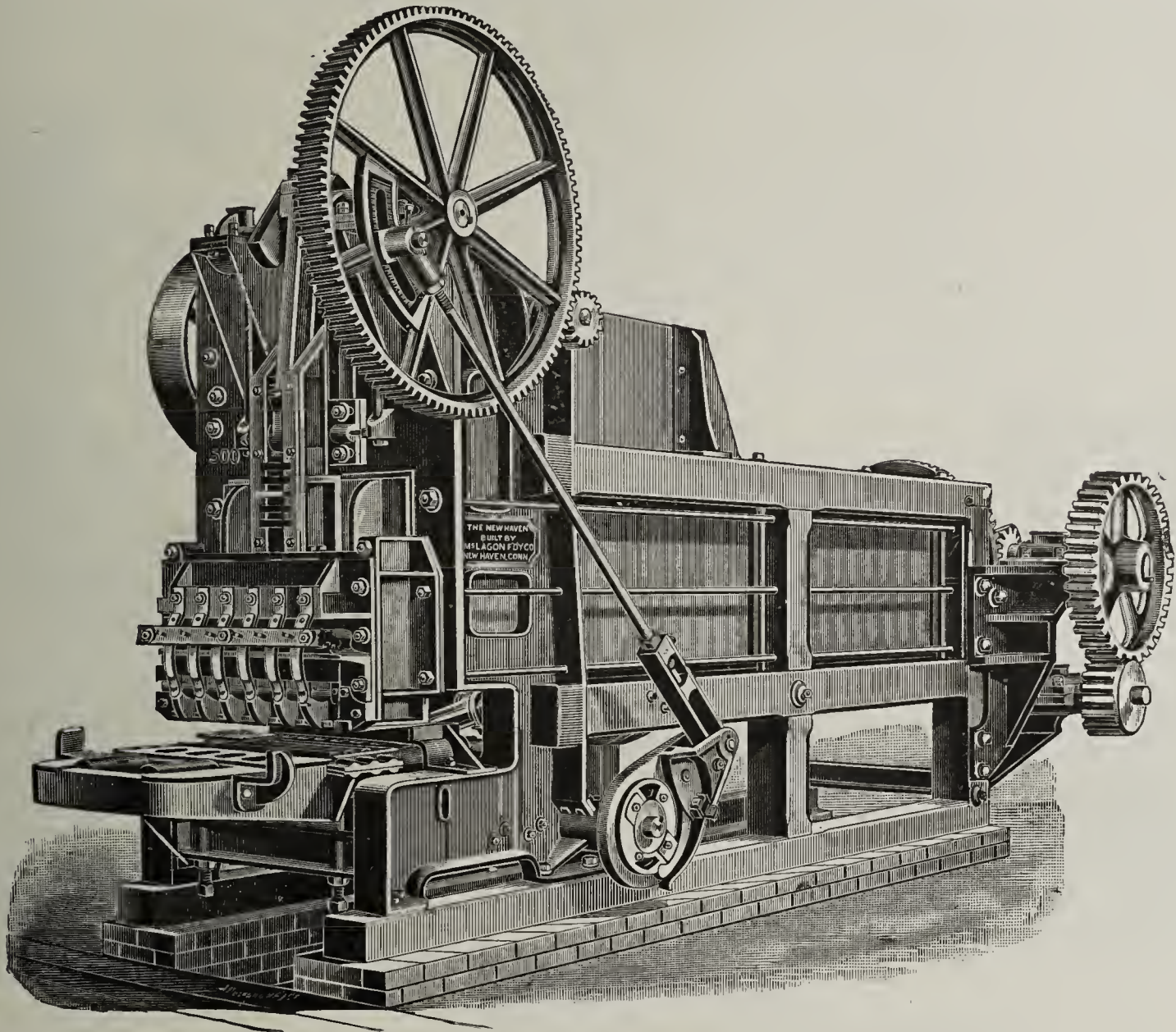
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

SOFT MUD BRICK MACHINES

Are the only kind we build and we build them well. We build them with the greatest strength placed where it is the most required. We build them with stout shafts, long bearings, large oil holes, strong gears, steel liners, and all other details in proportion. We build them so they

DO NOT BREAK DOWN EVERY DAY.



"New Haven" Horizontal Brick Machine

NEW HAVEN BRICK MACHINES

are popular at home because of their superior qualities. More than three-fourths of the brick made in New England are the product of **New Haven** machines. For hard service they are sure to satisfy where others fail. That is the reason why each New Haven machine is a standing advertisement, and why all users recommend them.

The EASTERN MACHINERY CO.

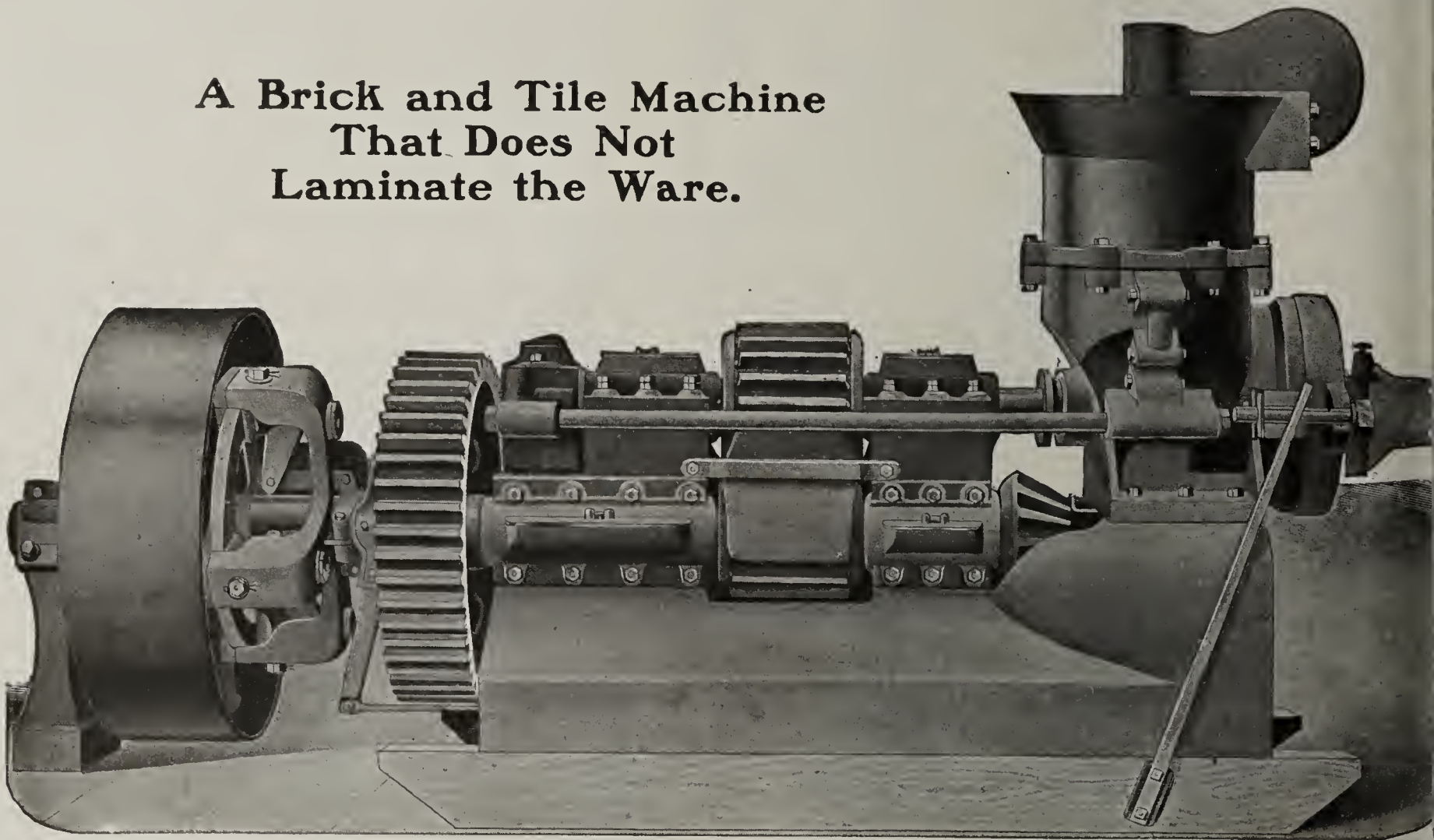
NEW HAVEN, CONN.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

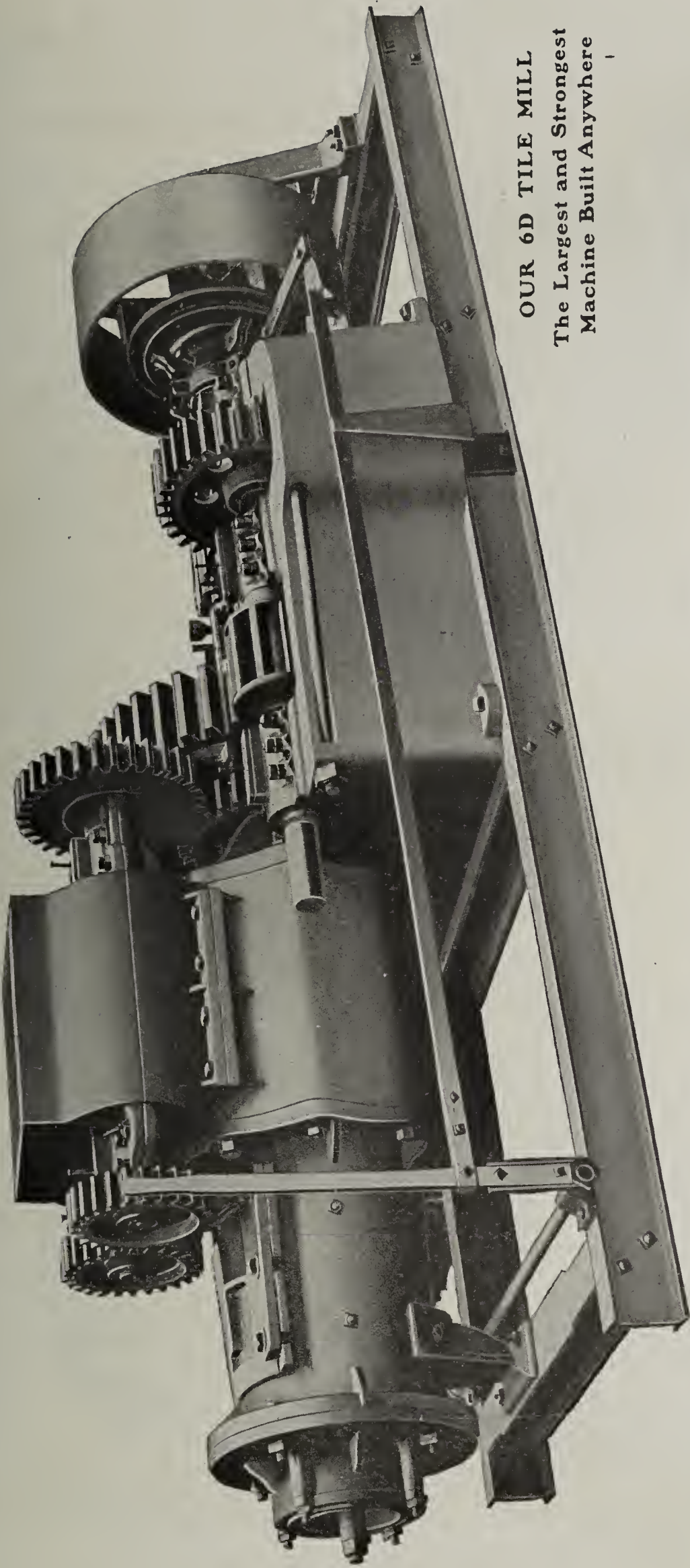
We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

ARBUCKLE & COMPANY

Successors to MADDEN & CO. and SCOTT-MADDEN IRON WORKS, Rushville Plant



OUR 6D TILE MILL

The Largest and Strongest
Machine Built Anywhere

The following representative concerns, among the largest and most successful in the country, are using this machine, and are getting excellent results:

NATIONAL DRAIN TILE CO.

Terre Haute, Hillsdale and Summitville, Ind.

MASON CITY BRICK AND TILE CO.

Mason City, Iowa.

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Lincoln, Nebraska.

RICHWOOD CLAY MFG. CO.

Richwood, Ohio, and Hundreds of Other Plants.

WE ALSO MAKE THREE SMALLER MACHINES TO FIT ANY CAPACITY PLANT.

Write for our catalogue.

ARBUCKLE & COMPANY, Rushville, Ind.

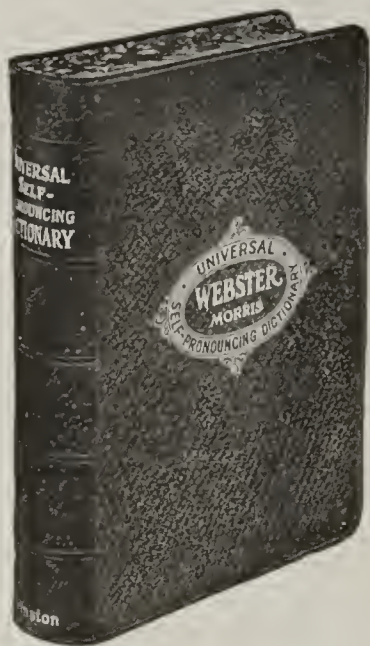
Sold by Scott-Madden Iron Works Co., Keokuk, Iowa.

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FREE

This superb self-pronouncing Dictionary, in substantial cloth binding with The Clay-Worker for 1911, for \$2.00. Nothing nearly so valuable has ever been offered before. The flexible morocco binding, an elegant volume, will be sent for \$2.75, charges prepaid, together with The Clay-Worker for twelve months. **ORDER NOW.**

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reinforced in all necessary parts to add to strength and durability. Title stamped in gold on side and back, marbled edges, Patent Thumb Alphabetical Index.

=THE NEW UNIVERSAL= —SELF-PRONOUNCING— DICTIONARY

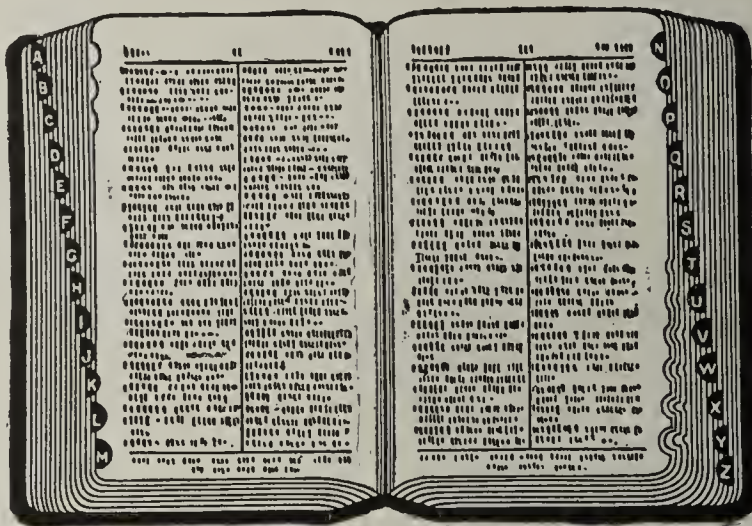
Based upon the Solid Foundation laid by
NOAH WEBSTER

and other Lexicographers, thoroughly modernized by
CHARLES MORRIS

In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

In the Home and School Its simple arrangement and clear definitions admirably fit it for this purpose. The bold type and the vast amount of general information it contains, commends it to Teacher, Parent and Child.

Printed
from New
Type-Set
Plates



This cut shows Patent Thumb Index and how Dictionary appears when open. It lies perfectly flat. Size when open 8 x 11 1/2 ins. Size when closed 5 1/2 x 8 1/2 ins. Contains over 1000 pages.

In Convenience of Size
Fullness of Contents
Logical Arrangement

it is especially adapted to
every-day use for

Business Man, Teacher,
Student and The Home

Among the noteworthy improvements are the following:
It Contains All the Words in the English language in ordinary use, including the many new words that have recently come into use. The definitions are accurate and reliable and embrace all distinctions and shades of meaning.

Words Divided into Syllables. Each index word is divided into syllables in the manner employed by the best writers.

The Proper Use of Capital and Small Letters is clearly indicated. Proper nouns begin with capital letters, common nouns begin with small letters.

The Pronunciation of Each Word is shown by a clear and properly accented system of phonetic spelling.

The Synonyms and Antonyms are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.

Each Word and Its Derivatives are separately indexed instead of the suffix words and prefix words being crowded in with the definitions, an expedient used to save space, but with a loss of clearness and utility.

Many Other Necessary Features Useful in Home, School and Office, including Rules for Pronunciation; Dictionary of Prefixes and Suffixes of Names of Men and Women; of Mythological and Classical Names; of Forms of Address; of Popular Titles of Cities and States; of Important Persons, Places, Monuments; of Foreign Words and Phrases, Colloquialisms, Quotations and Significant Words and Phrases frequently met with in Literature; and a Dictionary of Words adopted by the Simplified Spelling Board; Maps of the World and of the United States in Colors; Flags of All Nations in Colors.

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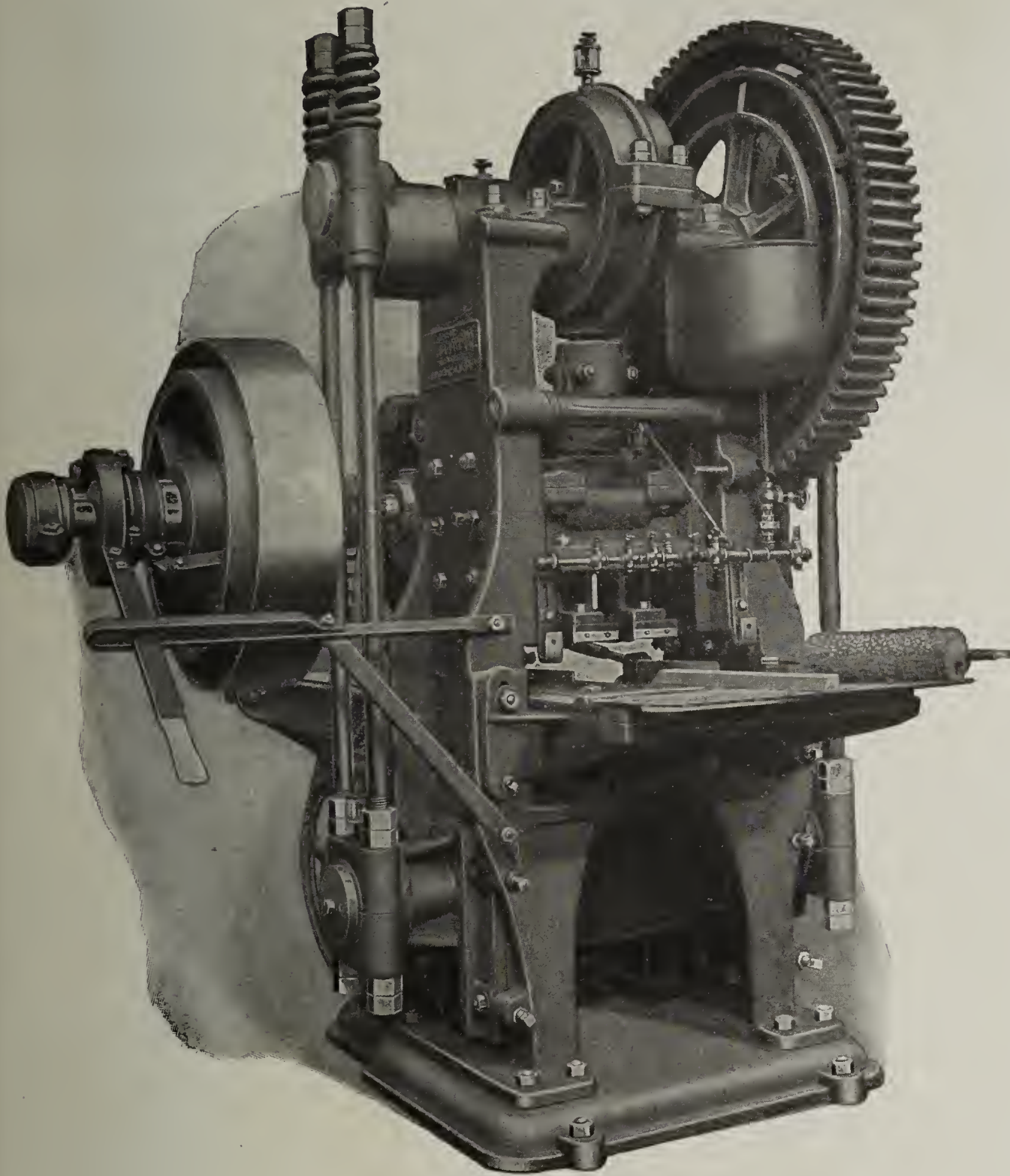
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Capacity 20,000 to 25,000 brick in 10 hours.

Generally conceded by clayworkers to be the best repress built.

Continuous motion.

No links or toggles.

Wearing parts out of the dirt.

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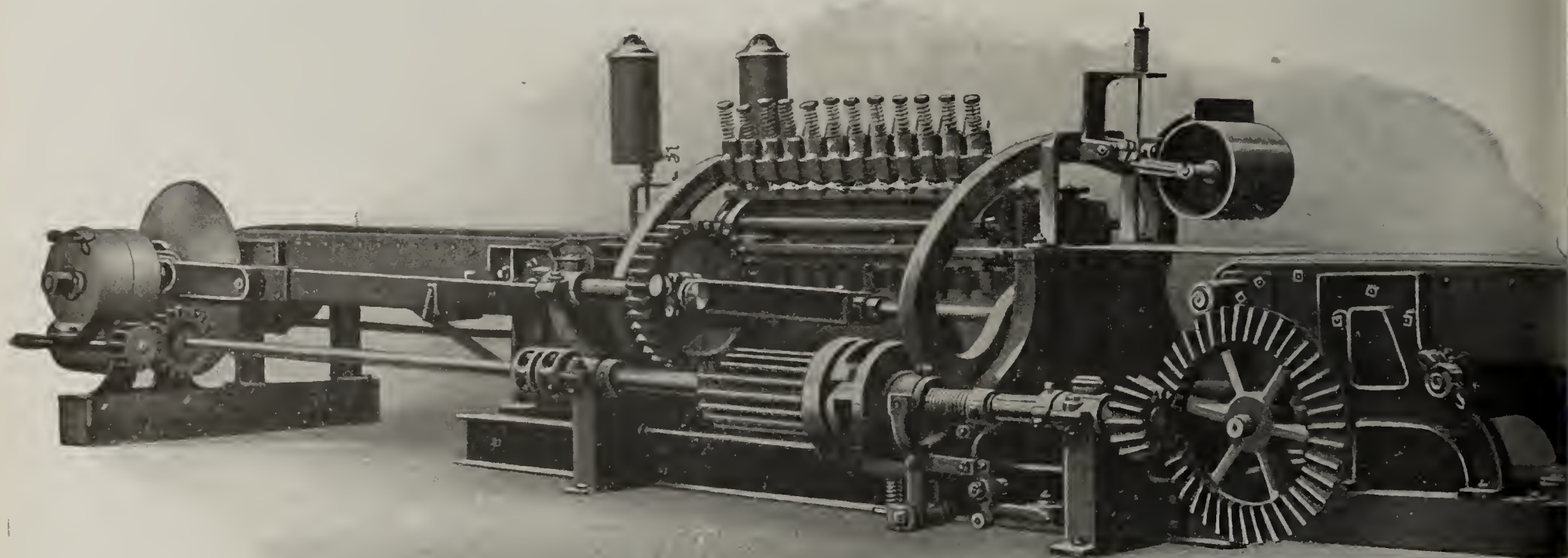
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Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

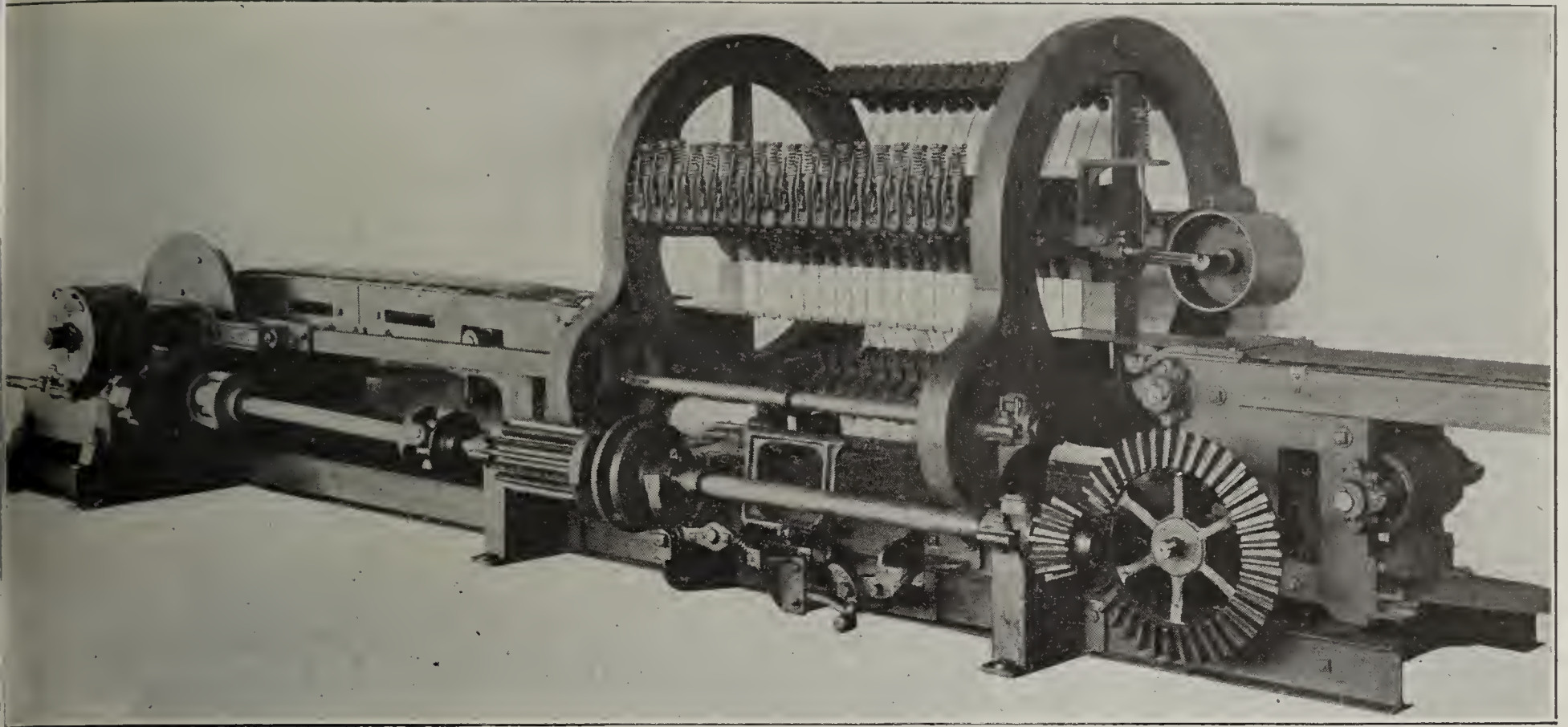
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

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We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

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The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

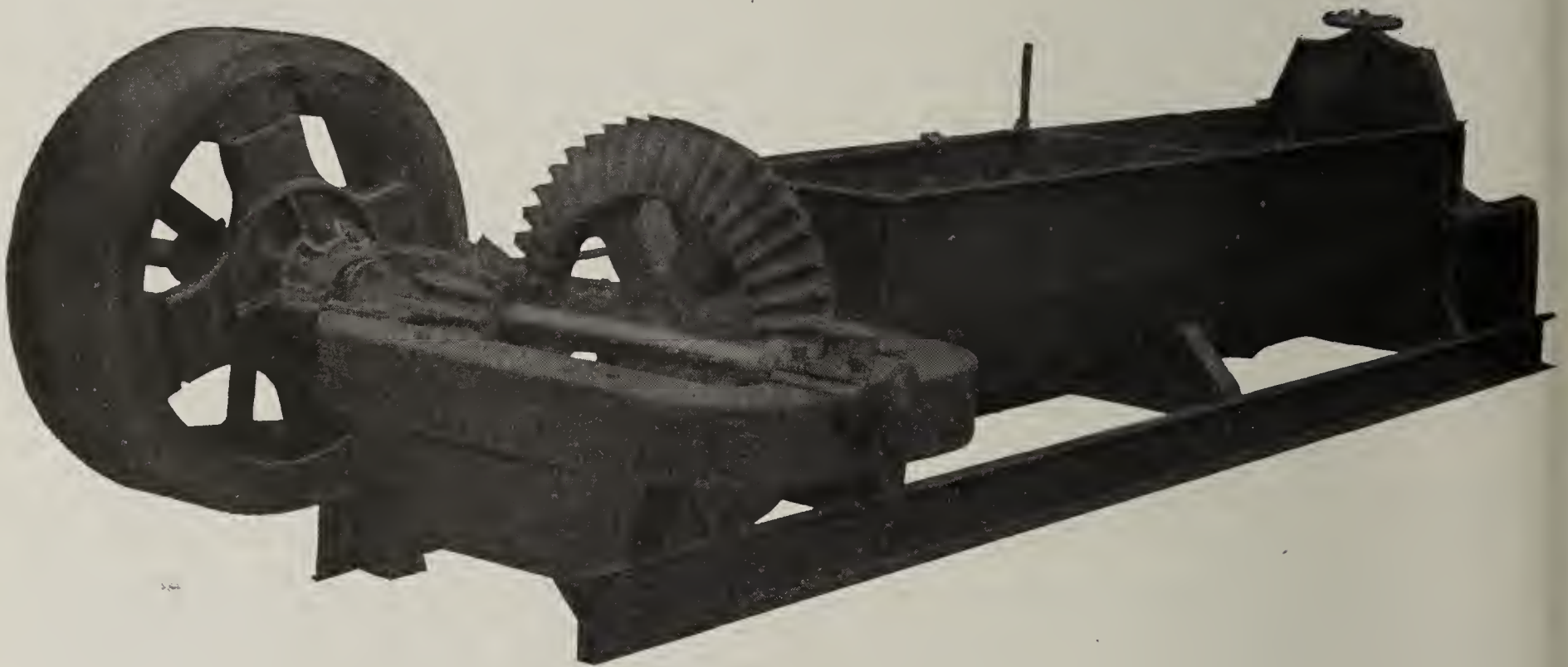
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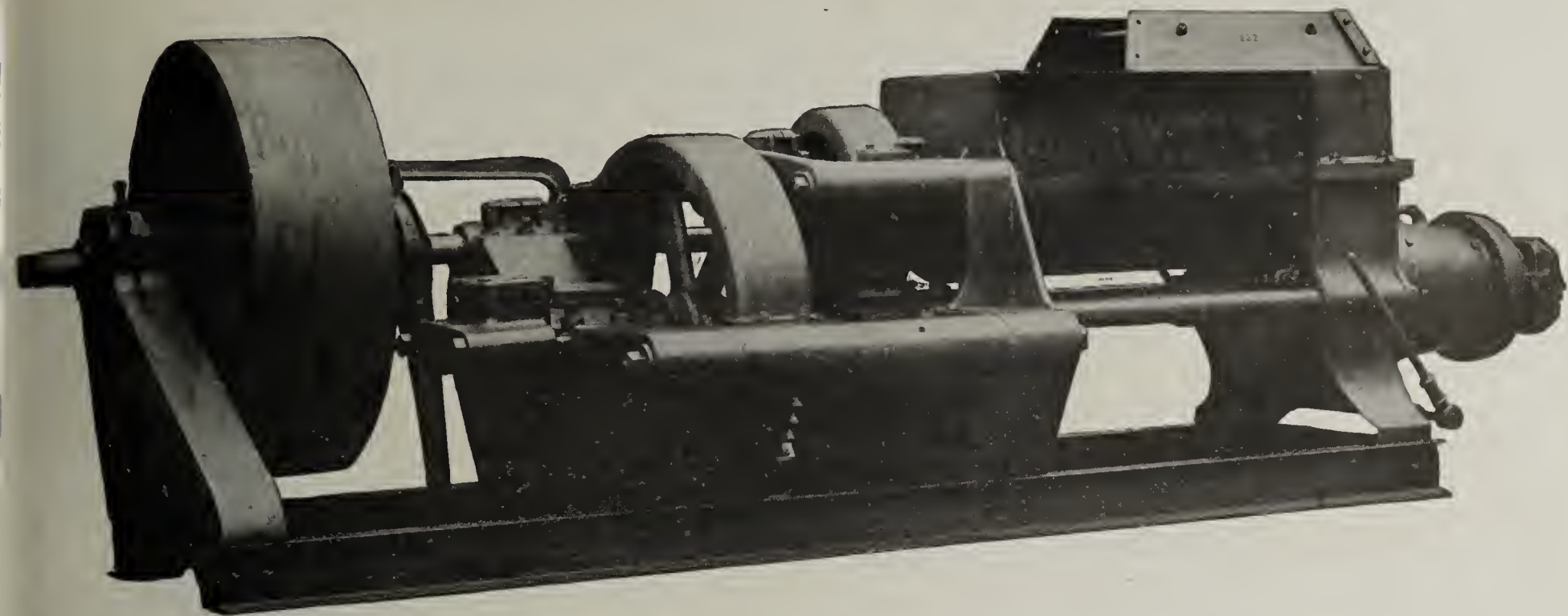


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

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MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

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till you had inquired into the merits of the various machines

NOW WOULD YOU?

Then don't rob the stockholders of your Company by spending from

\$10,000 to \$200,000

of their money on a Brick, Sewer Pipe, Tile or Sand Plant without first investigating the merits of the various makes of machines needed for your plant.

Secure the judgment of these acknowledged old experts ranged alongside here among others; or better, visit their plants.

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1 Pan and Flaking Rolls, 1908.
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2 Pans in 1910.

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Am. Fire Brick Co.
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1 Pan in 1905.
1 Pan in 1909.
1 Pan and 1 Press in 1910.

Dominion S. P. Co.
1 Press and 3 Pans in 1904.
1 Press in 1907.
1 Pan in 1908.
2 Pans in 1910.

UP TO DATE.
A dozen or more valuable improvements on Pan and Press—money-saving and money-making—in the past year or two.

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Pan Record:—Sixteen years on hard shale and good for many years more.
Press Record:—Thirty years and still running.

SPEEDY.
Pan's Record:—108,000 brick in a single day for one pan.
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Users say: "Best machinery on the market."
"Gives little or no trouble."
"Your Press is a dandy."
"Best Press in Canada."
"Your Pans are first-class."

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10 Dry Pans.
10 Wet Pans.
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E. Ohio S. Pipe Co.
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2 Pans in 1904.
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Am. Sewer Pipe Co.
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Stratton Fire Clay Co.
2 Presses and 6 Pans, etc., in 1903.
4 Pans and 2 Presses in 1905.

Robinson Clay Prod. Co.
4 Pans in 1903.
14 Pans, 5 Presses, 2 set Dies, etc., in 1906.
16 Pans, 1 Press and a train-load of other stuff in 1910.

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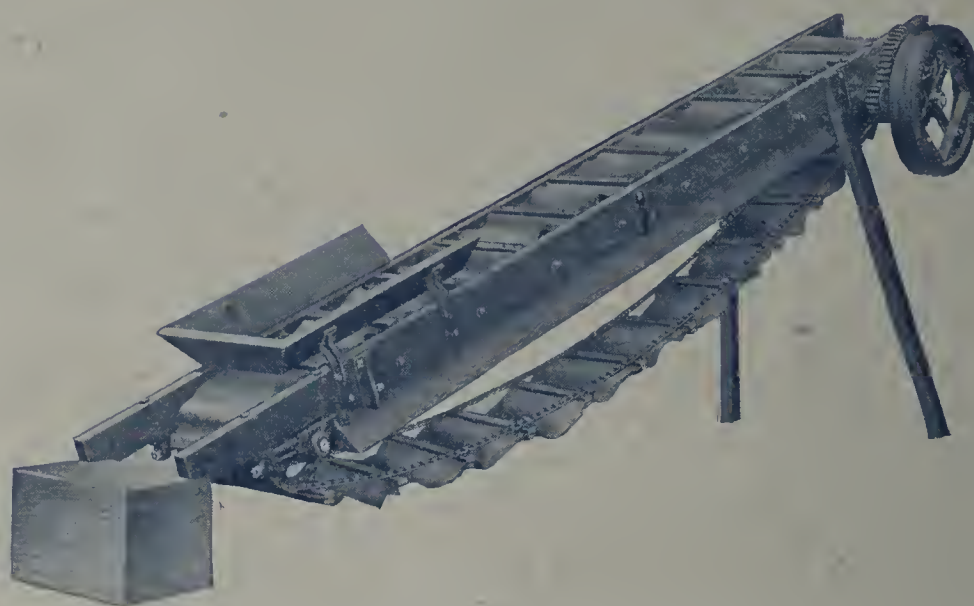
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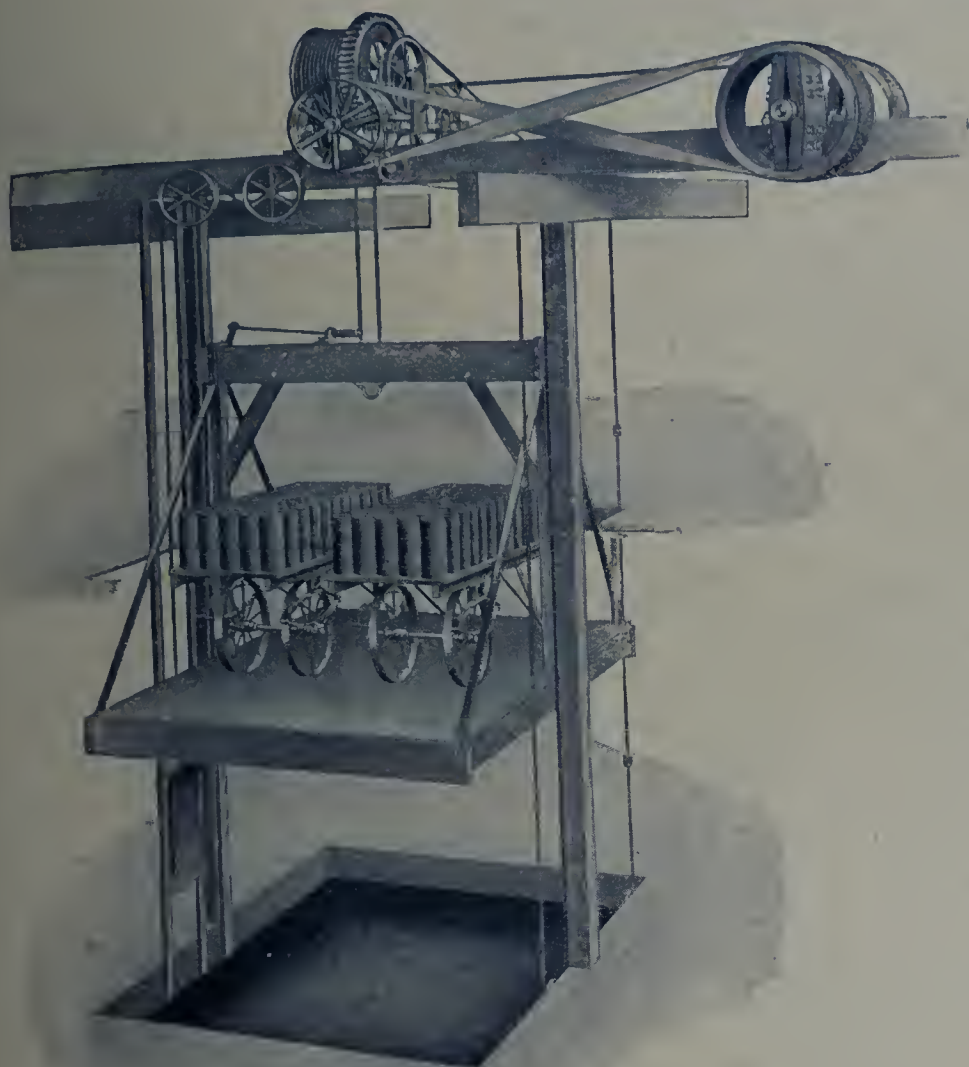


Side Dump Clay Car.

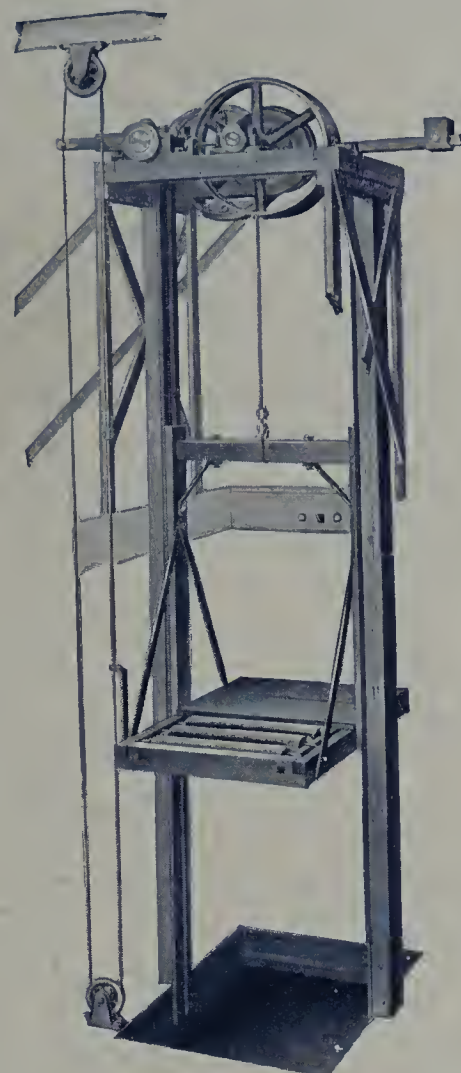
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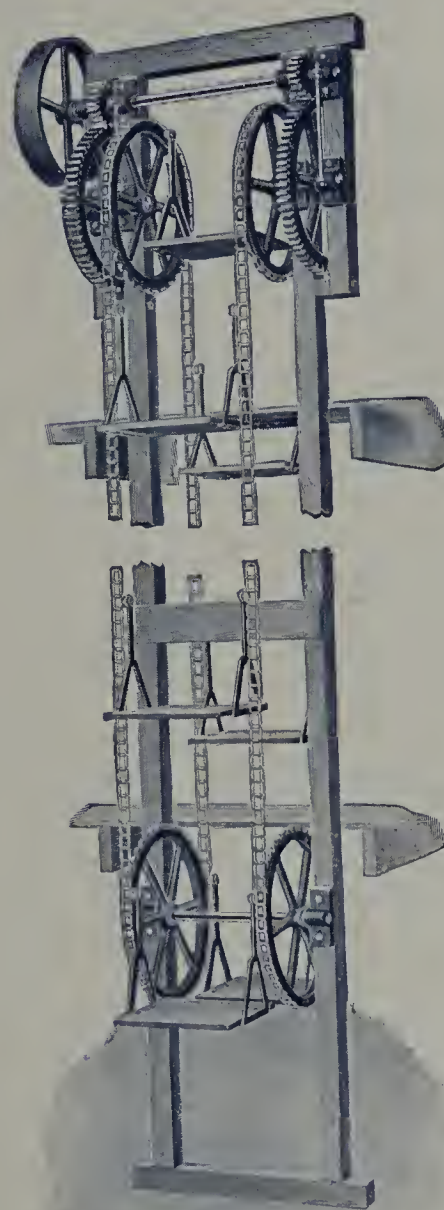
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Small Tile Elevator.

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We Guarantee
the Results
Will be
The Same
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We are in receipt of your favor of the 15th and are pleased to state that your screen which we installed last spring is doing excellent work for us. The positive nature of its screening, eliminating entirely all of the coarser particles of shale, gives our product a much more uniform texture without grinding to an extreme fineness, and, while we were assured of its work and increased capacity in wet mud, we must admit that the results have surprised us and we run right along in wet shale, the screen putting it through all right.

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Is Our
Business.

Yours very truly,

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Two Way Dump Car No. 241



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Write at once and tell us your needs and all information will be sent you at once.



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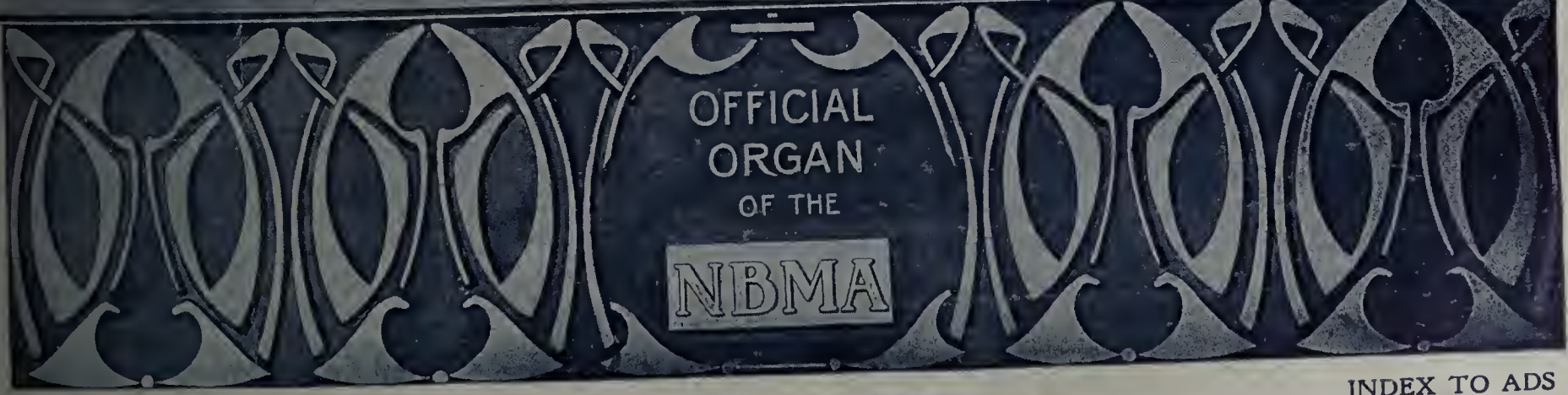
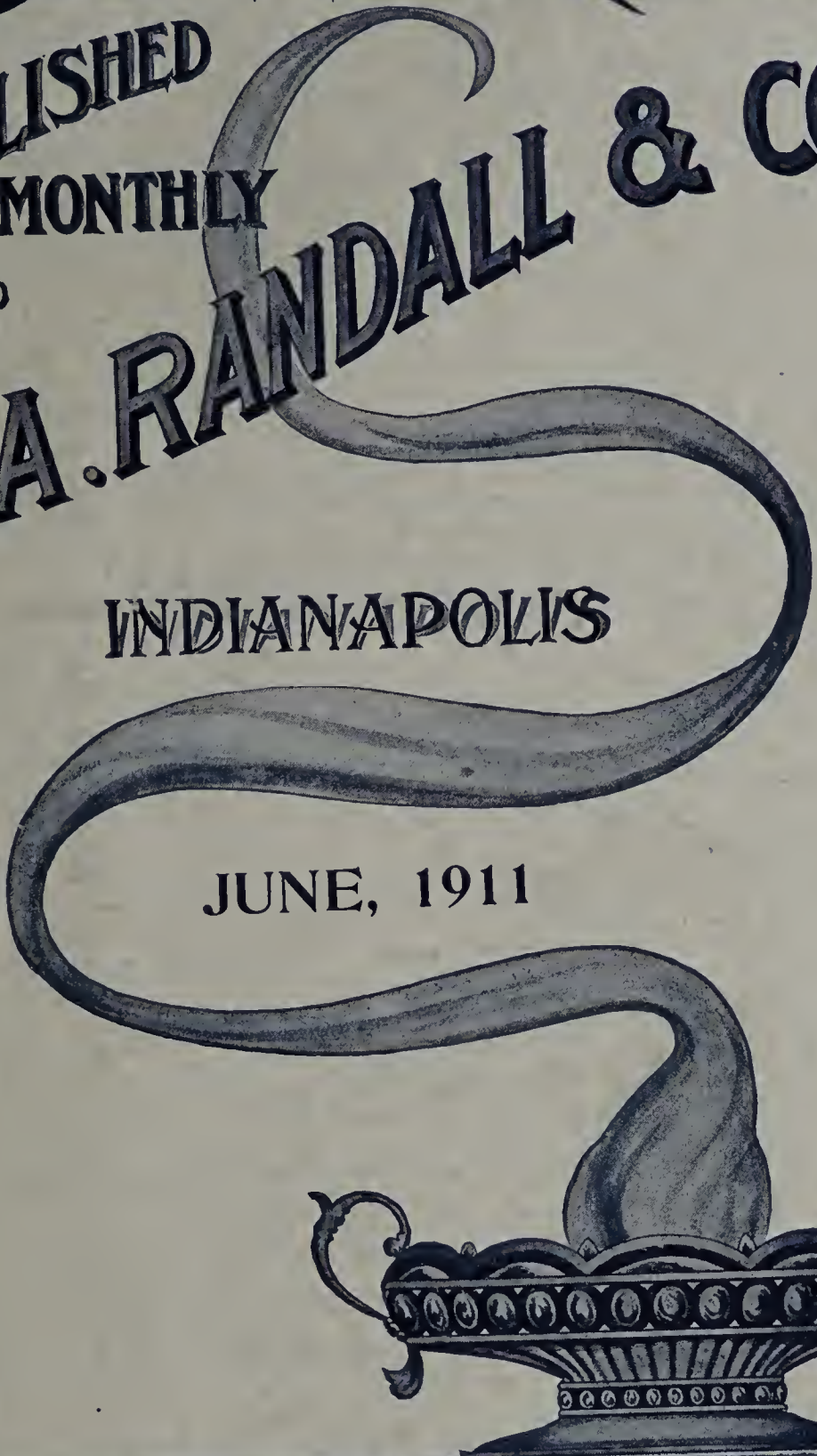
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BY

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INDIANAPOLIS

JUNE, 1911



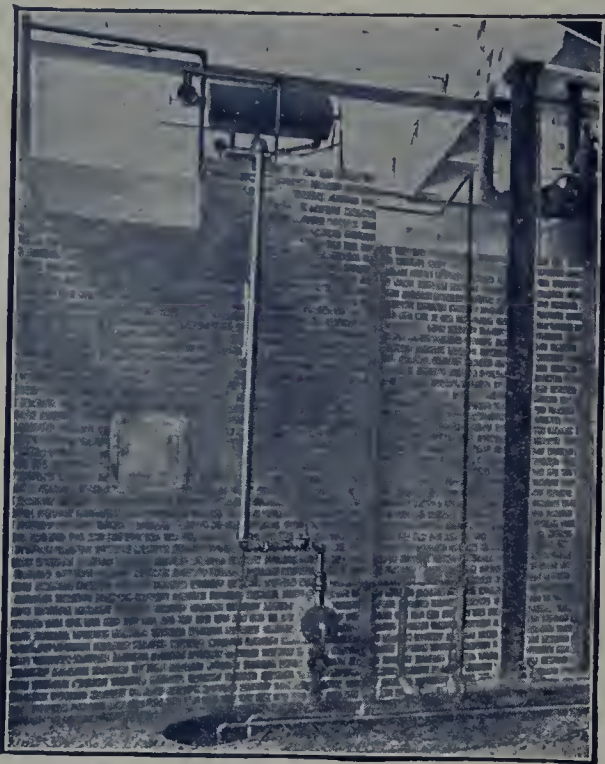
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"Detroit" Return Trap System

Will keep steam drying surfaces free of condensation and hotter because of high heating surface efficiency.

Low pressure coils perfectly drained without injection of cold condensing water and therefore higher temperature of feed water and saving of fuel.

Automatic boiler feed without pumping.

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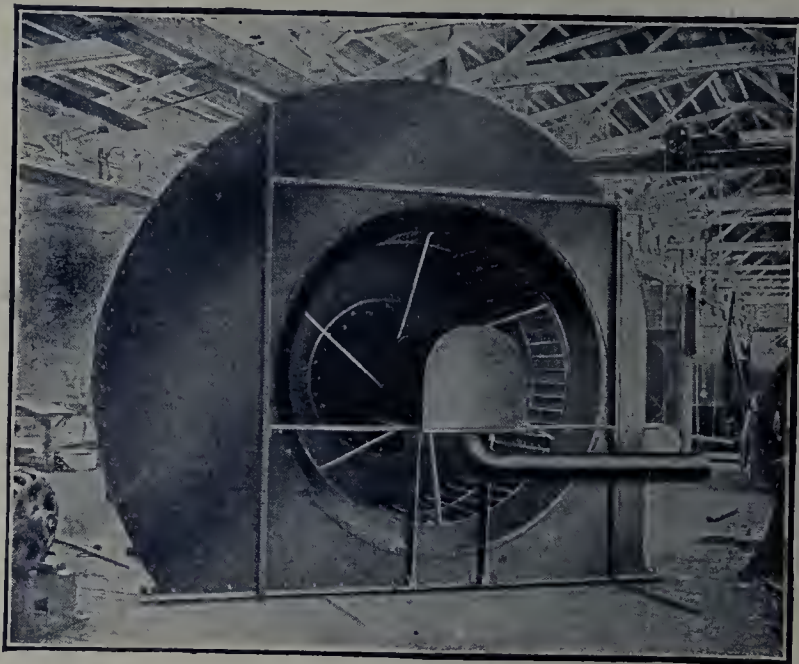
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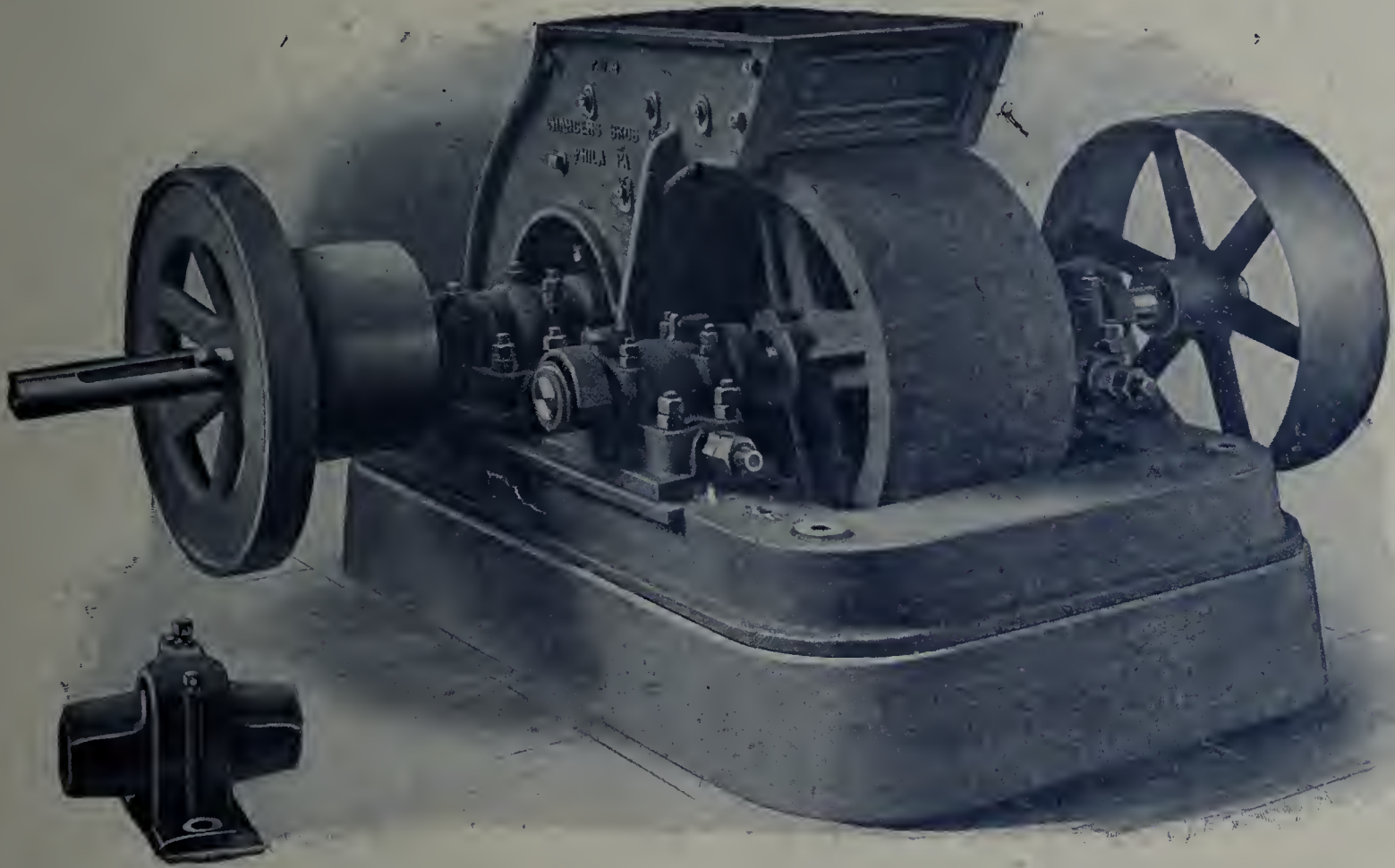
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Clay Disintegrators or Grinders



The Chambers No. 2 Special Clay Disintegrator.

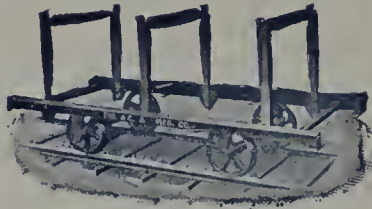
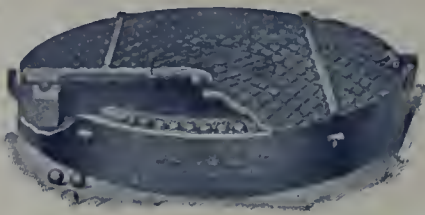
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Philadelphia, Pa., and Chicago, Ill.



RAIL,
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CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

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¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

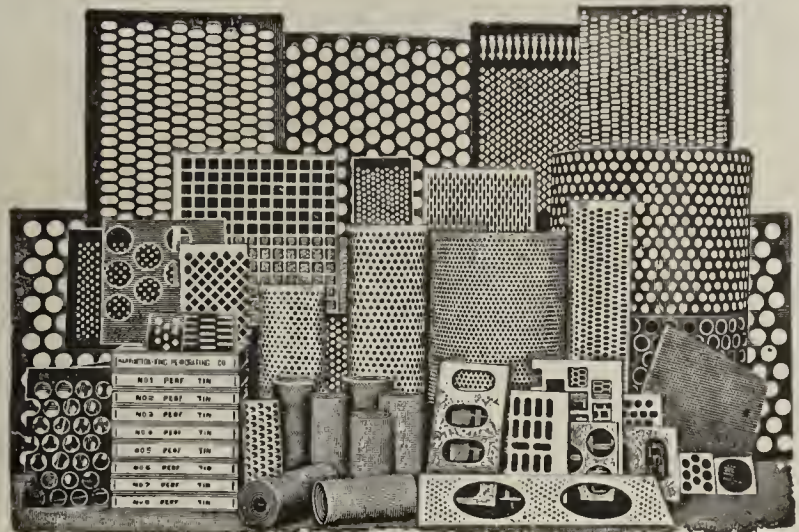
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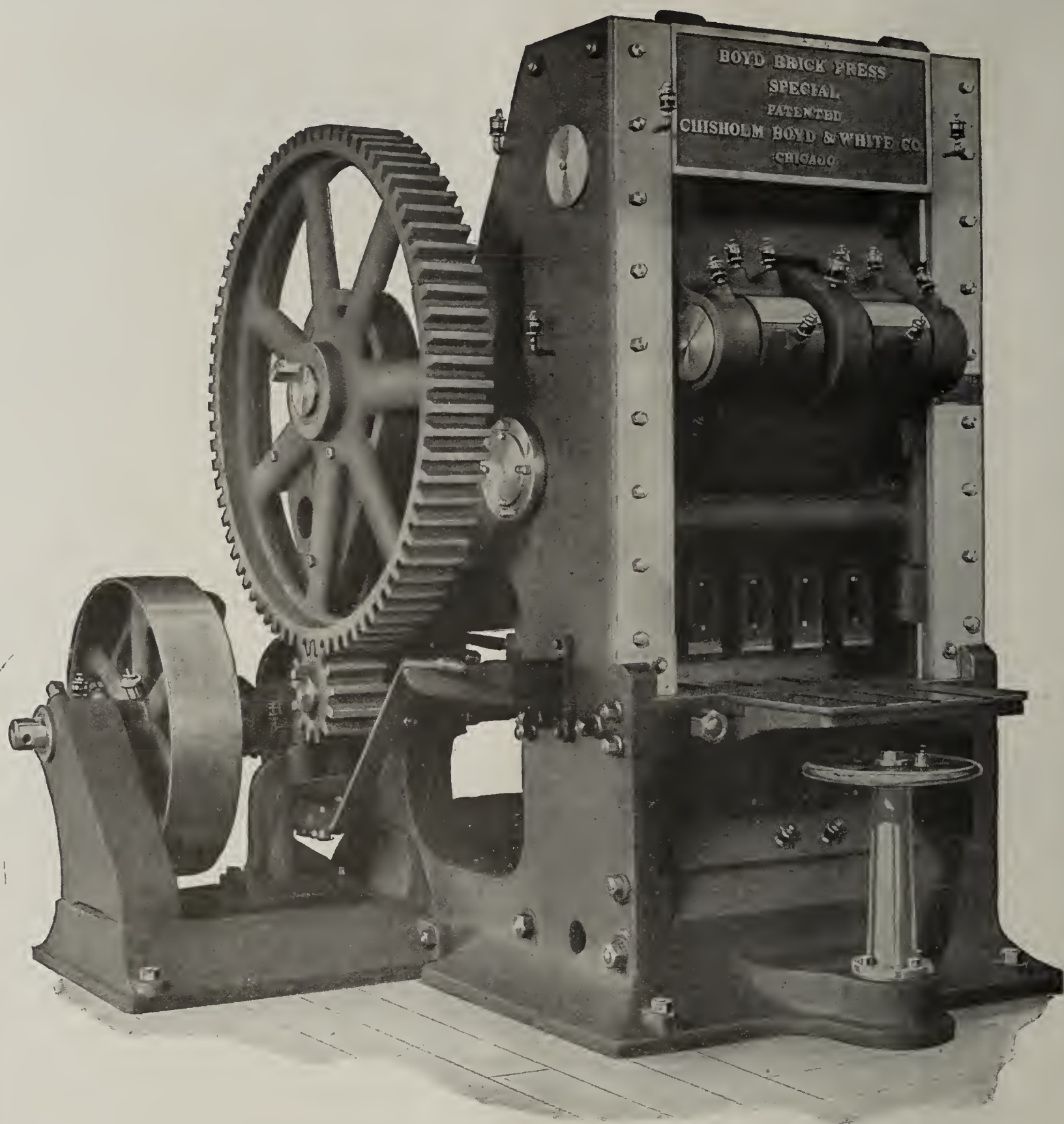
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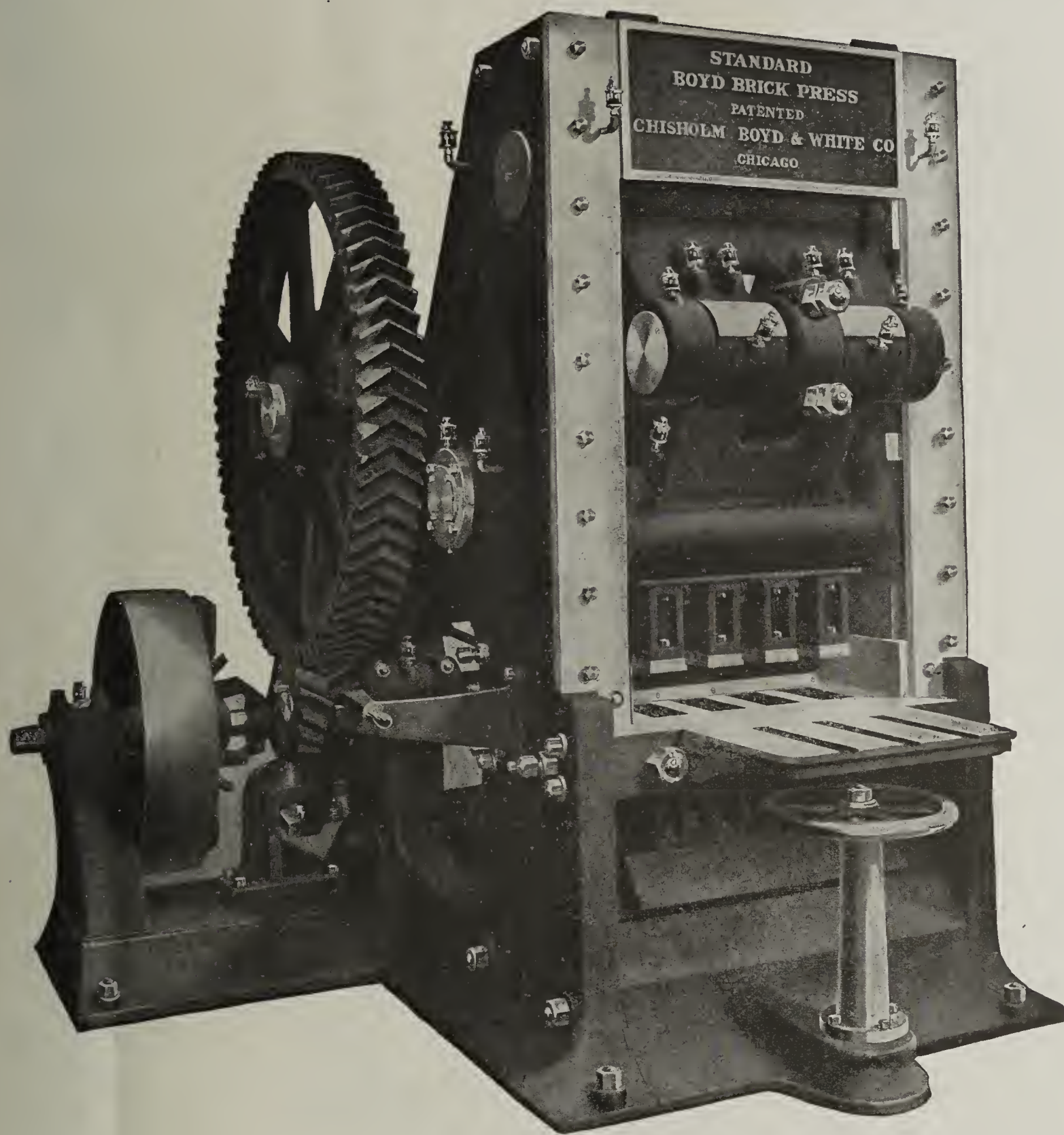
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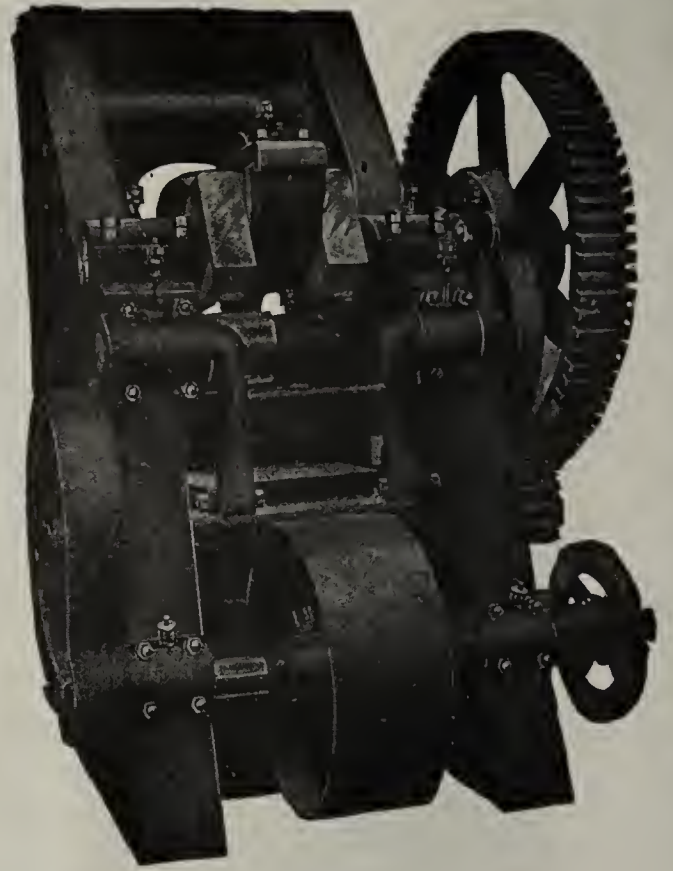
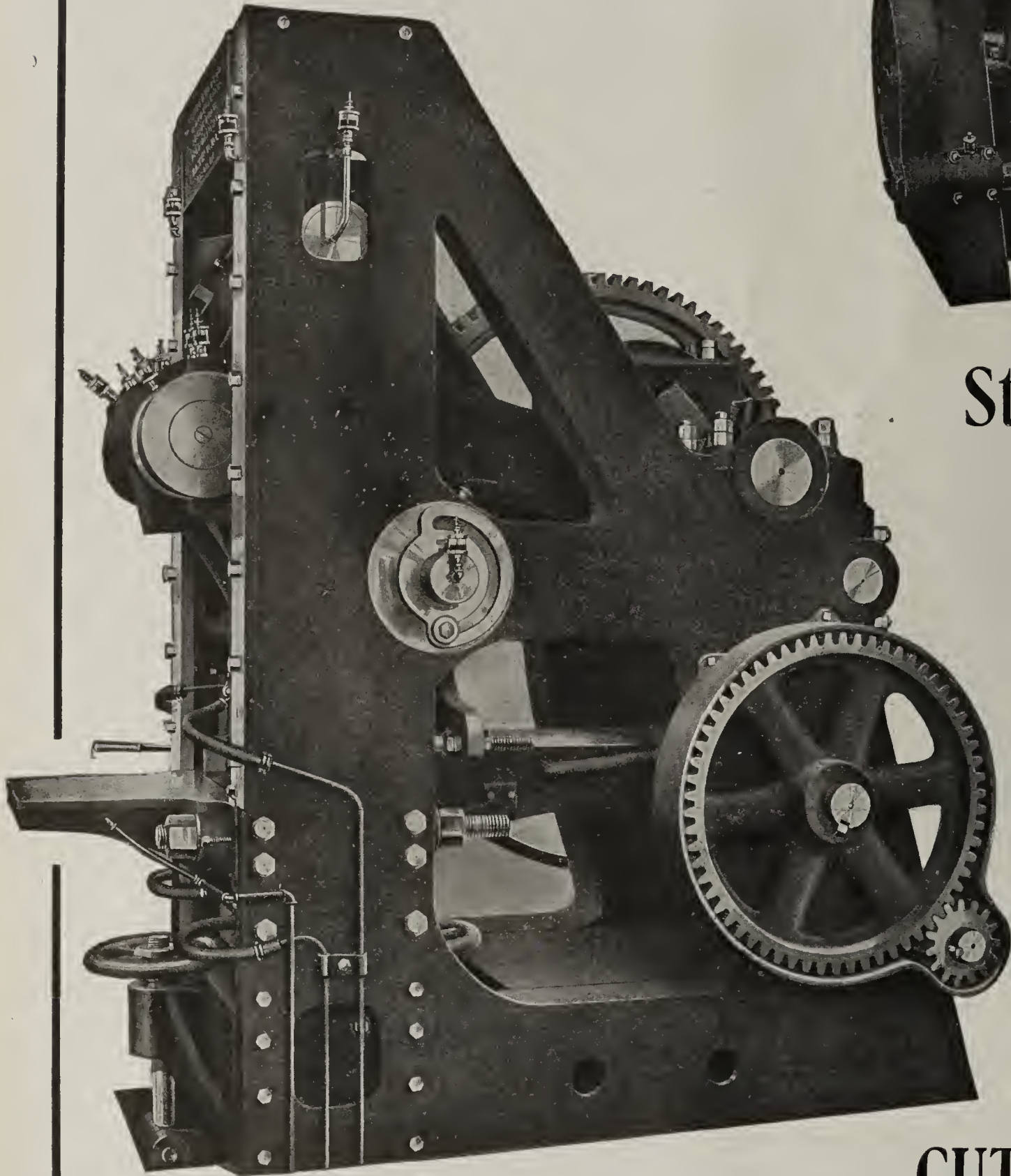
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and

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Further
Forward.

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PIECE.**

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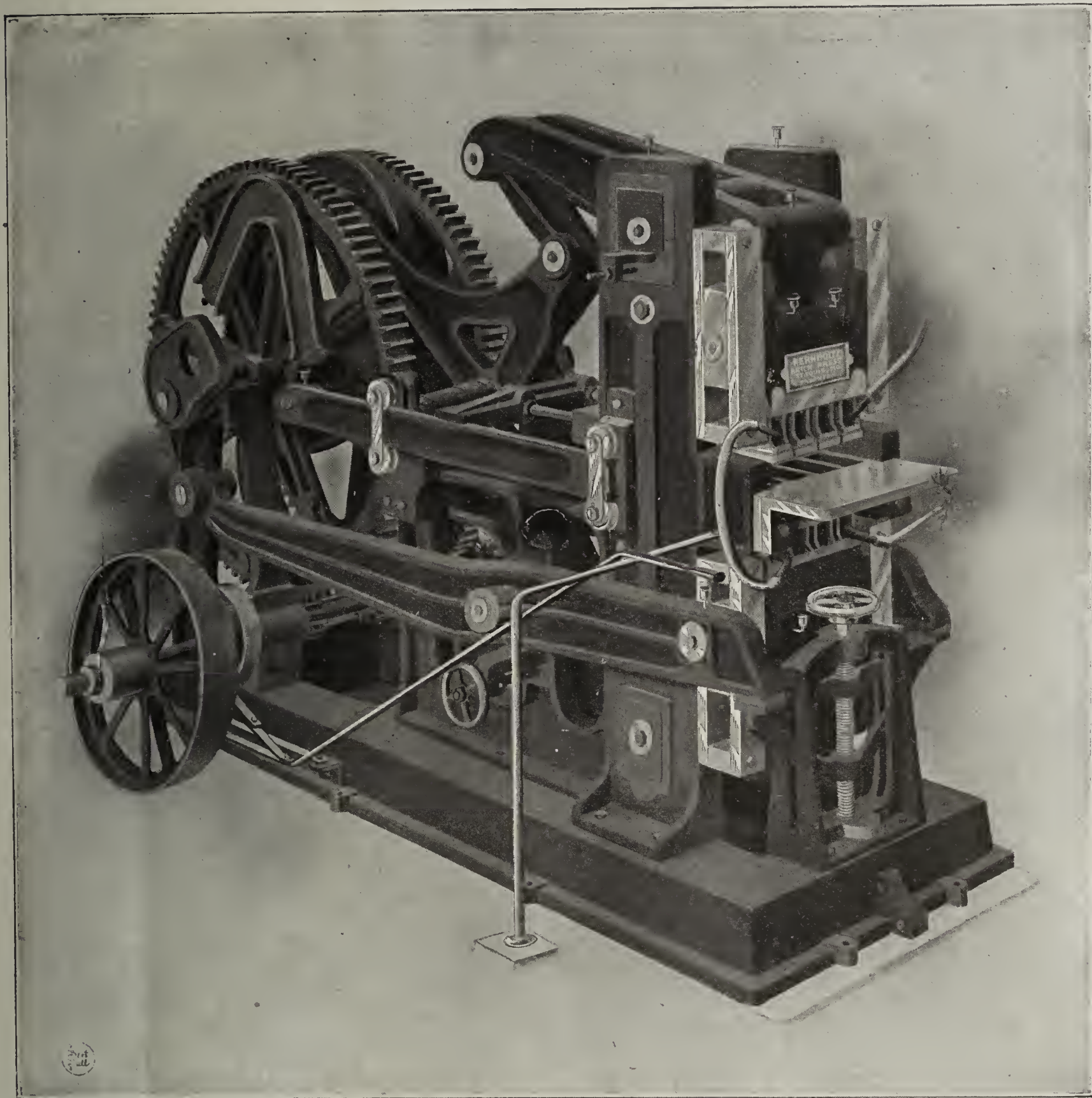
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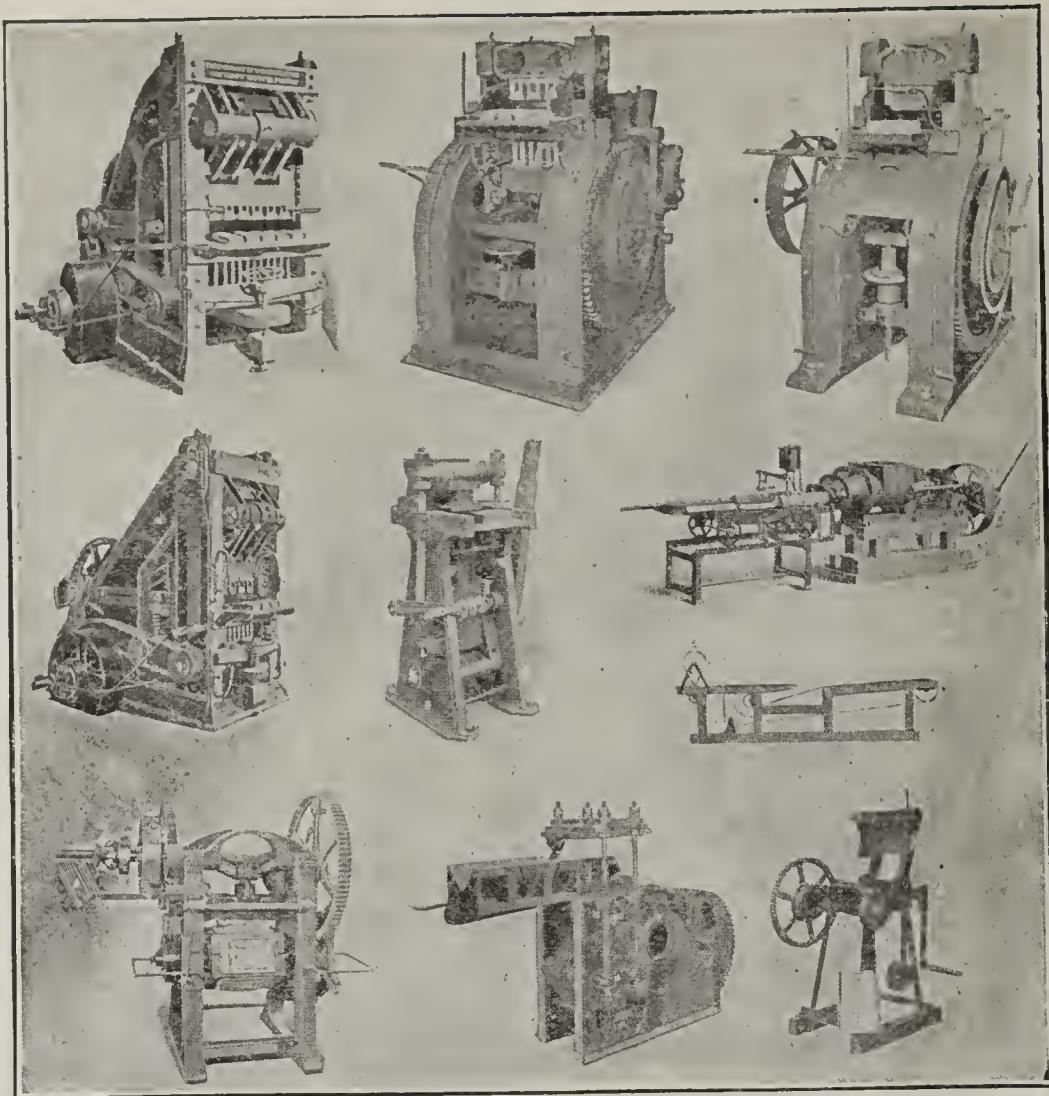
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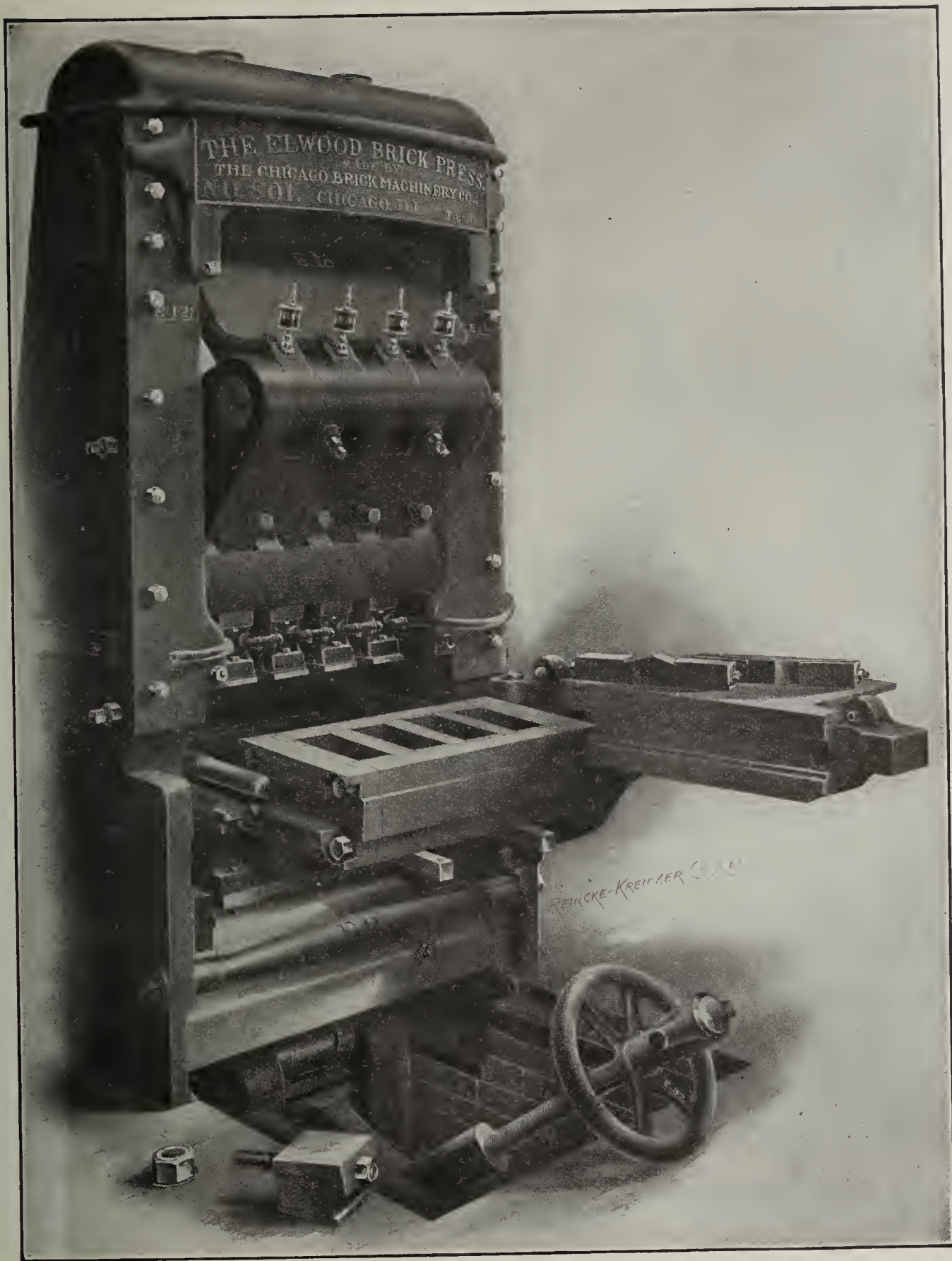
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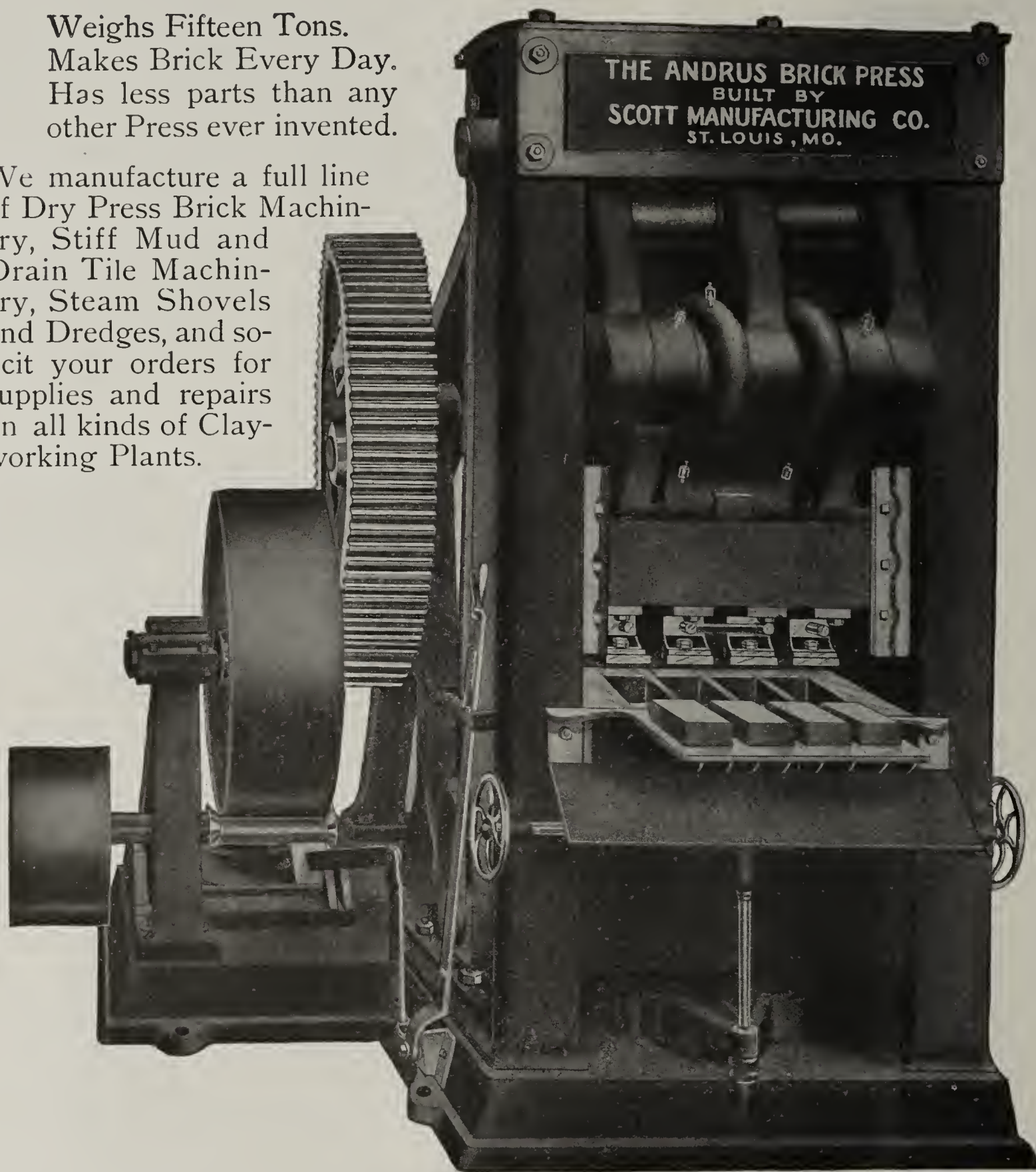
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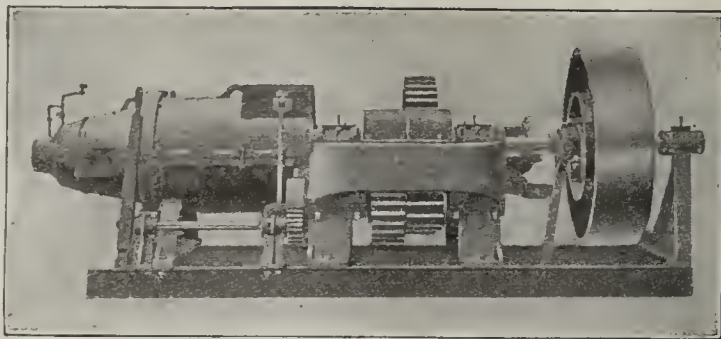
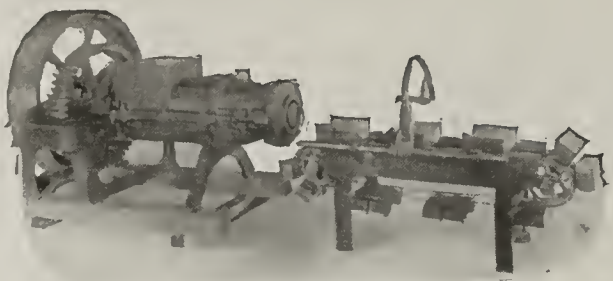
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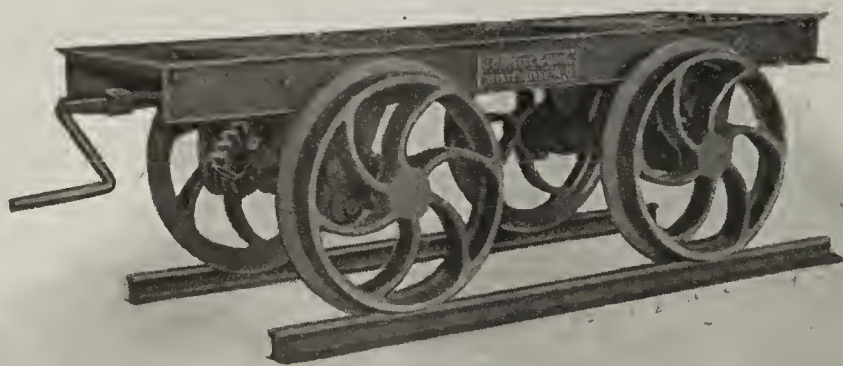
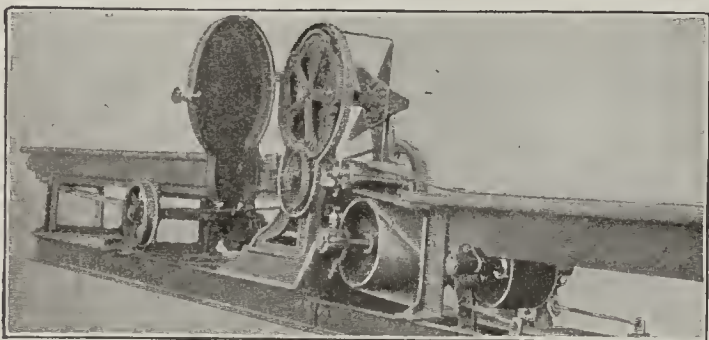
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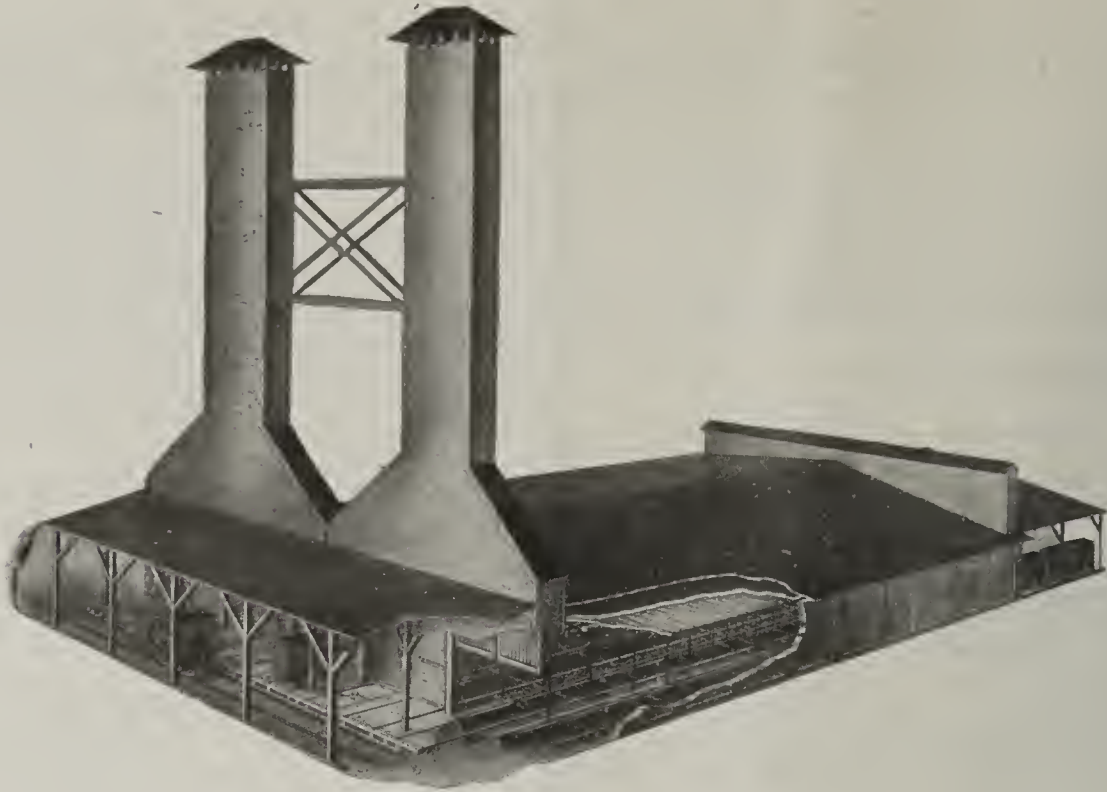
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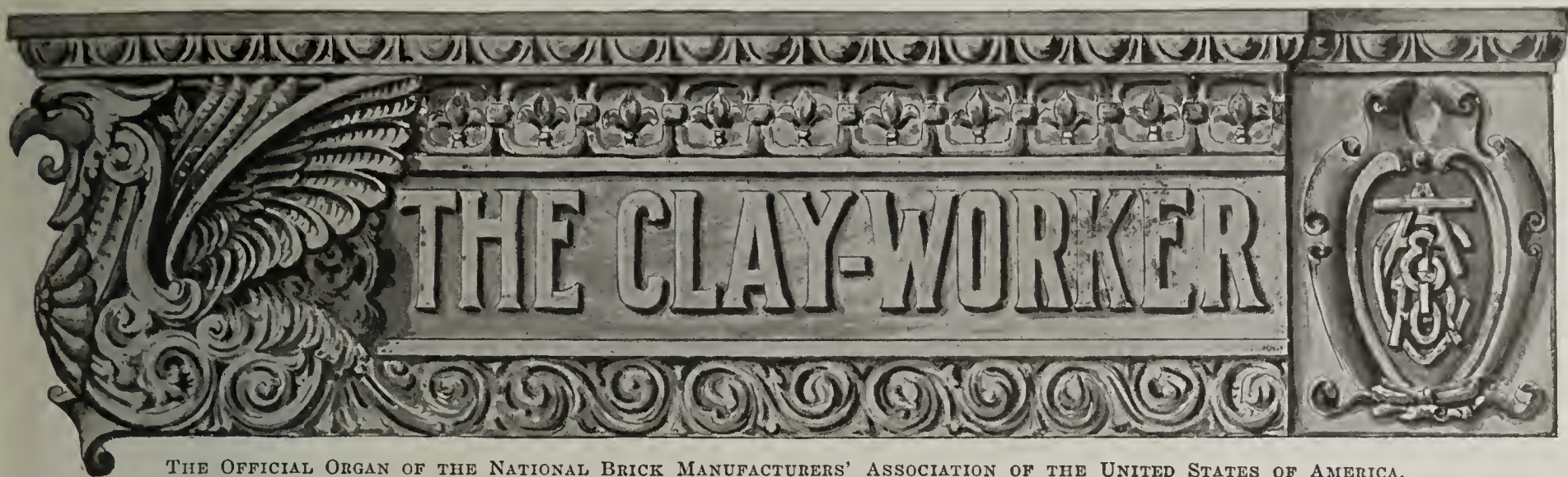
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Vol. LV.

INDIANAPOLIS, IND., JUNE, 1911.

No. 6.

Written for THE CLAY-WORKER.

AMERICAN AND ENGLISH CLAY METHODS.

Some Comparisons.

BY H. W. JOHNS, SAN FRANCISCO.

IN THE manufacture of terra cotta and kindred products of clay many strikingly different methods are in vogue when comparisons are drawn between practices pursued in the United States and those of England, where the beauties of terra cotta had their birth.

Wide as the subject is in its entirety, the writer's object after twenty years' experience on both sides of "the pond," will be generally to outline some of the outstanding features obtaining both in the United States and the United Kingdom.

The great center of the clay industry in the latter is acknowledged to be in Denbighshire, in North Wales. The enormous supply of red and buff clays at Ruabon has a world-wide reputation. The pioneer of the clay industry in England is generally regarded as the late James Coster Edwards, of Trevor Hall, Llangollen. About the middle of the last century Edwards, an energetic young man, decided to build a couple of kilns at Ruabon for the manufacture of red facing bricks. This announcement was received with some amusement by deriders, but, rewarded by his enterprise, in a few years this plucky engineer, employing the best talent, became the world's greatest clay manufacturer. He built huge manufactories at Penybont, Trefynant and Rhos. Hundreds of millions of the world famous red-facing bricks found their way to the four corners of the globe, and the bricks bearing the firm's initials, "J. C. E.," have been in constant demand for decades. At Penybont the open clay pit has attained

gigantic proportions, but alongside the banks of the "Sacred Dee" illimitable supplies of virgin red clay await conversion into the beautiful products of the firm, which is now managed by the two sons, Edward Lloyd and James Coster Edwards, both thoroughly democratic in their ideas.

Competitors came with the Ruabon field in Monk and Newell, Henry Dennis, the great Cornish mining king, and several others. Ruabon became a hive of industry and its skilled workers were in great request in many parts of the world where terra cotta and the accompanying clay products were manufactured on a wide scale. With an unsurpassed

natural clay and thoroughness of manufacture, the North Wales material was utilized in thousands of fine buildings which grace the cities of the United Kingdom.

Blue and brindled bricks, flooring quarries and roofing tiles were exported and are still being exported to the United States, South Africa and Europe, chiefly on account of the moisture resisting qualities and the beautiful colors produced. Doultons have large factories in Lambeth (London) and in Staffordshire; so also have Stiff & Co., whilst Burmantofts, of Leeds, carry on a large trade in the north of England especially. Many large potteries exist in Lancashire, principally at Accrington, a dangerous competitor to Ruabon both for quality and color. Other large potteries include Hathern Station Company, of Loughborough, in Leicestershire, and the Tamworth Terra Cotta Works in Staffordshire. At all these concerns the skilled mechanics and leading draftsmen of Ruabon played a prominent part in developing the

trade and perfecting many useful devices to facilitate manufacture of the goods placed on the market.

A good sprinkling of the Ruabon draftsmen found their way to America during periods of slackness of trade in England, and with a fund of experience gathered at the "World's



Ornamental Terra Cotta Panel Made by the Steiger Terra Cotta and Pottery Co.

clay hub." These knights of the pencil readily found lucrative positions among the potteries of the United States.

The salubrious climate of California naturally attracted a fair percentage of these British draftsmen, for in the Golden West an enormous trade in terra cotta has been built up and, in the rehabilitation of San Francisco after the memorable cataclysm of earthquake and fire of April, 1906, the products of clay have played a prominent part in the beautiful and handsome buildings which grace the newest of the world's great cities.

In England practically all of the responsibility for the carrying through of a large terra cotta or brick contract rests with the draftsman, and that worker alone. Scale drawings and generally full-size details are supplied by the architect. On thick white paper a drawing is prepared, figured and jointed showing the various pieces comprising the whole of the work required. Shrinkage-sized details are made and handed to the plaster-shop foreman. Plaster models are prepared and checked by the draftsman, and then the molds are made. The draftsman has always entered the marks, description, size and other data in a ledger. Every morning the molds are distributed to the finishers who customarily work for that individual draftsman, who himself enters in the finisher's book the quantities to be made, which would include a liberal percentage of "overs."

When the pieces are made they are removed to a drying shed and placed later in kiln when sufficiently dry. There the difficulty in English potteries frequently appears on the horizon. At most of the potteries there the kiln-fillers remove the square pieces, which are simpler to set in the kiln than the irregularly shaped pieces, which are left on the shelves through negligence. Seeing vacancies in front, the drying-shed man places green blocks in front, and the awkward pieces are for a time lost. This unsystematic practice causes repeated annoyances, for when the work emerges from kiln essential pieces are missing and delays result until the laggards are unearthed, placed in kiln and burnt. Gradually better management will be brought to bear on this phase of terra manufacture. Usually in England the awkward pieces are "boxed," that is, placed about the middle of the height of the kiln, or even lower, and built around by bricks projected gradually to form an arch of the old Roman type. Then a level platform is formed, above which square pieces are piled up as high as desirable. Coal and slack are used for fuel throughout England, whereas oil is in general use in California—a much simpler fuel to commence the kiln with, and withal infinitely easier to regulate than the intermittent shoveling into the fireholes of coal or slack.

Each draftsman, like stonemasons, who originally were the chief ranks from which recruits were drawn, has a distinctive trade or "banker" mark on the pieces under his control. When these pieces of terra cotta are removed from the kiln they are placed on that draftsman's sorting ground and there sorted out and separated. They are later assembled under the superintendence of the draftsman, and ultimately loaded into railway wagons after having been checked by the draftsman, who is also responsible for the consignment sheet detailing goods dispatched. This way-bill is mailed to the contractor and the quantities dispatched are entered carefully in columns set apart for that purpose in the draftsman's ledger.

The key plan is traced, the terra cotta and molded bricks indicated thereon being tinted and the tracing sent to the builder. No setting numbers are used, and the builder is guided simply by the mold marks on the pieces. There is a very perceptible disadvantage here when compared with the universal practice in the United States.

The work of the terra cotta draftsman is eminently more difficult than in England. Not unfrequently young American architects supply a sketch drawn to four feet to one inch, requesting designs to be submitted for approval. The draftsman then works out a scale drawing usually three-fourths of an

inch to a foot, figured out elaborately. He then draws his shrinkage-sized details, designing ornament suitable for the style of architecture under review. Enrichment occupies a place quite prominently in American terra cotta treatment in contradistinction to its sparse employment in England. The drawings are usually accepted with slight revisions in moulding to suit the whimsicalities of the architect, and the work is proceeded with.

The draftsman prepares a working drawing depicting every piece of terra cotta on the contract, or, if several sets of windows are required, an illustration of one is deemed suffi-



Terra Cotta Griffin Made by Gladding, McBean & Co., San Francisco.

cient. The shop drawings show in detail the various kinds of pieces desired and the contract order, thus, "528 A. D." The first-story goods are marked A, the second B, and so on.

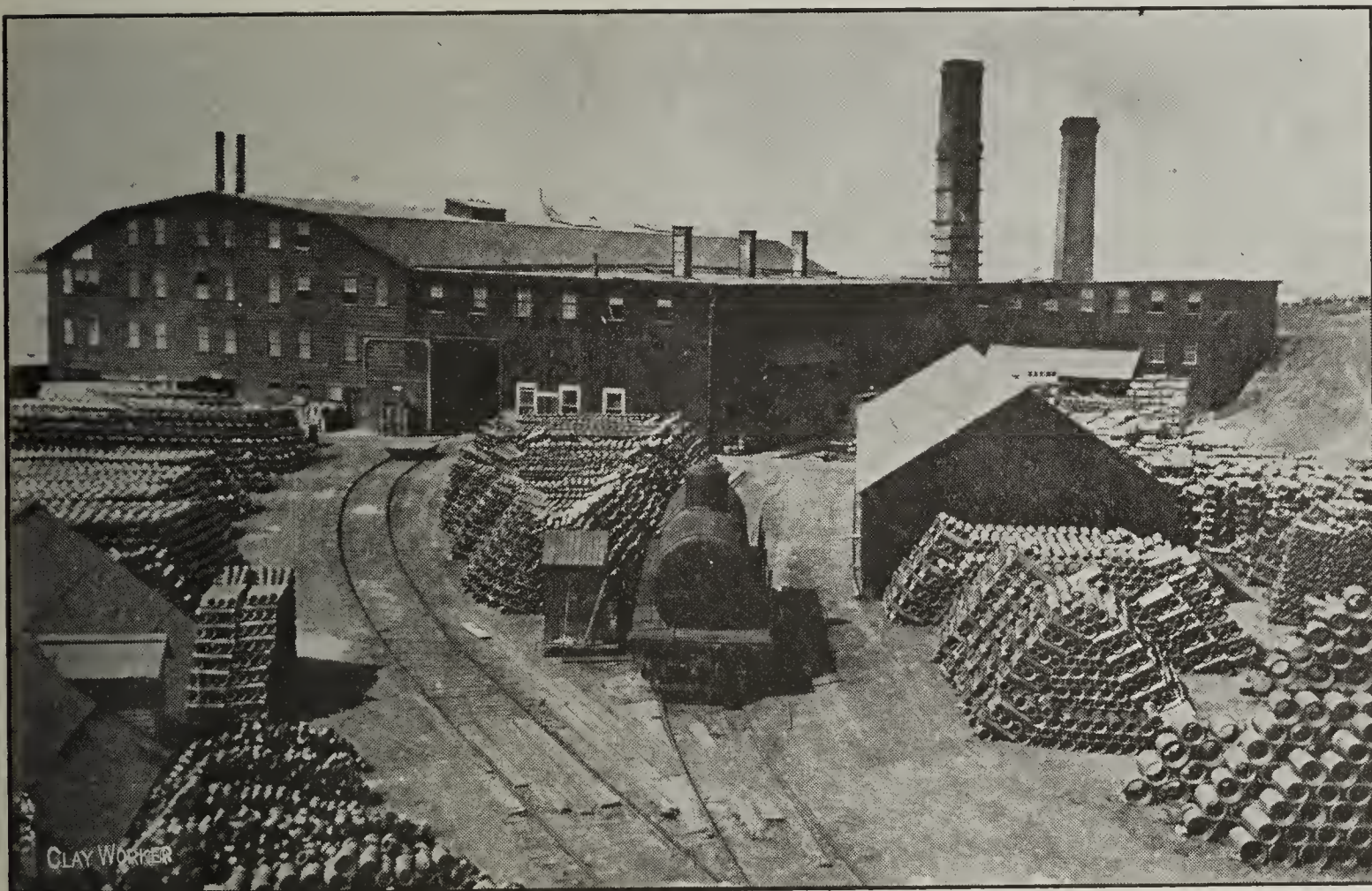
Each separate and different course bears a distinctive letter, thus A for the plinth, AB for the jambs, AC for the lintel, etc. Simple odd pieces made directly in the clay are figured on the setting plan and the mitre cutter makes them from this information alone, "regulars" being used for mitering when necessary.

When the shop details have been prepared for all the terra

cotta on the first-scale drawing, the setting numbers are plainly marked on each block on the drawing, for A1 to A856, or whatever the pieces may total on the sheet. All the terra cotta is carefully assembled after leaving the kilns, checked up and fitted to exact sizes with close joints, so that no chisel need be used on it at the building, provided the proper care is taken by the setter and dimensions of the building are correct. The setters' key drawing showing the individual pieces bearing their distinctive numbers is prepared on tracing cloth, and blue prints are made for the mitre cutter and fitter as well as copies for the architect and contractor. Blue prints are rushed out in one-hundredth of the time of the old-fashioned tracing method, a laborious task conservatively held to in the old country.

If the scale drawing be correct, all the copies made by the blue-printing process are absolutely correct and there is no possible chance of the tracing clerk omitting anything or misinterpreting figures or other data. An American scoffer attributed the infrequent use of the blue-printing frame in England

and England. In the United States steel construction is very common, but in England steel is not liberally employed in the structural formation of a building. There, all the terra cotta is made selfsupporting, and a small steel plate, beam, or channel iron is only introduced as a last resort for purposes of absolute safety. Consequently, in manufacturing terra cotta horizontal lintels, perpendicular joints are never made; in fact, the architect would instantly condemn such work as unconstructional. Radiated or joggle joints are demanded. Another joint absolutely abhorred in England is the inside mitre-joint. Not one architect in a hundred would countenance the oblique joint, whereas in the United States there is never any hesitation in making use of a joint at mitres. It saves the terra cotta maker the trouble of sticking at internal angles. "Too much like joinery," an English architect would say. In England, where labor and plaster are cheap, plaster moulds are made for almost every different piece required. There a tremendous saving might be effected by the American method, where with a couple of regular straight pieces mitred



General View of Steiger's Terra Cotta and Pottery Works, San Francisco, Cal.

to the absence of sunshine in the foggy little isle, as he cynically described the land of John Bull. Americans always tell you that England is bathed in fog practically all of the year around. This is only *en passant*.

In England the customary treatment is the drawing of setting plans to a scale of one inch to one foot on Whatman's white paper, the various belt courses being jointed conveniently and all different kinds of pieces bearing marks or "stamps." The American system of numbering the pieces with consecutive numerals is never adopted. Only seldom is the work assembled in its entirety, and consequently, in the absence of numbering, a perfect fit cannot be guaranteed, for owing to the almost unavoidable inequality in shrinkage with all repeating pieces by interchange ability it is impossible to obtain absolutely exact fitting. With the use of setting numbers each piece has its distinctive and relative position in the building as it has in the assembling room or fitting shed. Another obvious advantage is that when the contractor makes any inquiries he can by the American system refer the manufacturer to any identical block which he desires replacing.

The modes of jointing are entirely different in America

and stuck together a noteworthy saving is easily made. Carefully scratched, moistened and thoroughly welded together, no American mitred pieces fall apart. The use of small "stop blocks" in the moulds is more generally favored than in the United States. For any special lengths in the English potteries this loose stop is moved along in the mould, and any requisite length shorter than the mould itself is easily pressed. The plaster moulds in England are generally of four sides and a case, but in the United States considerable plaster is saved by dispensing with the case and the body of the mold is held together by hoop-iron bands tightly clasped around the four sides, which are held to the bottom piece and each other by knuckles.

In the American skyscraper, where steel work provides the massive structural skeleton of the building, terra cotta is essentially more of a veneer, and consequently it is often very deeply scored to accommodate itself to the iron work. Here the use of anchors is necessary. Very few anchors are used in England. Sometimes chimney-capping corners are cramped to the closers. Mullions are held in line generally by slate dowels.

Making directly in the clay is almost unheard of in practice

on the other side. Here a great deal of the odd pieces of terra cotta are so prepared and mitre pieces up to four or five in number of a kind are stuck in the plastic state by efficient workers. Particularly in elaborate entrances, where repetition is out of the question, the masses of ornamentation are built up solidly in clay and then the ornamental modeller deftly performs his work. After acceptance by the architect the modeller's assistants joint up the mass of clay and scoop out the back to facilitate drying and reduce the weight for shipping. This method is infinitely cheaper than making expensive plaster moulds as in England, and furthermore, as less than one per cent. of the pieces of terra cotta are damaged in manufacture, remakes are seldom required.

At Ruabon terra cotta clay shrinks more than in California. In Wales allowance of one inch in ten and one-half inches is made for terra cotta, and one in twelve in California. Bricks in both places shrink one in twelve. Whether for red, cream or gray terra cotta the clay in the West is all tempered to shrink one in twelve. In polychromatic work where cream or gray clays are intermingled, this is a great advantage, for the same mold may frequently be used.

The mission style of architecture still has its devotees in California, for there the quaint old missions of the padres or Spanish priests provide historic and cherished landmarks of ending antiquity. Straight lines and square cuts are the outstanding features of this style. Clinker bricks with rustic projections are much in vogue, but this class of bricks is being gradually but positively displaced by the new "tapestry" brick which has appeared on the American market and is now all the rage. This brick has a rough wire-cut surface and is burned brown to resemble toast. These toasted bricks with raked-out large joints form a beautiful contrast to white mat-glazed terra cotta dressings.

Many of the large apartment houses now in the course of erection in San Francisco have exteriors in this character treatment. They appeal to the esthetic taste and mark a pleasing departure in the ever-present striving for novelty in frontage treatment of a building. At least 75 per cent. of the terra cotta in the West is glazed chiefly with matt surface. California favors a matt-surfaced white glaze which has a clean appearance, and with a matt finish is not so trying to the eyesight as a full polished glaze which in a brilliant sunshine damages the vision.

Second burning with glazed work has been generally eliminated, for after the terra cotta has come from the dry room it is sprayed with the requisite glaze mixture or slip and placed in the kiln. After being subjected to the full intensity of heat it emerges from the kiln and the finished product bears the beautiful glaze either full or matt-dull surface. Not only is this more economical, but it obviates additional handling which would be necessitated by burning in biscuit and then adding the glaze and reburning. The process of the manufacture further is greatly expedited and cheapened.

The old-fashioned way of dipping terra cotta into the liquid glaze mixture was relegated to oblivion years ago in California, and everywhere the glaze is sprayed on. Many advantages are claimed for this process of spraying for practically no handling of the terra cotta is required, and furthermore burring pieces are unnecessary, for the glaze is sprayed on so evenly that the edges are never burred and the extra margin allowed in England does not require to be trimmed off. When an ashlar, for instance, in England is required 15x12 inches on the face, a three-eighths of an inch margin is allowed and slightly nicked along the sides. The glaze after dipping collects or burrs on this margin in kiln, and before the pieces are assembled the margin is trimmed off and a fine edge ground down on the bedplate or rubbing bed. In spraying, there is no appreciable waste of glaze being placed on parts which should not be glazed, that is, unexposed surfaces.

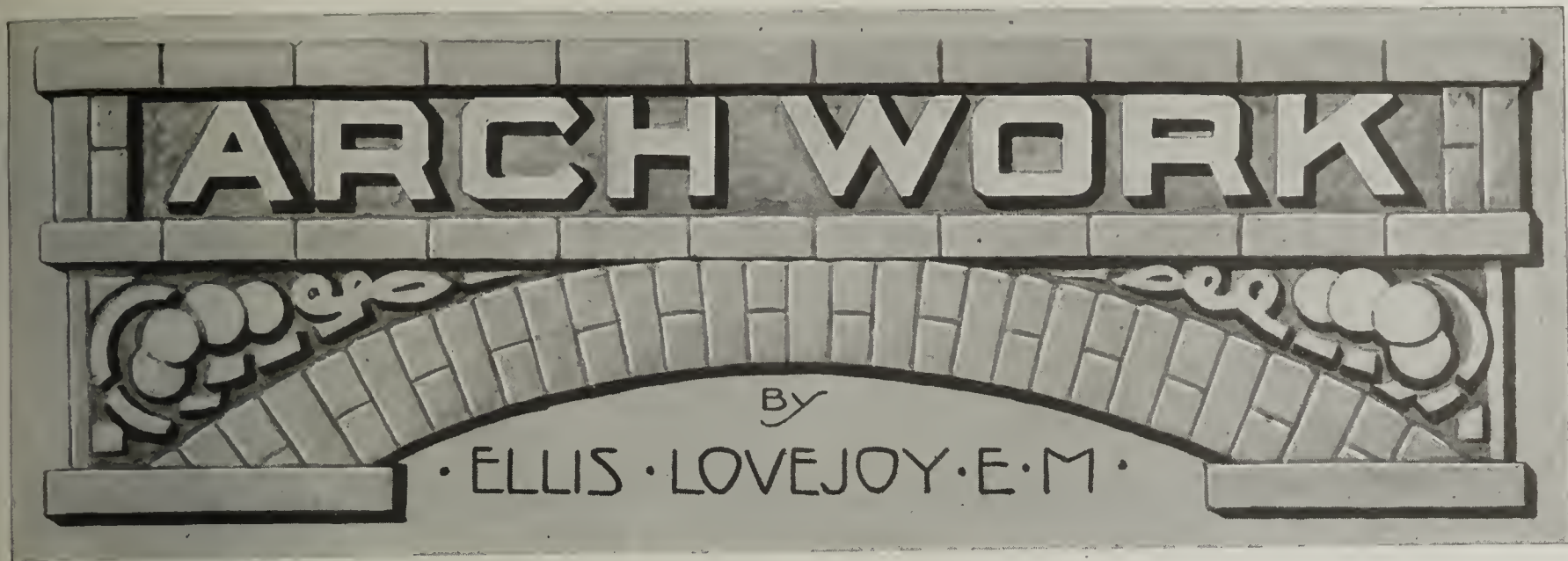
In California and other Pacific Coast States no attempts are made to compete with the beautiful glazed tiles which

have made England so renowned throughout civilization, and especially the wondrous majolica and lustre tiles for internal mural decoration, which there are practically unknown. In a few instances they have been imported by the wealthy in some of the millionaire mansions which are so frequent in the Golden West. All these tiles have been procured from England or Germany. Made in the semi-dry state, these six inches square tiles are provided with dove-tail sinkings on the inside which facilitate adherence to the plaster or cement backing of the wall or mantel. The tiles are usually only one-half inch to three-eighths of an inch thick, and the patented device used in England to manufacture and under-cut dove-tailing at the back of the tile is rather ingenious. The slightly dampened and highly ground clay dust is deposited on a platform near the small press and in small quantities is literally brushed by a fillet into the slot on the table. Directly above this, after the release of a screw wheel clutch, the face plate descends and the clay dust is solidly pressed. The face plate has ridges of rubber running at intervals along its surface. Pressure on the clay causes the rubber to spread and cause an undercut, which insures a grip for the plaster. After the pressure is released the rubber returns to its normal width and is easily withdrawn from the completed tile.

The flooring tiles nine inches square and one inch thick so familiar in England find no imitations in the West. Quite recently the writer noticed some of the Ruabon red quarries on exhibition in the window of some premises near the San Francisco Builders' Exchange, where they were very greatly admired for their hard surface, sharp edges and undoubted excellent wearing qualities. The principal tiles made in San Francisco are 6x8 and 8x8 inches on face, and 2 inches thick. These tiles are utilized for facing mantels, for hearths and various decorative purposes. They have a sand finish with mottled or speckled appearance and are manufactured in a variety of colors. Although the Californians fairly rave over the beauties (?) of these plain, cumbersome tiles, others who have seen the higher class English mantel tiles, with their elaborate patterns, delicately moulded ornament, and pleasing glazes, do not wax so enthusiastic over the western tile, which many regard as lacking in elegance, lightness and artistic finish. It is, of course, simply a rustic tile for special purposes and does not claim to rank with the expensive-glazed encaustic tile.

Brick is almost universally used in England in the construction of houses and many large buildings, and even where stonework forms the main portion of the structure red or buff bricks are liberally employed in fronting buildings throughout the United Kingdom. Consequently window arches made of brick are in great demand there. In the United States the majority of homes are built of lumber, for the American forests yield illimitable supplies of timber. Owing to the constant demand for brick camber arches in England many useful devices for facilitating their making are in general usage there. Arch bricks here are made by a hand press—a very slow and tedious method. The writer had full details of a most ingenious machine for making all kinds of arch bricks, plain or molded, with a saving of nine-tenths the labor entailed in the old-fashioned style of cutting brick by zinc template or by hand press.

Bricks for the construction of cornices, strings and plinths are not in much demand nowadays, for the market in the Western States is flooded with cheap galvanized metal cornices, which have almost completely displaced molded bricks and terra cotta in this respect. This cheap and temporary substitute for terra cotta has reached such proportions that false joints and even roll joints are actually made in the sheet metal cornices, which are painted over afterwards and the whole ensemble has virtually the appearance of real terra cotta. One architect recently lamenting the universal advent of sheet metal work for facing buildings foretold its future disappearance, for experimenting had proved to him that such work could not outlive five years despite the annual painting for preservation. He predicted that inside ten years terra cotta would regain its place for all main cornices which adorn all the large buildings in the West. This is scarcely credible, however, to the lay mind.



A PROBLEM IN ARCH WORK.

THIRD PAPER.

THERE ARE MANY modifications of the circle arch which we need not discuss in detail since they introduce no new problems. For instance we have circle arches with stone or terra cotta keys and quoins and we must fill in the space between with ground bricks.

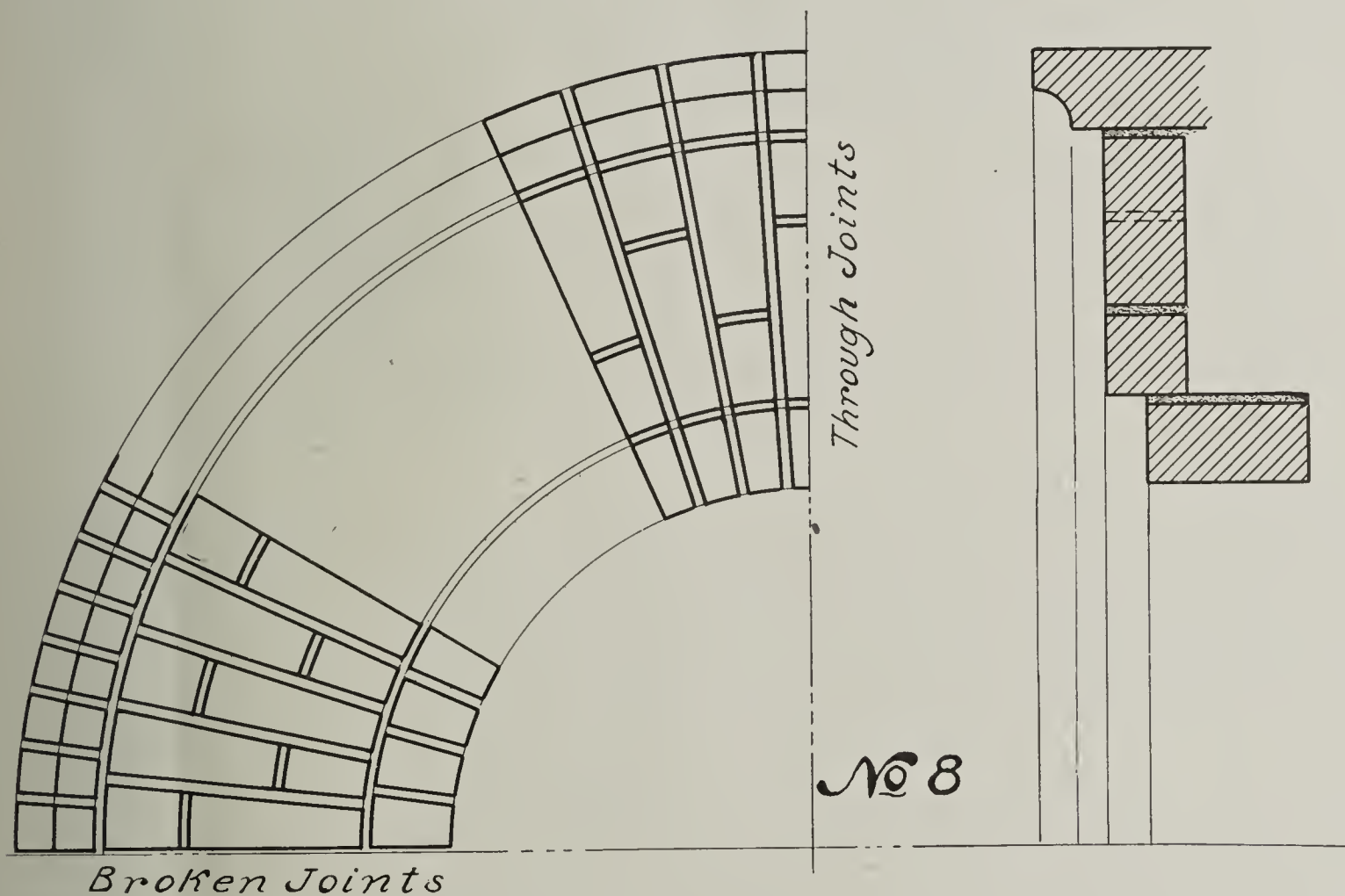
The keys may be of bricks and if the dimensions are fixed we lay them off independently.

Arches made up of several rings introduce no complica-

arch, except that we must draw one full arch and a part of the second in order to get the pier. The two arches are drawn as single arches and where they cut at the point A, sketch No. 9, a vertical mortar joint is drawn for the center of the pier.

The pier bricks are ground over the same patterns, then cut to fit the angle required in the pier.

In such arches, the dimensions of the piers give us some anxiety. In laying up the supporting piers, the contractor will probably not clip any bricks and will lay them up whatever dimension the bricks will work, and he may have the stone or terra cotta trimmings cut to fit. The brickmaker is safe in working to the larger dimension, because if the contractor



tions except the question of broken or through radial joints as shown in sketch No. 8.

If grinding work is profitable, or the draftsman is lazy, the through joint will be used, since this joint will require more bricks and in laying out the arch in the drafting room, the radial joint only require one stepping off. The contractor will be your friend if you will use the broken joint since it takes fewer bricks and less labor to lay, and we consider it good policy to help the contractor all we can.

Where the joints are broken, we simply have three independent arches to lay off instead of one, but all are on the same drawing and a part of the compound structure.

Double and triple arches are simply extensions of the single

uses the smaller dimension, the pier bricks as ground can be clipped to fit at small expense and without delaying the work in any consequence.

This drawing should be marked as follows:

- No. 1.
- No. 2.
- No. 3.
- No. 4.
- No. 5 rights, from No. 4.
- No. 5 lefts, from No. 4.
- No. 6 rights, from No. 1.
- Etc., etc.

In packing them, the piers should be packed just as they

will lay in the wall, which is a great aid to the brick mason and costs the brickmaker very little additional, and often saves a mixup at the building, time and expense. It is a good rule to so pack the arches that the contractor cannot go wrong, and even then he will often enough prove his ability to blunder.

Segment arches are but parts of a circle and present no difficulty provided the radius is given. When the rise is given instead of the radius, the half width of the opening is laid off on the base line and the rise on the center line. These two points are connected by a line which becomes the hypotenuse of a triangle.

Find the center of the hypotenuse and at this point draw a perpendicular and extend it until it cuts the center line of the arch, which locates the center of the circle.

Flat-top segment arches are frequently used, which brings in a question whether the dimensions as given shall be followed, or whether the top shall be so laid out as to come level with even courses of wall bricks.

This question frequently comes up in "Jack" arches.

The segment should be drawn as a complete segment, then cut off the top at whatever height is required.

In this way all the bricks are ground over one set of patterns, and being alike are more cheaply ground.

The bricks forming the top of the arch will then have to be

If the arches are not cambered, they have the appearance of being sagged in the center which is very objectionable.

It is purely an optical delusion, but the only way to correct it is to curve the arch slightly, (camber,) as shown in sketch No. 10.

The camber adds slightly to the difficulty in drawing the arch, but does not increase the work of cutting or grinding.

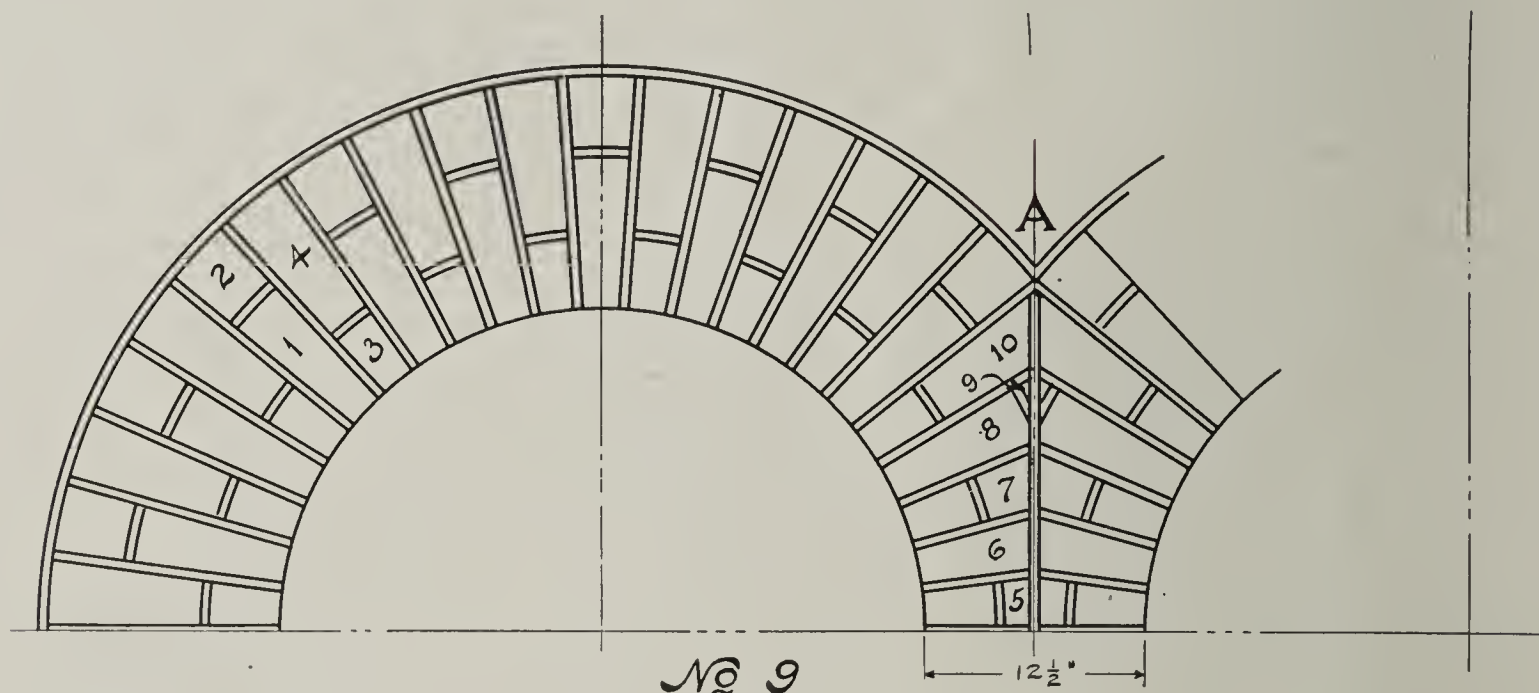
Let us assume an arch with 4'-0" opening, 5'-0" width on top, 1'-3" face, 8" reveal, $\frac{1}{2}$ " camber.

We lay off the top and bottom lines of the arch using the double pencil for the top. The center line is drawn and the center of the arch is located by joining the ends of the top and bottom lines of the arch at the heel and extending until the line cuts the center line.

We next lay off the camber and since this circle has too long a radius to be drawn from its center, it has been our custom to put a brad at "G" and one at "H,"—the two extremes of the camber circle.

Then with a ruler on edge pressing against these two brads, we spring it up enough in the center to form the curve and draw the line. The curve thus drawn is probably quite as accurate as could be drawn from the very distant center which it would require.

At any rate we never have had any question raised in regard to it.



cut to fit the arch on top just as the bricks were cut for the piers of the triple arches.

The flat or "Jack" arch is full of trouble for the brick maker, and full-sized drawings from the architect are generally less usable in such arches than in any other.

The brickmaker should have the following data:

Width of opening, height of face, depth of reveal, radius or width on top of arch, thickness of mortar joint, amount of camber.

He usually gets the first three, leaving several points either for his decision or as an excuse to delay the work by asking for the additional details.

If we decide the question of flare, we keep it to a minimum, but on many arches of twelve inches, or wider, face, we have adopted a rule of making the flare four inches or a half brick. If we have any latitude in the height we make it to come out even courses of wall bricks, but where this cannot be done, the drawing should show the top of the arch coming level with a wall joint, allowing the heel of the arch to come where it will. This saves the bricklayer the trouble of clipping bricks to bring the top of the arch up to the mortar line.

He can gain or lose sufficient height in the jamb to come out at the proper height for the spring as shown by the drawing, and it is his business to do so.

The camber of the arch in the center is an important feature and one often neglected.

The natural way of spacing off the radial joints would be along the top of the arch from heel to center.

This would make the bricks nearest the heel thinner ever increasing in thickness as we approach the center.

The heel bricks are also longest which increases the effect of thinness while the center bricks are shortest which apparently increases the thickness.

Theoretically the longer bricks should be thicker, and while we do not attempt to carry out this principle fully, yet we should approximate it.

From the center we strike a light circle AB, starting at the heel a little below the top of the arch.

On this circle we step off two or three bricks full thickness plus the mortar joint and draw the radial lines with the double pencil.

We drop down on the fourth mortar joint and strike another circle (C-D), upon which we also lay off two or three bricks full thickness and draw the radial mortar joints and repeat this with the circle (E-F.)

In the arch illustrated, we probably would continue (C-D) past the center and complete the arch entirely with it instead of making the second drop to (E-F.)

(E-F) is simply put in to show how several drops can be made in wide arches with excessive flare.

We now have maximum thickness of bricks at the heel, but

at the center, if we eliminate the circle (E-F), the bricks will be somewhat thinner.

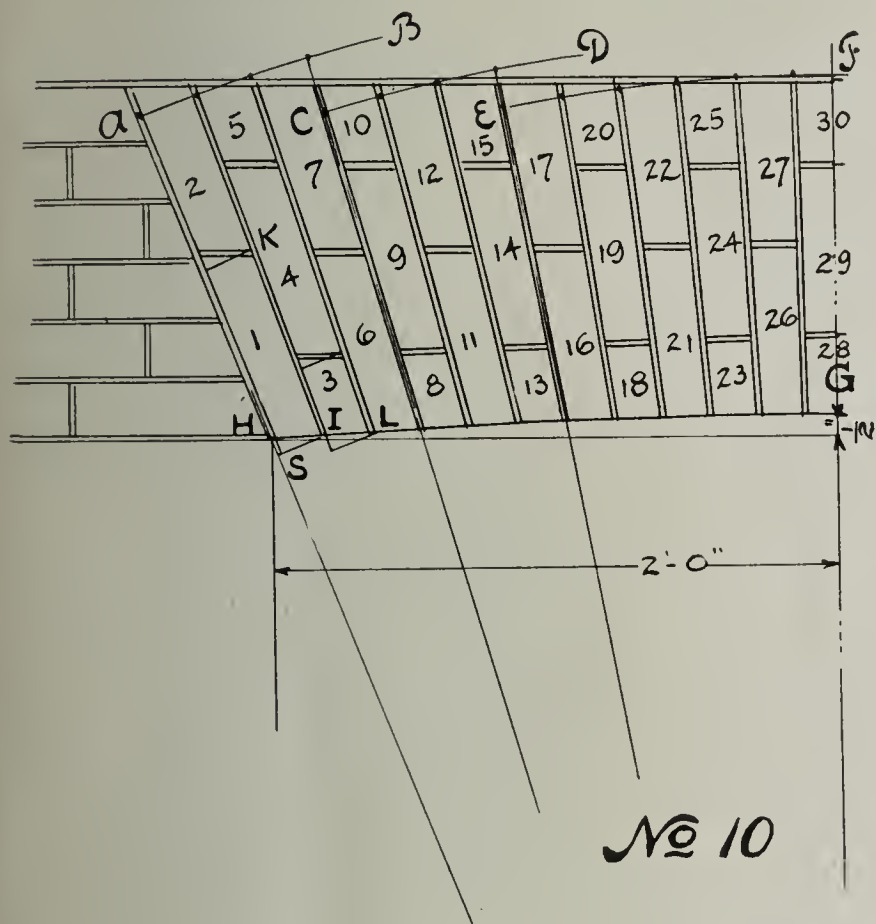
The question arises, why not lay off all the bricks on the circle (A-B) and, carry out the idea of thick and thin bricks more completely than by breaking the circles.

We do this in narrow arches where the flare is not too great, but on wide arches with great flare, the center bricks would become excessively thin which adds to the difficulty in grinding and increases the breakage which does not please us and at the same time increases the number of ground bricks which does not please the contractor.

The circles (A-C), (C-D), etc., should properly start at the top of the arch instead of below. We do this simply in order to gain all that we possibly can in the start.

Even if No. 2 was not perfectly filled out to the end, it would never be noticed, and frequently where we work from one circle (A-B) we have to decrease the size in order to come out a half brick in the center.

The little that we gain on No. 2 in this way often saves two bricks in the arch,—one on each side,—it is simply going to



the limit and a little more.

We are now ready for the head joints. At I on No. 1 brick we erect a perpendicular and from the point (S) measure up $8\frac{1}{2}$ " or the length of a standard brick, and with the double pencil draw the head joint. From (K) we drop another perpendicular which enables us to determine whether No. 2 can be cut from a standard brick, or in a wider face enables us to lay off the second brick.

A third perpendicular from (L) enables us to lay off No. 3, so that it can be cut from a header, and the numbers above are obtained in the same way.

Frequently the face is of such width that we have to use shorter than standard lengths in order to break the joints uniformly, but this introduces no trouble.

The matter of importance is that the bricks must not be longer than can be cut from standard lengths unless we wish to make special bricks for the work.

If the reveal is more than four inches, then No. 3 must be within the limits of a header size, but if the reveal is only four inches, then No. 3 may be any length that will break joints properly.

It now only remains to fill in all the head joints. If there were no camber, the head joints would all be parallel to the base line and could be drawn in with a T square.

The **camber**, however, changes their positions.

We do not wish to lose all the camber in the soffit courses since this would call attention to the camber, but instead, to lose it gradually.

For instance we set the head joint of No. 28 three-eighths inch higher than that of No. 3, and with brads at either end we fill in the intermediate joints with the ruler set on edge and sprung to follow the curve, in the same manner as the camber curve was drawn.

The head joint of No. 26 is set one-quarter inch higher than that of No. 1, and the intermediate joints filled in as before, and the head joint of No. 29 is set one-eighth inch higher than that of No. 4.

In this way the camber fades out in the height of the arch, and we have perfectly carried out the idea and purpose of the cambered arch.

Each brick must be numbered, and in grinding must be in rights and lefts and so marked.

Where the reveal is eight inches or more, we must grind backups for Nos. 1, 6, etc., which need only be beveled on the lower edge and will be cut headers instead of stretchers since they need only be four inches high.

These will be ground to the pattern No. 1, using the lower end of it, and where the backups are only four inches long, each full length brick can be broken after grinding thus making a right and left of the pattern in question at one operation.

The drawings should be marked with the order number, names of architect and contractor, size of the arch, and a letter to designate it, the number of arches in the job, etc.

The number of rights and lefts of each pattern and the number of full length and half length soffit bricks and their pattern number should also be put on the drawing.

The addition of keys and quoins of stone, terra cotta or bricks introduces no difficulties, but it may be mentioned that any such keys should project even courses of wall bricks above the arch.

(To be Continued.)

SEWER PIPE MANUFACTURERS PROSPEROUS.

Stockholders of the American Sewer Pipe Company have received the annual report of the company, which shows profits for the year of \$150,315; interest paid on bonds and bills payable, \$98,389, leaving a balance of \$51,926.

In his remarks to stockholders President George B. Hill states:

“The report is much more satisfactory than the one presented last year. There are several reasons for this, viz., our efforts have been concentrated on increasing the physical value of our plants, operating them to the fullest capacity, thereby enabling us to produce material at a minimum cost, notwithstanding the deplorable conditions existing in the trade during the past year—the low prices which prevailed—as well as the large increase in the cost of raw material and advance in wages.

"The physical condition of the properties has been kept up to the fullest extent during the past year by the expenditure of over \$170,000 for maintenance. We have also added approximately \$32,000 in permanent improvements by the purchase of additional real estate."

A court decision in St. Paul, if sustained, will place a club in the hands of tenants everywhere which can be utilized to secure the enforcement of the laws for fire protection. A tenant on a lease there, moved at the end of six months, and was sued for the rent for the remaining six months. His defense was that the building—an apartment structure—did not comply with the ordinance as to fire escapes and other matters. The court held this sufficient reason for breaking the lease. Building Inspector J. G. Houghton, of Minneapolis, favors a plan whereby the ordinance will nullify fire insurance on structures which do not comply with the requirements of the ordinances as to fire protection and prevention.

Public Entry on Main Floor of Northwestern Station, Chicago, Ill. Cream Colored Terra Cotta Columns. Gustavino Tile Ceiling.



Written for THE CLAY-WORKER.

THE NEW C. & N. W. RY. STATION IN CHICAGO.

AT LAST AFTER MONTHS and months of delay due to strikes and other causes, the wonderful new \$20,000,000 passenger station of the Chicago & Northwestern railroad is finished and open for service. It is the largest terminal save one in the country, and pronounced by many to be the finest in the world and—it goes almost without saying—its greatest architectural beauties are derived from the use of clay wrought materials, brick and tile and terra cotta.

The exterior of the great structure—exclusive of the train shed—is chiefly of granite, but highly ornamental terra cotta plays an important part in the trimming and in the upper courses. On the interior of the building, however, from the Madison street entrance clear back to the power house near Kinzie street, a stretch of four blocks, terra cotta in many beautiful forms is the keynote of the ornamental work with tileing worked in on walls and ceilings by the master hands of the architects, Frost & Granger.

The terra cotta throughout is furnished by the American Terra Cotta and Ceramic Company. The tile used is the green Grueby in the walls and the Gustavino in the ceilings, and the brick—used chiefly in the walls of the great train shed—three blocks long—is from Brazil, Ind., supplied by the S. S. Kimbell Company.

The station has three floors. The first is on the street level, is entered from a portico and through a colonnade of classic design. Within the effect is wonderful. Columns and arches of cream-colored terra cotta support the successive spherical surfaces of Gustavino tile which compose the ceiling, while the walls are of the artistic green Grueby tile. Out of this first great public entry room or lobby arise marble staircases. Great electric lights in magnificent bronze settings give the finishing artistic touch as well as the necessary illumination.

The second floor is on the same level with the train shed, and this is devoted to the main waiting room, a stunning dining room, and the main concourse which is practically a block long with the train shed backing up to it.

A women's waiting room also is on the second floor connected by elevator service with the "women's suite" on the third floor. There there is a large, carpeted lounging and writing room, and adjoining it are retiring rooms and baths and telephone booths. Also there is a rest room with half a dozen trained nurses in attendance for the purpose of caring for the wants of traveling women and children. A woman physician also is in attendance. Connected with the women's waiting room in addition is a room for sick travelers, contain-

ing beds and every modern hospital equipment of which sick travelers may avail themselves without charge. The men's suite on the other side comprises a lounging room, dressing room and bath room. Twenty-five private baths are in service, and a traveler wishing to dress for an entertainment, may do so before leaving the station. A valet is in attendance constantly.

The big new terminal is at once conveniently located, magnificent in appearance within and without, and affords to the road's patrons a maximum of facilities to travel. Cars connecting it with every section of the city pass the doors every half minute.

The main entrance from the brilliantly light, esplanade on West Madison street is through a splendid portico. A colonnade of six massive granite columns opens into the lofty vestibule, and from both ends of this vestibule gracefully staircases sweep upward to the main waiting room on the floor above. The main lobby or public part, as said before, is on the street level and extends the entire width of the building—260 feet. It has entrances on Canal and Clinton streets as well as on Madison street. Near the center of the main lobby and facing the ticket windows an information bureau is conspicuously placed. Thirty-three ticket windows face it, and it is, therefore, impossible for a traveler to experience delay in securing his railroad, parlor car or sleeping tickets.

Just across the lobby from the ticket offices is the commodious baggage room which is fully equipped for the prompt handling of baggage. Adjoining the baggage room and directly opposite the ticket windows is the main parcel and checkroom with which is connected a lost and found department. Beyond this are the cab offices and the carriage, auto and taxicab entrance from Canal street. This carriage entrance will accommodate 100 vehicles drawn up abreast. It is under cover and unhampered by waiting vehicles in the street. On the Clinton street side of the street floor is a traveler's supply and drug store opening both into the lobby and onto Clinton street. Next door to this, also having an entrance direct to the lobby, is a lunch-room in which food is served at moderate prices, and quickly.

Approaching the grand stairway in the ground floor lobby the telegraph office is to the right and the station master's office to the left. Going up this splendid staircase the traveler reaches the main waiting room, and this is the artistic and architectural feature of the whole building. Its high barrel-like ceiling has afforded not only the very best in the way of lighting and ventilation, but also opportunity for notable artistic results. The ceiling is in the Gustavino tile, and the arches are lasting monuments to the value of terra cotta in decoration. They are in polychrome with the terra cotta

wheels and ranges forming the pattern. These decorations are emblematic of the railway service. The color scheme of ceiling and arches harmonizes perfectly with the light pink of the Tennessee marble and the delicate green of the Greek Cappolino columns. The chief illumination is reflected from incandescent lamps of 75,000 candle power, which, however, are invisible. The effect, therefore, is restful to the tired eyes of the traveler.

At the Canal street side of this room are the news and cigar stands, more parcel and check rooms. Off the foyer are the barber shop, smoking room and retiring room, while, for the convenience of incoming travelers, a second information bureau is to be found on this floor. The dining room on

cars to stand completely under the train shed. The scheme of ventilation is one of the most important features of this part of the new station. There is an opening in the roof directly above each track, the eaves of which come down to within seven inches of the engine stacks, and thus the smoke and gas which normally fills a train shed is virtually eliminated. The floor of the train shed is of concrete construction, and near the middle are sixteen exits from the suburban tracks, making it unnecessary for the "commuters" to pass through the main part of the station.

The entire train shed roof is of concrete. The walls, however, like the exterior of the north end of the station proper, are of brick. Extending beneath the tracks of the train shed



Details of a Staircase in the Beautiful C. & N. W. Station, Chicago, Ill. Columns and Walls in Green Grueby Tile.

this floor has a capacity of 250 people at a time. With its columns and ceiling beams of cream-colored terra cotta and simple decorations of the same material, it is one of the most attractive rooms in the whole building. Its tiled floor makes it a complete harmony in clay product art.

The main waiting room and the grand staircase are directly on the train concourse. Here are twenty-six tracks for incoming and outgoing trains, giving this terminal a capacity of 346 trains daily and 250,000 passengers. Instead of the customary iron grating between the concourse and the train shed there is a plate glass partition extending from side to side of the station. From this partition to the end of the train shed is a distance of 1,360 feet, permitting a train of twenty-four

is a novel and exceedingly important feature of the big station. This is a large, splendidly equipped waiting room completely separated from the regular waiting rooms, and dedicated to the use of immigrants only. This room is on the street level with an outside entrance off of Clinton street. Opening off of this waiting room is a very large room, given over to fifty private bath rooms, exclusively for the use of immigrant passengers. There is also a room adjoining which is fifty feet square and which contains twenty-five large wash-tubs for the use of these people in washing their clothing. Connected with this laundry is a large drying room equipped to hold 2,000 garments at once, and with artificial drying facilities dry all clothes within fifteen minutes, electricity from the

power house performing this work. Not only are all modern conveniences thus afforded these travelers, but from the time they enter the Northwestern's hands they are in charge of an officer specially detailed to see that they are not imposed upon, robbed or mistreated. The sanitation and ventilation is perfect in this part of the station as well as in the main portion. The air is cooled artificially and kept constantly changed by fans, and the station is piped for iced drinking water as well as for hot and cold water for lavatory purposes. The seats in the immigrant waiting room are extraordinarily broad and built to accommodate large families. Indeed the regular waiting rooms have few points of vantage over that designed for immigrants. It should be stated, however, that the regular passenger suites have a dozen free shower baths both in the men's and the women's sections.

A number of cemeteries are located on the Northwestern's lines, and special funeral facilities have been provided. A private reception hall on the level of the tracks may be reached from Clinton street, and adequate elevator service makes it possible to give perfect privacy to all funeral traffic, the coffin being brought up directly opposite the baggage car by a special elevator.

The power plant, installed and owned by the Northwestern and costing in the neighborhood of \$3,000,000, is another feature of the station worth mentioning. Like all modern power plants it is an example of the use to which enameled brick and tiling may be put in this character of construction.

All in all it is the avowed aim of the railroad company to give the traveling public the best of everything free of extra charge or at most moderate prices. Even the usual exorbitant charge of the railway dining room will not be tolerated here, according to early announcement, and it will be the aim to furnish a good meal at a reasonable price.

An adequate account of all the good features of the new Chicago station would require volumes, and an adequate description of its architectural beauties—particularly those achieved through the use of terra cotta and tile—is wholly out of the question. As Chicago's new "show spot," the Terminal should be seen to be appreciated.

SCRIP.

While stations of the New York Subway are all built of concrete they are all lined with clay products, with the exception of some of the older stations, which are lined with glass tile. This latter material has, however, given a great deal of trouble, as it would not stick to the concrete, any sudden heating or cooling of the surface would crack the glass tile off the rigid mortar. As soon as this was discovered the glass tile people set this material in a putty, which retained its elasticity, but this putty decomposed and the walls veneered with glass tile present in many cases a very unsatisfactory appearance. The clay tile is not subject to these complications.

Written for THE CLAY-WORKER.

BRICK PUBLICITY POINTERS.

ONE THING that sometimes keeps individuals and groups of brick manufacturers in a community from doing more to promote the use of brick in building is lack of specific knowledge of just how to go about it, what



An Architectural Triumph in Granite and Terra Cotta.



Main Waiting Room of New C. & N. W. Station, Chicago, Ill.

different plans to map out and follow in the way of boosting brick and other clay products.

Take many a man who can talk brick by the hour when he is in personal contact with some prospective builder and set him to the task of advertising brick, of writing out specific ads and other matter for printing calculated to interest

and instruct the public in favor of brick, and he is, figuratively, up a stump. He is likely in his dilemma to hunt up some local advertising man or to unconsciously copy after some stereotyped method of advertising with noisy headlines and a whole lot of stuff really foreign to the subject in hand.

The right theory to follow in work of this kind is the idea of writing advertising copy that is as near exactly what you

strongly. In both display advertisements and in write-ups of a nature calculated to boost brick the use of pictures is perhaps the greatest of all help. The use especially of photographs of inviting brick buildings. Either buildings that have actually been erected or architects' plans for buildings. Use different sizes and different types just as the lumber people do. Types of building calculated to interest some of the

readers of the paper in which it is published, and give some details of the plans and estimates for the cost of doing the building.

It is comparatively easy in some towns and cities to take photographs of many of the new buildings that go up and give a description of them, especially those made of brick. The local papers are generally glad to use matter of this kind as news, because it is properly news of the community. They may fight shy of attaching anything of an advertising nature to the description of the house itself, but one can get in the fact that it is brick and some idea of the cost of material and the quantity used. Then in the display advertising accompanying it in the same paper attention can be called to it and a strong play made of it.

By and by, after following up these things persistently it will all have its effect and people will drift into the habit of inquiring about plans for and the cost of brick building, and eventually many people will be led to the use of brick in building operations that heretofore had not dreamed of it.

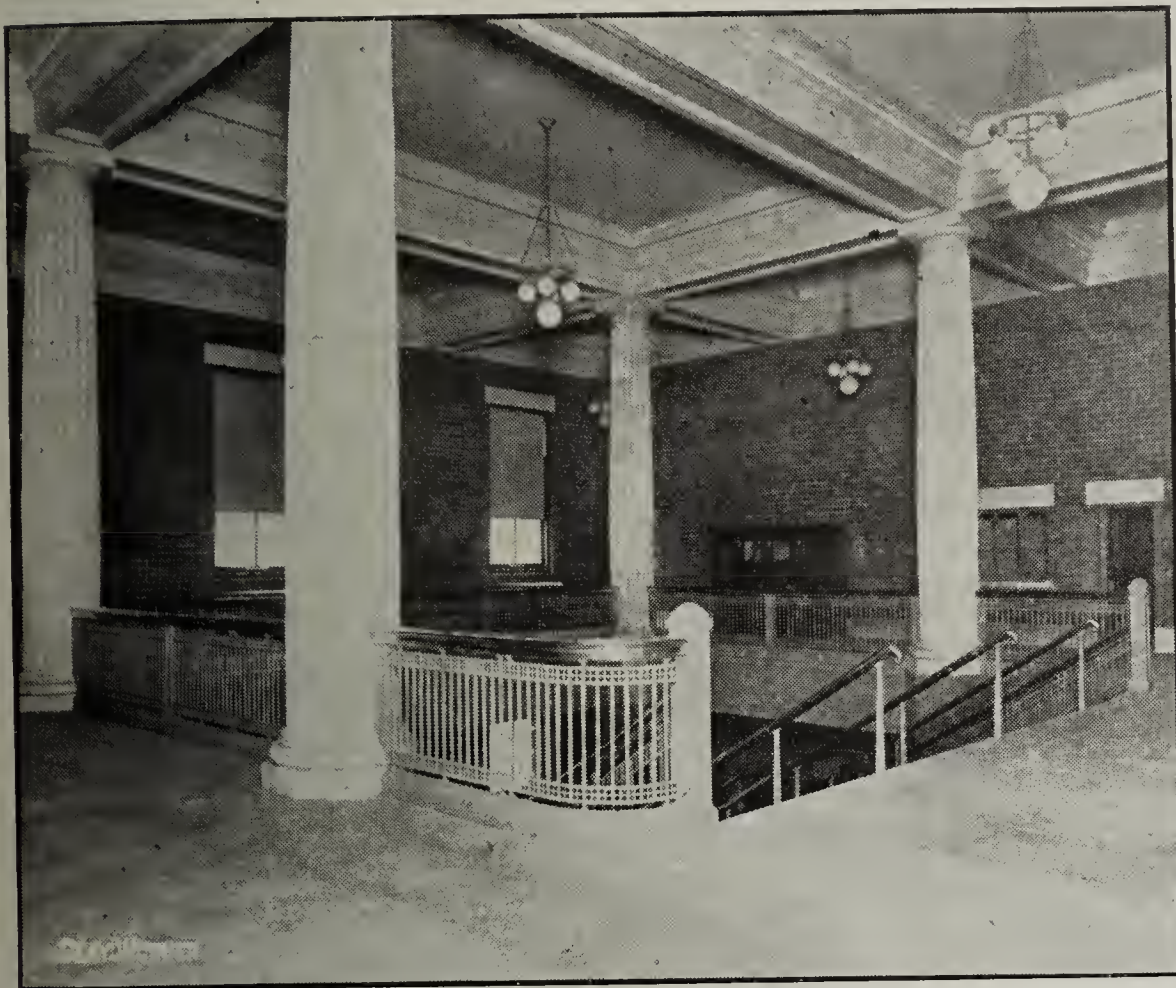
Then, by way of change, pictures of the brick plant and especially of the details of the process of manufacturing brick, will help along.

Generally your local newspaper man, if you are advertising with him, will be glad to get these, too. To have cuts showing in detail how the industry of brickmaking is carried on.

Another feature of picture using is one brought out at the annual meeting of using comparative pictures of clay products and of concrete work, to show how concrete fails in certain ways under certain conditions. A proper use of these helps out considerably. Too much of it, of course, becomes a little tiresome to the readers and would not be of such great benefit to the brick men, even though it may be instructive.

About the best plan for the clay products people to follow in boosting their product is to avoid in so far as practical the personal mention, so to speak, of other products. To boost the clay products against all other collectively and not go into specific fault-finders of this or that product any

more than is necessary to bring out some particular point that is sought for on some special occasion. In other words, your business is to boost clay products, not to knock others, and in this work as in any other kind of merchandising, it is the man that gives the most time to talking the quality of his own stuff and bothers but little about giving free advertising to compet-



A Corner of Main Concourse. Terra Cotta Columns. Walls of Green Grueby Tile.



Train Sheds Three Blocks Long. Walls of Brick.

would say to a man if you were talking to him as it is practical to make it. Of course, lengthy details are not practical in a display advertisement. The details have to be put in special printed articles and write-ups. Then for the display advertising one must take different features than are involved in the detailed write-up and seek to impress them

ing material by knocking it that comes out ahead. 'There are plenty of good things to say about brick and clay products. and there is lots of room to do educational work in the way of instructing the general public along the line that it doesn't cost as much to put up a brick building as most people think it does.

That a man doesn't have to be rich to build of brick, and that he can have a good brick home at practically the same cost it will take to build it of something else and have something that is more worth while.

THE DEPARTMENT OF CERAMIC ENGINEERING AT THE O. S. U.

THE Department of Ceramic Engineering at the Ohio State University is just closing a very full year of activities. The number of students who took actual work in the department was over 80, while several (the first-year men) virtually belonged to the ceramic department, but are not so enrolled.

Thirteen men graduate from the four-year course, and four finish the two-year course. All but six of these men have secured positions in the various lines as follows: Terra cotta, 2 men; paving brick, 1 man; fire proofing, 3 men; fire brick, 1

that it takes rank with the most beautiful material of Sevres, Copenhagen, etc. Nevada also has kaolin just as wonderful as that found in Texas."—Popular Mechanics.

Written for THE CLAY-WORKER.

FORMAL OPENING OF TRENTON'S SCHOOL OF INDUSTRIAL ARTS.

THE handsome new building of the Trenton School of Industrial Arts is finally completed and is an important addition to the city's welfare from an aesthetic, progressive and industrial standpoint. Some firms make it imperative that their apprentices attend this school. The building represents an outlay of \$140,000, given by Henry C. Kilsey. There is a teaching staff of twenty specialists, and there is practically no cost to the student. There are two classes for ceramic chemistry, theoretical and practical. One of the students has been making analysis of English ball clay, chemical, as well as making practical trials of good and bad features. One is interested in fine china, one in glazes, etc. Every second night new theoretical work is undertaken, such as calculation of glazes and bodies of different types, including raw glazes, fitted for all kinds of ware, such as door knobs, earthen ware, china, etc.

The paper that Professor Bleininger read before the Ameri-



Ceramic Society of Ohio State University, Columbus, Ohio.

man; face brick, 1 man; plate glass, 2 men; porcelain, 1 man, and sewer pipe, 2 men.

The University Ceramic Society, the membership of which is comprised of instructors and students, has concluded a year of unusual activity. A picture of the society is shown herewith.

The instructors have been engaged on investigations covering the following general lines: Paving Brick Tests, Predrying of Clays, Drying of Clay Wares, Pottery Bodies and Glazes, Coefficient of Expansion of Ceramic Mixtures, Cast Iron Enameling, Physical Chemistry of Ceramic Fusions.

UNITED STATES MAY LEAD WORLD IN CERAMIC ART.

That there is a possibility of the United States leading in the excellence of ceramic production is the opinion of M. Taxile Doat, the eminent ceramist of Sevres, France.

"American clays are excellent for the work," says M. Doat, "and I confess that seldom has the cradle of the arts been guarded better by the good fairies than in this country, for one of the finest kaolin clays of the world has been found in Texas. It has given us the most unexpected results in the way of whiteness, translucency and plasticity. It permits us to produce large vases, at least as thin as eggshells, directly from the wheel. To my surprise, this clay is to an extent translucent even before it is baked, and when it comes out of the kilns it is as beautiful as the finest Chinese porcelains, so

can Ceramic Society is now being studied, and he deals with the four china clays used the most in this country, namely, the English china clay, North Carolina china clay, Tennessee ball clay, and Georgia kaolin. With these clays various bodies are found, those which have practical value being especially considered and then fired at different temperatures. The curve of verification is then represented by a graphical diagram and this curve is studied with respect to each individual clay, one clay being compared with the other treated under similar conditions. Each student makes graphical drawings of the different body mixtures. Instruction is given in hand decorated pottery, decalcomania being used here mostly. The school intends to preserve the delicate, individualizing work of the hand painted ware.

The final class of the past term ended May 31, and the graduation exercises took place the first week in June, when a display was shown of the work done by the pupils. The auditorium seats 350 people. Next term a picture gallery will be opened, showing the best work of the famous painting of the world. Charles H. Cook, John A. Campbell, Herman C. Mueller, Edward C. Stover and others are on the Board of Trustees. It is intended also to teach the trades in the High School here. The official opening of the art school was held June 7, although it has been opened for the classes for about two months. Many of the prominent educators connected with technical institutions were on hand and made addresses.

Written for THE CLAY-WORKER.

NEW YORK ARCHITECTURAL AND BUILDING EXHIBITION.



CLAY PRODUCTS at the New York Architectural and Building Exhibition just closed were chiefly conspicuous by their absence. No one manufacturer of any kind of clay products exhibited as a manufacturer. And only three exhibits of any type of clay products were shown. E. E. Buhler & Co. had the same exhibit they showed at the Real Estate Show two or three weeks before and in this was included the exhibit of the National Roofing Tile Company. One of the others was a fireplace shown for the purpose of exhibiting a construction of throats and dampers, smoke chambers and other features without reference to what the chimney was made of. The Hartmann-Sanders Company, manufacturers of pergolas and sun-dial pedestals and columns, showed a heap of terra cotta capitals thrust back of its other exhibit. These inconsequential bits of clay constituted all that any manufacturer of either brick or terra cotta saw fit to show.

The reason for this indifference is difficult to understand. The exhibition was held in the New Central Palace, near the Grand Central Station, in the heart of New York City, lasted one week, and was visited by thousands of men and women interested in building in one way or another. Architects and contractors, together with others interested in actual structural work, held numerous conferences in the ante-rooms of the great hall, and at times examined the exhibits in company, discussing the practical usefulness of this or that material as they went. A certain well known manufacturer of hives and other appurtenances used in bee keeping thought it worth while to have a large and comprehensive exhibit of the different articles his firm makes. Yet no brick man saw fit to place his product thus prominently before those presumably most interested in building construction.

Why this was done or why it was not done is a matter which the brick men can best explain themselves; but it would seem that they had allowed an excellent opportunity for advertising their products to go by default. Apparently the educational efforts of the National Association have not yet exerted sufficient influence to cause brick men to take advantage of the opportunities presented for convincing and profitable advertising. It is true that to transport the required material to an exhibition of this character and maintain representatives during the week it is in progress is an expensive proposition, if considered merely from that standpoint alone. But what the clay manufacturer needs most to do is to bring his products prominently and attractively before the public. It must be remembered that what the people who are building, or may build in the future, know about the merits of burned clay as a structural material is very slight. And, after all, these are the ones the clay-worker needs to interest if he would be sure that his material is selected when men determine upon building.

E. E. Buhler & Co., as agents, had a display of the production of the National Roofing Tile Company, of Lima, Ohio. This is the Klay patent double interlocking roofing tile manufactured under the patents of A. B. Klay. Mr. Klay is a native of Switzerland and has devoted his life to inventing and improving tile-making machinery. It is constructed under the pressure of a thirty-five-ton press and is exceedingly dense and compact. It is water-proof, is not subject to bad effects from temperature changes, interlocking on both ends, is rain, sun and fire-proof, indestructible and non-disintegrating. Acid and gas fumes do not affect it, and it is especially recommended for buildings near the sea, as the salt air has no effect upon it. It requires no paint or preservative, is artistic in appearance, practicable and durable. It is made for every conceivable requirement.

Within the past few years manufacturers of brick, terra

cotta and fireproofing have demonstrated to the satisfaction of architects and builders alike that burnt clay can be made as artistic as the most elaborately carved stone. If manufacturers have been so slow to adopt modern methods of selling they have not been as slow in improving the quality and appearance of their products. Take, for instance, the tapestry brick made by Fiske & Co. A building constructed of this type of brick has all the richness which characterizes the best work in any sort of material. By utilizing bricks of different colors to work out the walls of a building in designs suitable for the style and class, most attractive results are obtainable. It is no longer necessary for architects and builders to go to stone men for the trimmings of doors and windows and cornices of whatever structures they may be erecting. These accessories are so satisfactorily worked out in terra cotta that only an expert can tell the difference between them.

The fault of the manufacturer lies in his neglect to make the improvement in the qualities of his product sufficiently plain to be known and appreciated by all. Many architects have yet to learn that they can obtain the same effect in burnt clay that can be produced in stone, and do it at a reduced expense. The increasing cost of timber such as is required in the construction of buildings intended to bear heavy loads or in the case of dwellings to make them effective and attractive is an element in the situation which deserves more consideration than it has yet received. In some sections the cost of an iron frame brick building with terra cotta trimming is no more than one of the same size building in wood. It requires no elaborate explanation to point out the difference in durability and safety from fire in the brick buildings as compared with the one made of wood. And if there is a difference in the cost, reduced insurance rates would more than equal the small structural increase.

The thing to be done is to educate the majority up to a clear understanding of the value of clay as a building material. It would seem the part of good business policy to seize every opportunity that presents itself to present this fact to the people and to emphasize it in such a way as to make the impression indelible. Wherever an opportunity of this kind is neglected it means just so much loss to the manufacturer. The expense of preparing an exhibit is, of course, considerable, but with slight modifications, as new features are produced, an exhibition of this character can be made up and kept for this purpose alone. It can be transported from exhibition to exhibition at relatively small cost, and it will do its work far more effectively than any other means now known in producing a favorable impression upon the public mind. An exhibition of this character need not, indeed it should not, be large. The main feature to be considered is to make it comprehensive and to reproduce the exact appearance of your product in large or small buildings, as the case may be.

The roofing tile manufacturers who have exhibited at these shows have demonstrated the best method of convincing inquirers of the value of their product. They have constructed a small section of a roof, showing exactly how the tiles interlock and making it perfectly clear that no water or snow can percolate between them. You can talk to prospective builders hours at a time; you can print volume after volume of elaborate descriptions of your product, whatever it may be, and yet a small section of a wall, or a roof, or a fireplace, or whatever else you may make your brick for, will be more eloquent and will convince those who see it of its superiority for the purpose without the necessity of either spoken or printed explanation. In other words, the ocular demonstration of which every student of philosophy has heard, can be invoked with profitable results to help the brick manufacturer in explaining his business. BURTON.

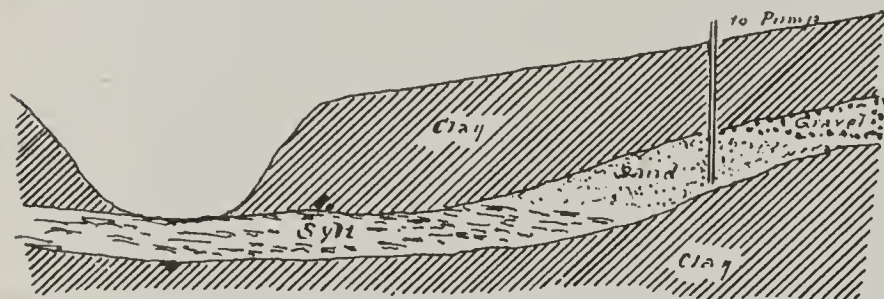
Uncle Zeke says one reason for the high cost of living is that too many young men on cowhide salaries are wearing patent leather shoes.



Roofing Tile Burning in Continuous Kiln.—It is quite possible to burn roofing tiles in continuous kilns, especially if the clay used will stand the heat all right. In an ordinary constructed regular size continuous kiln, it will burn in 360 days one million two hundred thousand common brick, three million roofing tiles or five million clay shingles.—Dent. Topf. & Z. Z. No. 25, 1911.

Delft Art Collection.—The Belgian art collector Evenepoel, who recently died, has left his whole art collection of Delft pottery ware to the Belgium government, and the city of Brussels. This Delft collection is very valuable, and for some of the pieces, Evenepoel was offered 40,000 francs. The whole collection has a value of a million francs.—Keramische Rundschau No. 12, 1911.

Drainage in Clay Pits.—The methods of draining clay pits are varied, and while some are draining the pits all right, others are not as successful. The geological formation of the



Drainage in Clay Pits.

surrounding country of the clay pit has much to do with the proper drainage designing of the same. The illustration herewith presented will show the formation of the clay pit, and the proper installation of the drainage system. The building of a concrete well and the installation of a pump will in many cases give excellent drainage. If the location of the pit is such that drainage can be had by following the slope of the country, it will then be advisable to use drain tile or sewer pipe to give perfect drainage at all times. The kind of pump to be used depends to a great extent upon the location of the pit and also on the condition of the drainage water, and any pump machine man could give the proper information on this subject. It should, however, be borne in mind that proper drainage is essential for the condition of the clay pit at all times.—Dent. Topf. & Z. Z. No. 19, 1911.

The Brick Industry in Holland.—There is found only in one place in the Southern part of Holland, natural building stone, and stone is therefore very seldom used for building purposes. As there are great deposits of clays all along the great rivers, the use of brick for building is very great. Not only are brick made, but roofing tiles as well. Holland has 550 plants which are making brick and roofing tiles, and they employ over 19,000 employes. There are two distinct kinds of bricks made, the Waal brick, which are red, and Ysel brick, which are buff brick. The brick yards are nearly all equipped with modern machinery, and from a technical standpoint the Holland clay industry is very much up-to-date. On account of the many waterways and canals in Holland, coal is mostly used for the burning of the kiln, as it is transported cheap either from Ger-

many, Belgium or England. There are made face, paving, sewer or common brick, and in the tile branch nearly all are making straight roofing tiles, and clay shingles. The size of the Waal brick is 22x11x5½ centimeters (8½x4¾x2¾), the Rhine brick measures 18x9x4½ centimeters (7¼x3½x1¾ inch), while the Ysel brick is 16x8x4 centimeters (6¼x3¼x1 inch). The German normal brick size is 25x12x6½ centimeters (9 13-16x4 11-16x2½ inch).—Tonind. Z. 27 and 38, 1911.

Test Kilns.—Dr. Heinecke, director of the Royal Prussian Berlin Porcelain Manufactory, designed in 1896 some test kilns for experimentation with high heat trials. In the course of the years while this kiln was in use he has perfected this kiln, and figure 1 shows the new style kiln for high heat testing. The heat is obtained with gas and air under pressure, and the melting of cone 4 is made in one hour and a half, cone 10 in one hour 45 minutes, cone 16 in two hours and 25 minutes, and cone 30 in about five hours. As this kiln is somewhat too quick for the lower temperature, Dr. Heinecke has also designed a small round kiln for soft glazes and frits, which is

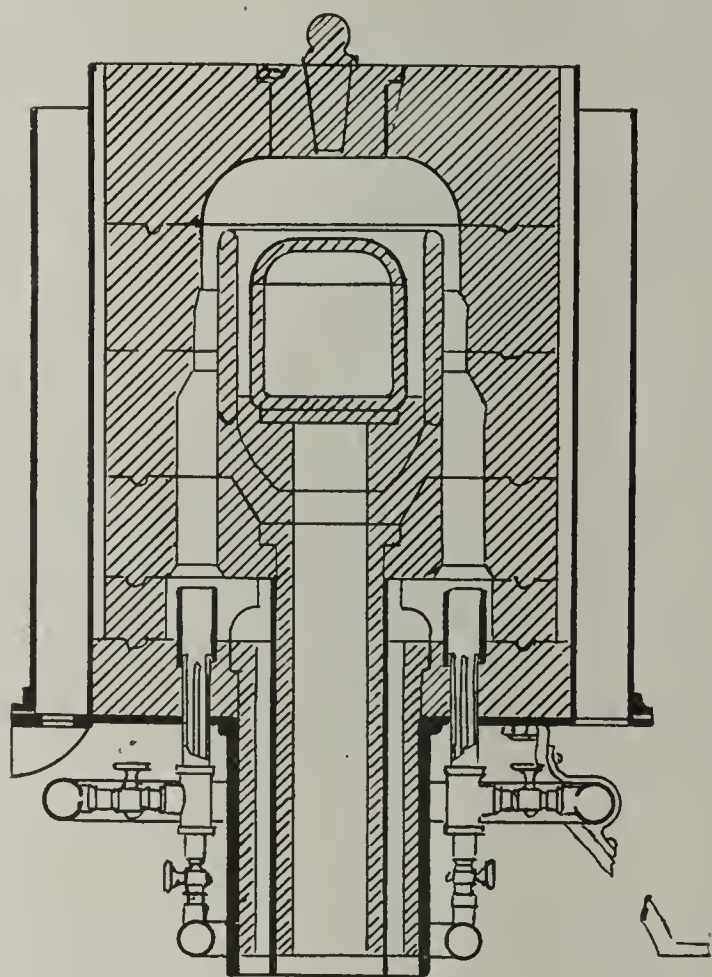


Figure No. 1.

shown in Fig. 2. Red heat was obtained in four hours, and in that time about 75 pounds of frit were run through the crucible. To obtain the full effect of a muffle kiln he also designed a small kiln, which is good for a temperature to cone 15. A temperature of cone 09 can be obtained in our hour, while cone one takes one hour and thirty minutes.—Tonind. Z. Nos. 33 & 35, 1911.

German Pottery Glaze.—The old Kohren and Frohburg pottery industry in the vicinity of Borna, Saxony, has had considerable trouble the last year with their glazing, especially as their lead glaze is very soluble. Dr. Shauseil has now perfected in the laboratories of the Royal Saxon Technical University a glaze which will bring this pottery industry again in good standing. The percentage composition of the glaze is 23.3 per cent. oxide of lead, 24 per cent. of boracic acid, 3.5 per cent. fluorate of calcium, 26.8 per cent. of silica, 1.3 per cent. of oxide of iron, 1.7 per cent. of alumina, 0.2 per cent. of lime, 0.2 per cent. of magnesia, 18.8 per cent. soda, and 0.1 per cent. potash. The batch weight of the glaze is as follows: Seventeen parts of white lead, 48 parts of borax, 9.7 parts of soda

ash, 7.1 parts of flint, 3 parts of fluorspar, and 15 parts of clay.
—Tonind. Z. No. 29, 1911.

Drying of Brick.—In order to dry 30,000 soft mud brick there should be needed more than $5\frac{1}{2}$ million heat units. This amount has been given by a writer, which has predicted entirely new methods in the drying of brick. According to regular calculation this is entirely wrong. A soft mud brick contains one kilogram water, so that there is 30,000 kilograms water in the amount of brick to be dried. Theoretically it will take 640 units to evaporate one kilogram of water. If there is deducted the heat of the material of 10 units, it will take 630 units. Take $30,000 \times 630 = 18.9$ million heat units. If it is taken into consideration that the loss is about twice the amount of heat necessary to dry the brick, and we take 900 units as a basis, we get 27 million heat units. This is over five times the amount which was first stated as being necessary to dry 30,000 brick. The drying of brick economically is a problem which should be handled from a technical standpoint, and every point

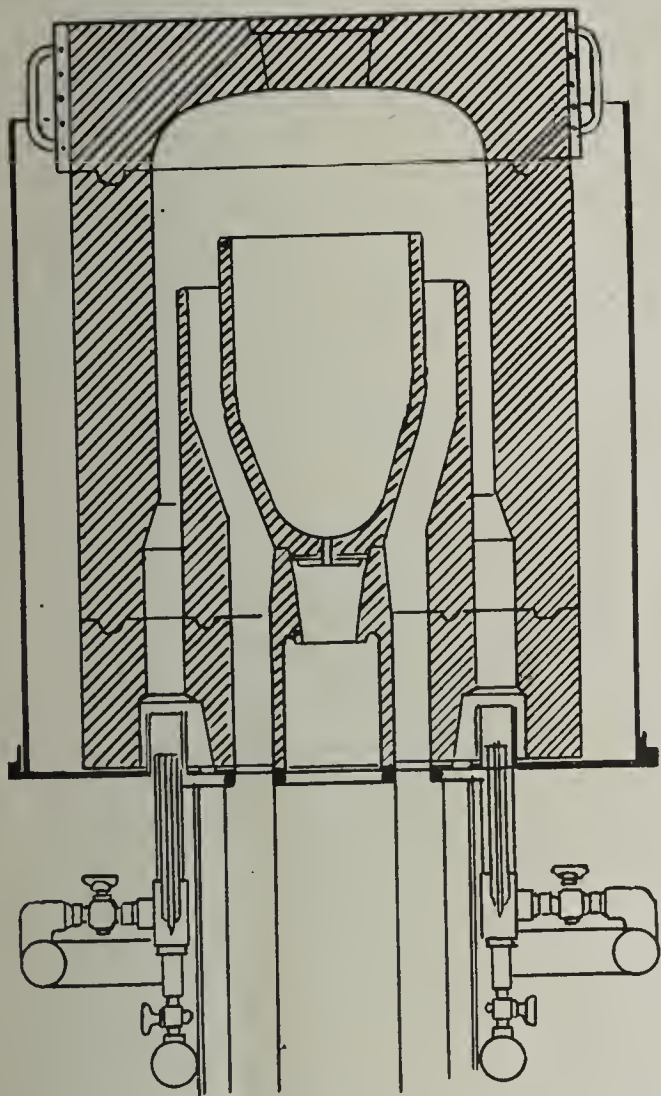


Figure No. 2.

should be taken into consideration. The mechanical dryers are practical, but they are not adapted to all kinds of clays. They should be changed to meet the requirements of the clay, just as much as care is taken to burn the bricks.—Tonind. Z. No. 28, 1911.

The Blistering of Stoneware Glazes.—The main cause of the blistering of stoneware glazes is too fast firing when the kiln starts to get visibly red. When the firing has been done quite smoky in the first part of the firing, the pores of the ware are saturated with soot, and with the quick firing the surface of the ware is closed, which will not permit the soot to burn off, when the ware gets hotter. The gases are formed, and they are imbedded in the body, when the glaze is getting soft, these gases will come out, and form the blisters on the ware. The best method to overcome this trouble is to fire slower when the kiln gets to visible red heat. Another method is to grind the clay finer, and make a closer body, so that the pores are lesser, and the soot will have less opportunity to get into the ware.—Sprechsaal No. 14, 1911.

The Melting Points of Clays.—The proper knowledge of the behavior of clays, when they change their condition from the solid to the liquid state and their melting point, is very important to the brickmaker. Many times we find on brickyards, bricks which have been fused together, and have lost entirely their shape. This shows that the relation between the composition of the clays and their melting point is a very close one. The highest melting point has kaolin and fire clay with 1830 degrees centigrade, which is close to the melting point of nickel with 1870 degrees centigrade. Any combination of material with kaolin or fire clay will reduce the melting point of the mixture. The different combinations do not only act according to their chemical nature, but also in connection with their physical conditions. The addition of sand to kaolin or fire clay will reduce the melting point, and this reduction will be the greatest, if the sand is very fine. When pure alumina is added to kaolin, it will tend to make the melting point higher, and this is the only material which increases the melting point. The actual fluxes in clay are the oxides of magnesium, lime, potash and iron. They will dissolve the kaolin entirely in proportion to the amount used. The ratio of the

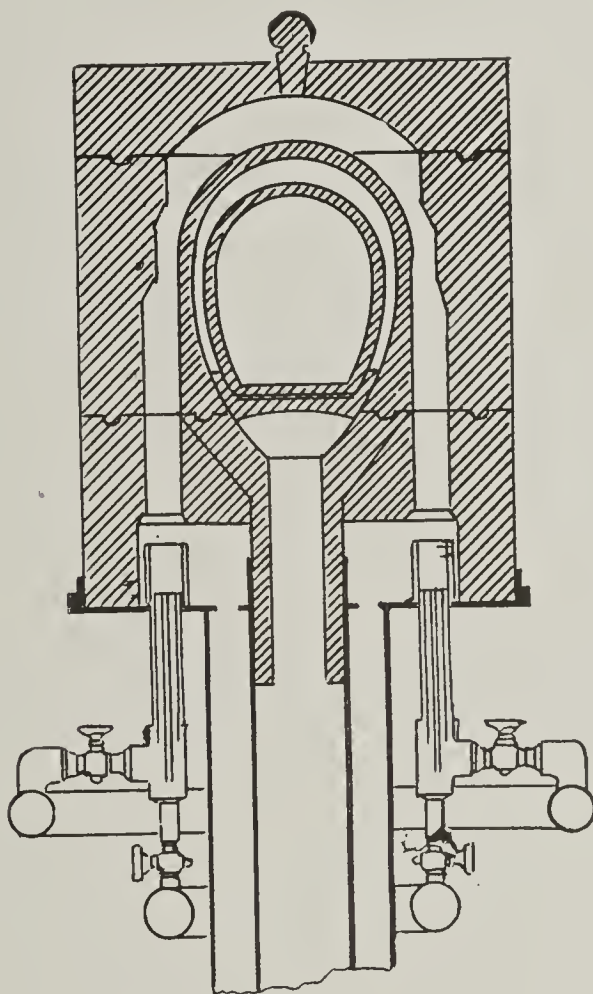


Figure No. 3.

fluxes is as follows: Twenty parts of magnesia oxide is equal to 28 parts of lime, and this is equal again to 47 parts of potash or 53 parts of iron. In combination with sand these fluxes are very powerful. Ten per cent. will reduce the melting point to 1500 degrees centigrade. A small addition of alumina or clay substance will reduce this melting point still more. Titanic acid will reduce the melting point also, and the contents will vary from 0.2 per cent. to 2 per cent.—27 samples of clay which were tested at Sevres, which all contained titanic acid, and 23 samples contained more than one per cent. Clays which contain 30 per cent. of lime will melt usually at Seger cone 1, about 1150 degrees centigrade. This flux brings the most trouble on brickyards. The time which it takes to melt a clay has an important bearing of the degrees of heat necessary to make the reaction take place. One of the most important facts in the clay-working industry, and especially in the brick manufacturing is that often the same results can be obtained through holding the heat a long time at a low temperature as by burning at a high temperature at a shorter period. The time, therefore, which it takes to complete a burning is an essential part of the temperature necessary to obtain the results.—Deut. Topf. & Z. Z. No. 24, 1911.

*THE OPERATION OF PRODUCER GAS FIRED COMPARTMENT KILNS.

BY GEORGE C. F. VATER, DAYTON, OHIO.

PART II:

Directions for the Operation of the Kiln.

The construction of the kiln being finished in every particular, all flues should be gone through carefully to verify that they are in no way obstructed. Any debris found to be left in them should be removed, however little. The flues should be perfectly clean and their inner surfaces present as smooth an appearance as can be expected. Though little appreciated as a rule, this as well as the freedom from any debris is of great importance for smooth operation.

All dampers should be tried and carefully inspected so as to be sure that no parts are missing which later on in course of the operation might give rise to serious trouble. The same applies to cleaning doors, etc. All manhole covers should be carefully luted with sand.

The fan and engine or motor should also be subjected to a careful inspection and be given a trial run with varying speeds.

The producer should be gone over in the same careful manner and the steam blower tried, making absolutely sure that all valves and gauges are in working order.

After everything without any doubt is in perfect condition, preparations may be made for starting the kiln.

With a kiln on which regular starting furnaces have been provided, the proceeding would be as follows: Start setting in compartment No. 1 without papering on top of the bags, and continue setting in the chambers ahead, always placing the paper on the bags. Having three or four compartments set, kindle up the starting furnaces, handling them as in water-smoking a periodical kiln and drawing the waste gases off through No. 1 only. Further on proceed in the spirit of the instructions below.

If no regular starting furnaces are provided, the setting of the ware should be started in the second compartment, filling three or four compartments before starting the fire.

The ware during the first round should be set as loosely as possible.

Before beginning with the setting of a compartment, excepting, of course, the starting one, the bags should be closed with a paper partition fastened to the top face of the flash wall and against the partition wall and end walls by means of a daub of clay or loam, or a paste made of flour. Care must be taken that this paper partition is absolutely tight. Where papers lap over each other they naturally have to be pasted together.

A paper suitable for this purpose need not by any means be thick, but must be tough, constituted of long fibre and uniformly covered, but not unnecessarily weighted with kaolin or similar material. The paper shall be such as to be able to stand the degree of handling incident to its use without tearing. In selecting the paper it will be well to bear these points in mind. Having the choice of several grades of paper which seem to be qualified, a test as to which will be the least brittle on being subjected to drying at about 250 degrees, will give the best means of determining the point at issue.

As to the weight of suitable paper this may vary between about 1 pound to 2 pounds per 100 square feet.

To start the fire remove the floor tile in first compartment about half way back from the partition wall between first and second compartments. This will expose the ducts continuing the bottom flues through the wall and opening into the bags of No. 2. In these ducts small wood fires should be started, leaving the top vent holes in No. 2 open at first. As soon as these fires are in good condition, connect No. 2 by means of a draft breeching or valve to the fan, running same at slow

speed. A draft gauge should of course be attached to this chamber and the opening of the valve and speed of the fan regulated so as to start with about 1 to 2 mm, gradually increasing as conditions will permit.

This fire constitutes a water-smoking fire and should be handled accordingly and exactly as if water-smoking a periodical down-draft kiln, replenishing with coal and raising the heat as may seem warranted in each particular case.

As soon as the flash wall shows color on its inside the gas may be connected to the distributing flue of No. 2 as set forth in "Directions for Starting Gas Producer." The gas down-take valves should be opened but slightly, allowing only a small amount of gas to come in contact with the flame. The fires during all this time should of course be regulated so as to allow an excess of air to pass over them. If the gas is good, and sufficient heat is furnished for ignition, it should light readily. The starting fires from now on should only be kept up sufficiently to insure the burning of the gas, the supply of which may gradually be increased by raising the gas distributing valves.

As now in the course of time the conditions become such that the gas ignites and burns permanently without the aid of the starting fires, but no sooner, these fires may be left to die down. The passages in the partition wall should then be cleaned thoroughly and be closed with a 4-inch wicket of brick, laid up dry and leaving just sufficient openings to supply the gas with the necessary air for combustion.

So far the waste gases were drawn off directly from No. 2 to the fan. As, by the time the gas will burn freely and without support, the moisture from setting No. 2 will practically have been passed off, connection to the main draft flue may be formed from No. 3. At the same time the paper partition on top of the bags of No. 3 should be torn unless burned off previously. The draft breeching or valve for No. 3 should at first be opened only slightly, gradually increasing its draft area while simultaneously decreasing that of the draft breeching or valve for No. 2.

In this way the fire range should be advanced from time to time, water-smoking chamber after chamber with the waste gases until sufficient cooling chambers are available to afford hot air for this purpose. Care should be taken not to get in a rush. It must be considered that it will take, under the conditions given, with a green kiln, good three days for water-smoking. Further it will be apparent that the heat must be raised very gradually and slowly in order to give the kiln structure full opportunity to get rid of the moisture contained in it without being subjected to any undue strain. Any neglect in this respect is apt to undermine the life of the kiln right in the first round. After this round is completed carefully and the kiln well dried and set, the structure will be comparatively safe from cracking and deterioration.

A certain time as to the rate of progress during the first round cannot be stipulated, as this will depend altogether on the particular conditions in each case. The burner in charge will have to use his best judgment and carefully consider all points involved.

The first burn, while performed under most adverse conditions, should yield a good marketable ware. It must be understood, however, that it cannot be considered as representative of the ware to be expected later on.

The fuel consumption naturally will be quite heavy and far in excess of that to be expected after the kiln is dried out. Accurate record, however, should be kept of the fuel consumed in this round as well as in any of the following.

If the kiln or parts of the kiln are provided with iron bracing (buckstays, rods, etc.) this part of the structure should be watched carefully, so as not to allow any undue strain upon it. The kiln will during the first heat expand considerably, part of which first expansion will not go back. Necessarily the rods have to be let out accordingly to avoid rupture from excessive strain.

Any cracks which may develop in the first heat, or, for that matter, at any time, must be taken care of right away in the best and most efficient way possible.

The main point to be borne in mind all through the burning of the kiln is: To raise the temperature gradually and in a manner that the least amount of time and fuel will be consumed and without doing harm to the ware being burnt.

*Paper read before the Third Annual Convention of the Northwestern Clay Association at Minneapolis, Minn.

The burning operation is divided in four parts:

1. Water-smoking.
2. Preheating.
3. Full fire.
4. Cooling.

The object of water-smoking, which is to be done preferably with hot air only, is to remove all, or at least the greatest part, of the moisture from the ware before subjecting it to the treatment with the fire gases.

The temperature to be reached in this stage is about 250 degrees to 300 degrees F.

The time allotted for this stage will ordinarily be two days, but may with rough ware be only one day, and with very tender ware as much as three days.

During the first day, assuming the average of two days, the temperature should be raised to about 170 degrees F., or if the ware has been set at the temperature of say 70 degrees, we would have to raise about 100 degrees in 24 hours, or at an average rate of about 4 degrees F. an hour.

During the second day the temperature should be raised from 170 degrees to say 300 degrees F., i. e., 130 degrees F. in 24 hours, or an average of about 5½ degrees F. per hour.

Regular temperature measurements, of course, should be taken to serve as guide.

It is very essential for a successful burn that the water-smoking be handled "just right." Therefore, utmost care has to be taken that the increase of heat be uniformly progressive and not in jumps or ups and downs.

To aid in the control of the water-smoking, either one of the water-smoking chambers should be provided with a draft gauge, and the temperature of either chamber should be taken in intervals of at least one hour.

The draft valves and hot air valves provide ready means to control the amount of air used and the temperature increase.

The amount of draft with which water-smoking may be started and that which may be employed towards the end of the water-smoking period depends greatly on the nature of the material under treatment. The minimum draft for tender ware will be about 1 to 1½ mm for the starting, and the draft with which water-smoking may be finished at the end of the second day will vary between about 4 and 6 mm. These points, however, have to be worked out by careful observation.

The heat necessary for water-smoking is to be derived from the heat contained in the cooling ware. As the water-smoking is done in two compartments at different temperature ranges, two cooling compartments of corresponding temperature have to be drawn upon for the heat necessary. These cooling compartments should be chosen so that they show a temperature about 150 degrees to 200 degrees higher than the respective water-smoking chambers, and in case that they in the course of the day become too cool to serve their purpose, the hot air breechings should be moved to hotter compartments of the right temperatures.

Aside from the temperature measurements, which should always be taken at the same place and, say, about 2 or 3 feet above the floor before finishing up, a cold iron rod should be inserted at the bottom of the kiln. This on being drawn again should show perfectly dry, without any sign of condensation.

(About advancing from chamber to chamber see further on.)

When the ware to be burnt is dry press brick with about 6 to 8 per cent. moisture, this may be set directly from press into kiln. In this case it is advisable to give the compartment a preliminary warming up preceding the regular water-smoking. To this end, after the kiln is set, the doors should be bricked up as usual, but the vent holes in the crown left uncovered. As there is in the course of time a considerable quantity of heat contained in the brickwork, filling, etc., of the kiln, a chamber full of brick "bottled up" in this way will gradually experience quite an increase of temperature, while owing to the atmosphere of steam created and to the absence of draft, the brick have a chance to warm through and give off the moisture from inside out without forming a densely

dried outside skin, which latter as a rule is the main cause of cracking and checking as far as this occurs in the water-smoking process.

(To be continued.)

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE building operations in the Northwest are quieting down, and while in some cities will show some increase, as a general rule the conditions are quiet. The total building permits for the first four months in Seattle were \$2,636,890, as against \$5,493,290 in 1910. Portland issued in the same period \$5,872,179, while in 1910 for the first four months it was \$4,925,929. Spokane's total is \$1,484,630 in 1911, while for 1910 it was \$2,484,904. Tacoma total permits were \$607,490 this year, while last year it was \$789,717. The largest gain in building operations was made by Vancouver, B. C. The permits in 1910 amounted to \$4,778,720, while for the last four months it reaches a total of \$5,793,650. The figures will give an excellent idea of the building condition in the Northwest. It is, of course, natural that the brickyard operations are consequently somewhat quiet also. The new Oregon and Washington depot was opened in Seattle last week, and the general appearance of the depot is excellent. It has been built of paving brick with concrete trimmings. A great interest has been taken by the architect's exhibit, which is being held in the exhibit rooms of the Carnegie Library.

The steel work for the new Hoge building, and also for the Bon Marche is nearly complete, and these two buildings are attracting much attention. The Grote Rankin Company is contemplating the erection of another building next to the present store, of which it will be an exact duplicate. The bids for the new L. C. Smith building were closed on May 10th, but so far no announcement has been made regarding the same.

C. B. Hurley and associates of Tacoma are contemplating the erection of a twelve-story building in Tacoma on Tenth and Pacific avenue in the near future.

Ground has been broken for a new large clay plant at Anacortes, and it is estimated that \$100,000 will be spent in the construction of the plant and kilns. Ground has also been broken for the new Federal building at Bellingham, which will cost when completed \$320,000.

The Baker Fire Brick Company was recently incorporated at Baker, Ore., for the manufacturing of fire brick and paving brick. This company has already signed up several petitions for paving the streets of Baker with paving brick in competition with the other paving combines. Mr. M. F. Bennett, the president of the company, states that he will have brick ready for paving later in the summer, and that the people of Baker should patronize home industry.

The Brick and Tile Company of Coaling, Idaho, has been incorporated. Mr. F. O. McGill will be the manager of the concern. They will make soft mud brick for a start. Another new Idaho concern is the Gifford Brick Company of Gifford, in which J. Bachus is interested.

The Lagrande, Ore., brickyard has been taken over by John Wilson, and will be operated as a summer yard for the present season. Mr. Wilson contemplates the erection of a new building in the fall, so that he can carry on operations through the winter.

The Pacific Face Brick Company, of Portland, whose plant is located at Willemina, and are operating a private railroad to Sheridan, have made arrangement with the Commercial Club for the erection of a new brick depot at that place. The public subscription amounted to \$2,000, and the brick company will bear the balance of the expense for erecting this new depot.

The firm of Moore & Hardin, brickmakers of Vancouver, Wash., who made an assignment some time ago, is also involved in the failure of the Commercial Bank of Vancouver. By an order of the court, \$12,000 of assets, which the bank held as securities, were deeded back to the trustees of Moore & Hardin for the benefit of their creditors. Their brickyard located at Fruit Valley was recently sold for \$4,700. It is stated that their liabilities will amount to more than \$100,000.

SIWASH.

A GLIMPSE OF LONDON TOWN—A CITY OF BRICK.

The Exhibition of Building Materials. How the English Clayworkers Advertise Their Products.

THE LARGEST CITY in the world is naturally a very interesting place always. Just at this time London is unusually attractive, as she is putting on her holiday attire preparatory to the coronation of King George and his consort, Queen Mary. The ceremony is generally regarded as the event of a lifetime and people of all nations are gathering there to witness the pageants and participate in the festivities on which will be lavished hundreds of thousands, maybe millions, of dollars. Verily it will be a kingly celebration.

Even in her ordinary everyday garb and condition, London is a most attractive city. Particularly so to English speaking

every corner of the universe; consequently she is so cosmopolitan that all who enter her portals are received and welcomed regardless of caste or color. All are accorded freedom and liberty without restraint within reason. The dark-skinned savage who has the means to travel first-class may safely count on enjoying the same first-class accommodation that is afforded the fair-skinned Caucasian. There is little or no discrimination because of color or race, as is the case in our own land of liberty. Mayhap, it is a matter of quality; even so, the colored citizens of the States who feel the restraint of the color line as it is drawn at home, may escape it wholly if they choose by following the illustrious example of a certain millionaire who forsook his native land,



Famous London Bridge Which is Not Falling Down, and Probably Never Will.

people, for a common language adds very much to the enjoyment and comfort of one traveling abroad, whether on business or pleasure bent. The city is so large that a writer who has made a study of it and its environs, says: "Nobody knows London to-day; it is doubtful if any living man has ever seen even the greater part of its streets. The town presents a thousand different aspects; take the four points of the compass, and you will find that the north knows little or nothing of the south, and that to the west, the east is no more than a name. As your life is, so your London; the man of leisure and the man of toil sees each but a limited section. Nobody will ever grasp the town in its entirety. It is too vast for a man, the limit of whose years is seventy."

London is not alone interesting because of bigness, she has been recognized as the chief city of the world for many generations. From an historical view point she has few rivals, the shrines of her rulers, bards, warriors and statesmen are in themselves lodestones that draw pleasure seekers from

took refuge under and swore allegiance to the British flag. This is in no sense meant as a reflection on that glorious banner on which the sun never sets, but to indicate the freedom that is vouchsafed everyone.

London a Brick City.

The feature of London which is of utmost interest to readers of THE CLAY-WORKER is the fact that it is distinctively a brick city. The extensive use of brick and roofing tile accounts for the low rate of fire loss per annum there compared with that in American cities, where the yearly loss from fires is four, five and six times as great per capita as in London and other European cities. Evidently her builders have learned the lesson of true economy in construction work, and the wisdom of building with brick and tile almost exclusively is shown, not only in the low fire loss, but as well in the low cost of maintaining fire departments which it is estimated amounts to less than \$3,000,000 in England, while



THE DELEGATION OF SWEDISH CLAYWORKERS AT THE EXHIBITION OF BUILDING MATERIALS, OLYMPIA, LONDON, APRIL 29, 1911.
Thomas Lawrence & Sons' Exhibit in Background.

in American cities it totals \$25,000,000, or something over \$1.50 per capita, as against twenty cents per capita in Europe.

The sky-line of London, and all English towns, is largely formed by the chimney-tops, so we may say that her clay products top all other building materials. The chimney-tops that meet the eye, look whichever way one may, is a cause for wonder to those not familiar with same. Evidently stoves and open fire places are the prevailing method of heating, and there is one or the other in every room, and for each stove or fire place a separate chimney or flue is required, and a terra cotta chimney tops each flue. An eight, ten or twelve-room house will have extending across its roof eight, ten or twelve chimney tops, standing guard like so many fire sentries. It looks odd to eyes unaccustomed to such a skyline, but the foregoing figures of fire loss and cost of fighting fires are ample justification of the methods in vogue.

and those accustomed to it can not understand why there is no such service in the United States.

The Exhibition of Building Materials.

The event of the season in the English building world was the Ninth Biennial Exhibition of Building Materials held in Olympia, London's largest auditorium, April 22 to May 6. In the number and character of exhibits, the show was a long step in advance of any previous exhibit. Every available foot of space in the immense building, something over 300 by 500 feet, was occupied, both on the main floor and in the galleries, and two annexes, good-sized buildings in themselves, were also filled. Well nigh every material and appliance used in the building industries was on display. Some of the exhibitors, we were told, expended a thousand pounds (\$5,000) or more on their displays.

The attendance was larger than anticipated, ranging from five thousand to twenty thousand visitors per day, not a few



Display of Terra Cotta, Faience and Pottery of More Than Ordinary Merit.

Aside from the cathedrals and government buildings London is more like a large town than a great city, as Americans are accustomed to see them. There are no sky-scrapers there at all. The building code of the city, which is rigidly enforced, will not permit the erection of buildings more than eighty feet in height, excepting towers and other ornamental features; consequently there are very few structures more than five stories high. In all other essentials, London fills every requirement of a great city. In matters pertaining to public service, many things are done that American cities might well pattern after. A notable instance is that of the telegraph service, which is controlled and operated by the government in connection with the postal service, with the result that efficient service is furnished at a moderate cost. The same is true in part of the long-distance telephone service. The parcels post is a great convenience,

of whom paid the regular admission of a shilling (25c), though, of course, a great many complimentary cards of admission had been sent out by exhibitors. It was very evident that the visitors came seeking information relative to building and furnishing homes, for they gave earnest attention to every display, listening to what exhibitors had to say and gathering literature and descriptive matter of the things exhibited that appealed particularly to them. Amusement features were conspicuous by their absence. There were no "spielers" or side-shows of any kind, nor even a band or orchestra, the entire exhibition being regarded as a serious business proposition. The doors were opened at 10:00 A. M., and soon after that hour, as a rule, the aisles were thronged with visitors, most of whom, it appeared, spent the entire day and evening in the building. They were able to do this with comfort, as there are three well equipped cafes and a still larger number of lunch counters in Olympia where both solids and liquids were served ad libitum. These answer

admirably as rest rooms where the tired visitor may rest while indulging in a cup of tea if so inclined, and most Englishmen are so inclined. Tea drinking is a national habit in England, and it is customary, even in busy London, to suspend business each day for a time, usually between 3 and 4 P. M., for tea and wafers.

The British Institute of Clayworkers.

In the beginning, some twenty years ago, the idea was evolved by H. Greville Montgomery, editor of our name-

doors of the exposition were thrown open to all building materials. Since then, the exhibition has grown steadily in extent and public interest. Architects, domestic engineers and builders throughout great Britain have become actively interested, and look forward to this show as a convenient means of obtaining up-to-date information on all matters pertaining to their calling.

During the exhibition a series of conventions are held in the Olympia assembly hall. These are arranged so as to



A Fine Variety of Roofing Tile.



Doulton's Carrara Terra Cotta Display.



Garden Walls of the Binfield Brick & Tile Co.'s Dark Reds.



Fire Proofing Brick and Tile.

sake, The British Clay-Worker, and the exposition is still directed and managed by him. Originally, it was intended to confine the exhibits to clay products alone. While a creditable show was made, it did not seem to appeal to the public effectively, and the attendance was not sufficient to justify continuing along that line. After several unprofitable years, becoming convinced that it was necessary to broaden the scope of the exposition, Mr. Montgomery abandoned the attempt to have an exclusive clay products show, and the

accommodate each guild or institute, as they are called, as will be seen by the following program:

List of Visits by Members of Professional Associations, etc., to Olympia.

Saturday, April 22.—Opening function by Mr. Leonard Stokes, P. R. I. B. A.

Saturday, April 22.—Architectural Association.

Monday, April 24.—Surveyors' Institution.

Tuesday, April 25.—Institute of Sanitary Engineers.



Pottery and Terra Cotta That Much Resembles Marble.



A Combination of Clay and Glass Roofing Tile.



A Summer House in Brick.



Exhibit of James Brown, of Whitechapel.

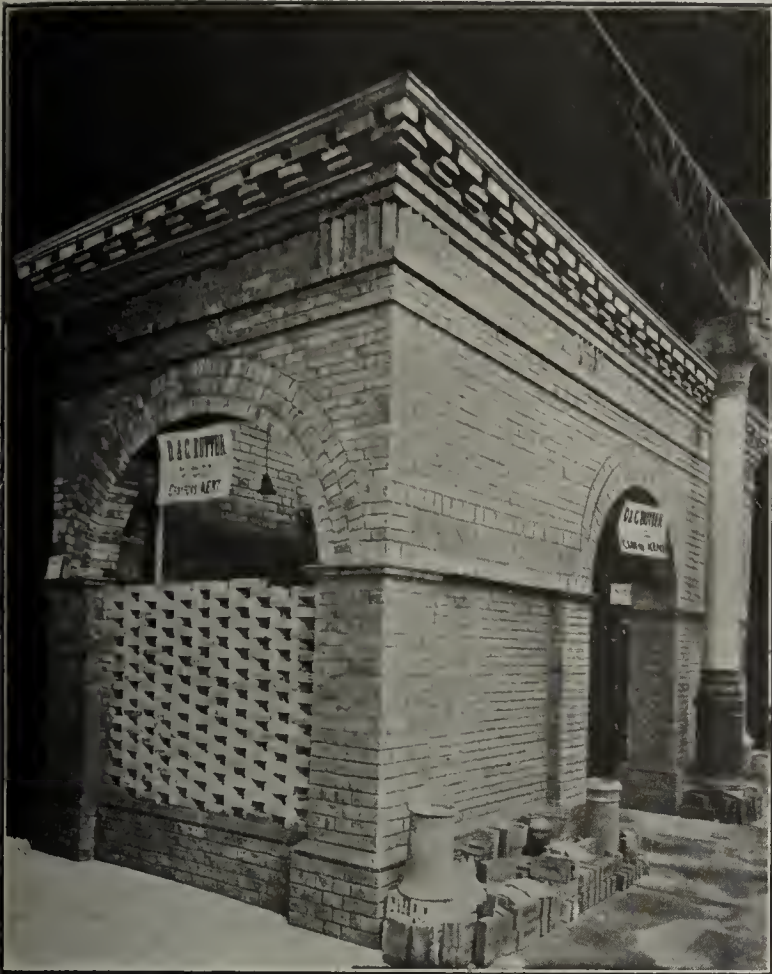


Exhibit of D. & C. Rutter, Ltd., Crayford, Eng.



Moulded Brick Chimney and Garden Pavilion.



Reinforced Brick Work That is Cheaper Than Concrete and Fire Proof.

Wednesday, April 26.—Institution of Heating and Ventilating Engineers.

Thursday, April 27.—London Master Builders' Association.

Thursday, April 27.—Institute of Builders.

Friday, April 28.—Royal Sanitary Institute.

Saturday, April 29.—Institution of Municipal Engineers. Council meeting, 3 p. m. Conference, 4 p. m.

Saturday, April 29.—Institution of Municipal and County Engineers, 2:30 p. m.

Saturday, April 29.—The Swedish Institute of Clayworkers.

Monday, May 1.—The Concrete Institute Lecture, 5:45 p. m.

Tuesday, May 2.—Institute of Clayworkers.

Wednesday, May 3.—Society of Architects.

Heretofore the British Clayworkers' Association or Institute has not indulged in formal addresses or convention papers, other than the reports of the officers, but this year a departure was made from the former custom and, in addition to the president's address, two instructive essays were submitted. Each dealt with the lessons learned from the trip made by members of the institute to Germany the previous year and proved so interesting that such papers will

Aaby Ericsson, has been prevented from being present by Parliamentary duties, and that the early spring has kept many of our members from coming to England with us, but the few of us whom have been privileged to come will, like the ancient Vikings, return home enriched with many costly treasures of recollection and instruction. I hope, however, that before the lessons which we have learned have had time to bear fruit, the members of the British Institute of Clayworkers will visit Sweden. I assure you on behalf of the Swedish Institute a most cordial welcome, and every facility for seeing our brick works and other things of interest. The whole Swedish output of brick will hardly equal the quantity made at Peterborough and Sittingbourne alone, and our works are small compared to yours, but perhaps you will be able to learn something from an inspection of same, if only in regard to what you should avoid in the manufacture of clay products.

"I desire, on behalf of the Swedish visitors, to thank your



Towers' Adamantine Clinker Paving Brick.

likely become the rule, rather than the exception, at future meetings.

The Swedish Delegation Entertained.

An incident which bodes well for the clayworking industries of Europe, inasmuch as it indicates a growing disposition to fraternize, was a visit of a delegation of clayworkers from Sweden. They were cordially welcomed by the local manufacturers and participated in the annual dinner of the British Institute of Clayworkers at the Trocadero on the evening of April 29. In response to a toast, Mr. Gustaf W. Cronquist, secretary of the Swedish Institute of Clayworkers, said:

"We, the representatives of the Swedish clayworkers, appreciate fully the courtesies being shown us, and are very glad that we are here as the guests of the British clayworkers. Our much diluted Viking blood has been made to flow more strongly and quickly by the wonderful things which we have seen exhibited at Olympia, and also by the many beautiful examples of English brick work which we have been able to observe in London. I regret very much that our president,



Interlocking Weather Proof Roofing Tile.

toastmaster, Mr. Heaton, for his kind remarks. I also wish to congratulate Mr. Montgomery on his successful exhibition, and, in conclusion, propose the health of the British clayworkers in general and Mr. Heaton and Montgomery in particular."

The British Brick and Tile Exhibits.

There were forty odd displays of clay products, most of which were of brick and tile. English brickmaking plants differ materially from those in America, where a plant, as a rule, turns out one class of ware exclusively. That is, an American plant that makes building brick usually makes nothing else, and the same is true of drain tile, hollow ware, roofing tile, and paving brick. In England, almost every plant turns out all kinds of ware. That is, common building brick, hollow building brick, drain tile, roofing tile, terra cotta finials, etc. Consequently, each British plant can exhibit a variety of ware from its own kilns. In this respect,

they have a decided advantage over their American cousins, when it comes to such an exhibition.

As may be seen by the accompanying illustrations, for which we are indebted to the British Clay-Worker, while each exhibit displays a variety of ware, there is a marked similarity in the products. The exhibits differ mainly in the design and arrangement. In nearly every instance, a small structure was erected of the materials produced, and the interior of same used for reception and office purposes, even though the floor space was small.

We reproduce these views for the purpose of affording suggestions for our readers who may be intending to exhibit their products at the Clay Products and Permanent Homes Show at the Chicago Coliseum in 1912.

One of the most pretentious displays at Olympia was that of the firm of Thomas Lawrence & Sons, whose plant is at Bracknell, Berkshire, England. Their exhibit forms the background in the view of the Swedish clayworkers. This

consisted of a group of three garden walls in Gothic style, carved statues being placed in niches formed in the walls. Vines and potted plants were arranged on and about the walls, making a most attractive exhibit.

There were several excellent displays of architectural terra cotta. That of Doulton & Co., Ltd., of London, was particularly effective. An arch of most graceful lines was the chief feature. A section of a sixty-foot column was shown, the capital of which was beautifully modeled. The surface of this ware, which has been christened Doulton Carrara, is a soft matt glaze, and is very pretty. They also exhibited in another section their line of sewer pipe and other sanitary ware.

The exhibit of Carter & Co., London, was very elaborate and commanded general attention. It consisted of terra cotta columns, arches and panels, interspersed with faience in colors, and a fine assortment of mantels and bric a brac that would delight the eye of our own Button-holer Gates, to whom we commend this display.

An exhibition out of the ordinary was that of Richard



An Effective Display of Facing Brick.

firm makes a specialty of "rubber brick," for arches and other ornamental work. The name "rubber" is appropriate in that the brick, though burned, are shaped by being rubbed on a stone, thus grinding away the surface of the brick until it is brought to the desired dimensions. The brick are soft both in texture and color, but the clay is of a character and is so carefully prepared and tempered that the brick resist the action of the elements as effectively as any ordinary hard burned brick. During the exhibition, an expert in shaping rubber brick was employed rubbing brick for arches, mantels, etc., and was usually surrounded by an attentive audience. When a considerable portion of the brick is to be cut away, a steel saw is used, after which the brick is brought to the desired shape by the rubbing process. If any reader of THE CLAY-WORKER knows of an American brick that can be handled in that way, we will be glad to hear from them.

One of the most artistic displays of brick was that of the Binfield Brick and Tile Company, Bracknell, Berkshire. It



Hand-Made Sand-Faced Red and Stained Tile.

Johnson, Clapham & Morris, of Manchester, England. It was a composite collection of building brick, hollow brick and concrete construction designed to show a method of reinforcing brick work with a wire web, by which method flat arches may be built without key brick or block, or other supports. The illustration shows that such an arch will support several tons. They claim that their system of construction is actually cheaper than concrete, and is both sound proof and damp proof. The system has proven very successful in Europe and it is their intention to introduce it to American builders, with whom they solicit correspondence.

An inconspicuous but interesting display was that made by the Towers Adamantine Clinker, Fire and Roofing Tile Company, Little Bytham, Grantham, England. Their specialty is a fine paving brick of a clean buff color. They are used chiefly for courts and areas in and about stables. We were not a little surprised when informed that these "adamantine clinkers" have been used in the United States for a number of years, the largest and most conspicuous job for which they were supplied being the Soldiers' and Sailors' Monu-

ment on Riverside drive, New York City, enough being supplied to lay 7,000 to 8,000 square feet. The brick are small (about six inches in length) with beveled edges. They are non-absorbent and excellent in quality, but might be easily reproduced by a number of our own paving brick manufacturers.

The exhibit of the Sussex Brick and Estates Company, Ltd., Warnham, Sussex, England, was of unusual merit. The small brick columns were conspicuous and the entire display was symmetrical and attractive, affording an optical demonstration that this firm is prepared to furnish ornamental brick of excellent quality.

The Hempstead Patent Brick Company, Hemel-Hempstead, Herts., England, exhibited brick columns and hollow brick walls showing the construction of fireproof floors, partitions and sliding doors, which have proven remarkably efficient in actual use. The arrangement is simple and comparatively inexpensive. Full particulars may be obtained by communicating with the firm direct.

Cement figured but little as a structural material in the exhibition. Evidently English builders do not esteem concrete very high for building purposes. Possibly this may be due in part to the fact that its use is of doubtful economy there, where good brick can be furnished at a moderate cost. English bricklayers get about one-fourth the wages that rule in America, so that construction is relatively much cheaper there.

Sand-lime brick were conspicuous by their absence. So far as we could learn that material is not used at all in England. There were a number of exhibits of pottery and art tile of English make, which were samples of the finest and most artistic production in those lines. The writer saw none of foreign manufacture.

A feature of the exhibition which seemed to attract every one was a model cottage which the builder proposes to erect in brick complete ready for occupancy, including bath and other sanitary fixtures for 220 pounds (\$1,120), by which token our readers may appreciate the fact that brick construction in England is not so expensive as in America.

As stated in the beginning, the exhibition was the most successful yet held. The general scheme is so much in favor that it has been decided to hold a similar exhibition at Manchester, England, October 10 to 21, 1911.

PORCELAIN MERGER COMPLETED.

The completion of the consolidation of nearly all of the porcelain companies in East Liverpool, O., and several in New Jersey is shown by the filing of deeds with the county recorder at Lisbon, O., providing for the transfer of the properties. The deeds are made to the General Porcelain Company, recently incorporated in New Jersey with a capitalization of \$1,000,000. The plants taken over are: The Ohio Porcelain Company, George F. Brunt Porcelain Company, Anderson Porcelain Company and Electric Porcelain Company, all of East Liverpool, and the United States Porcelain Company, of New Cumberland, W. Va., and Findlay, O.

The General Porcelain Company was expressly organized for the purpose of becoming the holding company. It is understood that the combination was made in order to protect manufacturers from price-cutting on standard articles.

Officers of the company are: President, J. N. Parker, Boston, Mass.; vice-president, George F. Brunt, East Liverpool; secretary, Frank Milligan, New Cumberland, W. Va.; treasurer, George O. Anderson, East Liverpool; general manager, Samuel C. Dyke, East Liverpool.

The capacity of the plant at New Cumberland will be materially increased. All plants will be kept in operation, and the electric porcelain business will, it is said, be on a firmer basis hereafter.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKYARDS.



IN MAKING an examination of the records of the Bureau of Building Inspection for Philadelphia, I find a slight decrease in the estimated cost of work in this city for the month of May, as compared with the same month of last year. The estimated cost of all buildings amounts to \$4,759,085. This is a very good showing in view of the existing monetary conditions and other disturbing influences.

Almost one-half of the above amount was expended in the erection of two-story brick dwellings, 147 permits having been issued, for a total of 1,072 houses. Two-story houses are much in favor in this city as compared with flat houses and apartments, there having been issued for the latter only four permits.

The sale of bricks for the present year has fallen slightly below that of last year. There may be two reasons for the existing conditions, one being that the previous year was an exceptional one, being the largest in history, the other being a slight increase in the number of large concrete buildings erected.

There seems to be a vast amount of capital being held by our various banks and trust companies seeking investment. The inactivity in commercial enterprises limiting the amount of their financial requirements turns idle capital into other channels, such as speculation and the purchasing of properties already constructed.

Something which will shortly tend to benefit the general brick business is the completion of our Parkway and North-eastern boulevard in connection with the plans of the city beautiful. A new impetus to building operations will be given in the localities adjacent to the above. The rural and suburban localities seem to show constant improvement to the detriment of the older and built-up sections, and in this connection West Philadelphia still seems to be getting its share, notwithstanding that several years since it was considered overbuilt. With the completion of the subway and elevated lines it has taken on new life.

The brick manufacturers of this city have for sometime been endeavoring to form a business association coupling with it social qualities. The idea is for the members to meet together from time to time to talk over matters, adjust differences and make uniform prices in accordance with localities and endeavor to maintain them. The plan up to the present time has not matured owing to a few of the manufacturers refusing to join said organization. There seems to be no sound reason why these manufacturers should not join, for it was universal opinion that nothing but good could come from it. "In union there is strength." It is earnestly hoped that an association will soon be formed worthy of a city of this size.

A partnership has been formed by Frank Kelley, his son Edward, and Robert D. Hamilton, to be known as the Keystone Brick Company. They purchased the plant formerly owned by D. Charles Murtha, at Sixteenth and Butler streets, which they demolished and installed at their present works near Lawndale, Philadelphia.

James G. Doak & Co., are among those estimating on plans for a new West Philadelphia high school building to cost about \$1,000,000.

Frederick C. Michaelson will build at Fifteenth and Poplar streets an apartment house of brick and terra cotta to cost about \$45,000.

Edward Stern & Co. are about to erect an eight-story printing house to cost close to \$300,000. It will be constructed of gray brick with terra cotta and Indiana limestone trimmings.

The Y. M. C. A. is also about to commence work on its annex, which is to be known as the Elkins Memorial. The construction will be of brick and cost about \$100,000.

A QUAKER.

THE EFFECT OF PRELIMINARY HEATING TREATMENT UPON THE DRYING OF CLAYS.

By A. V. BLEININGER.

Reprint from Bulletin of the Bureau of Standards Vol. 7, No. 2.

II. General Conditions of Drying (Continued.)

(c) Shrinkage.—In a general way the conditions governing the rate of drying of clays have been indicated. As has been pointed out the true volume of the dry clay plus the volume of water required to produce plasticity is less than the resulting apparent volume of the mass. This may be due to air mechanically inclosed, to flaws in molding, and volume changes due to the action of dissolved salts upon the clay gel.

In a series of experiments the volume changes taking place on working up a number of dry clays have been measured very carefully, the results of which are compiled in Table II.

TABLE II.

Volume Changes in Working Dry Clays.

Clay.	Specific gravity of clay dried at 100° C.	Weight of dry clay, grams.	Weight of water, grams.	Volume of wet test piece, cc.	Volume of clay plus volume of water, cc.	Increase in volume in per cent of volume of test piece.
Plastic high-grade clay, Tenn.	2.440	30	12.04	24.80	24.33	1.89
High-grade plastic clay, N. J.	2.590	30	11.20	23.80	22.78	4.29
White plastic fire clay, Tex...	2.587	30	11.78	24.30	23.38	3.53
Common glacial clay, Minn...	2.464	30	11.51	23.80	23.68	0.50
Common glacial clay, Ill.....	2.599	30	19.00	21.20	20.54	3.11
Alluvial clay, very plastic, O..	2.504	30	18.46	21.50	20.44	4.93
Common glacial clay, N. Y....	2.703	30	18.41	19.70	19.51	0.96
High-grade plastic clay, Tenn.	2.585	30	13.96	26.90	25.57	4.94
Glacial clay, very plastic, N.D.	2.655	30	15.80	28.00	27.10	3.21
High-grade kaolin, England..	2.583	30	10.32	23.10	21.93	5.06

A short experimental series was also undertaken for the purpose of showing the rate at which several clays lose their residual water when subjected to conditions of decreasing vapor tensions. Five clays were made up into thoroughly homogeneous plastic pastes and placed into tarred capsules provided with tight fitting lids and weighed.

The clays thus treated in the order of their apparent plasticity and difficulty of drying are as follows:

No. 1. An impure, exceedingly plastic glacial clay from Fort Pierre, N. Dak.

No. 3. A ball clay from Whitlock, Tenn., through the Potter's Supply Company.

No. 6. A very plastic kind of fire clay from Edwards County, Texas.

No. 7. A plastic glacial clay from Albert Lea, Minn.

No. 10. A high grade English china clay, Pool No. 1.

Of each clay five such samples were prepared. Five concentrations of sulphuric acid were then made up, of which a sufficient quantity was poured into each of five desiccators. These solutions of sulphuric acid represented final vapor tensions of from 12 to 0.15 mm, at 25° C, taking the water given off by the clays into account. After weighing the closed capsules containing the clay samples, which averaged about five grams, the covers were removed and one pat of each clay placed in every desiccator. They were allowed to remain in these for 21 days when they were again weighed. The room temperature fluctuated between 21° and 26° C. It was thus possible to compare the water losses suffered by each clay for the difference in vapor tension given above by subtracting from the percentage of water at 12 mm the percentage con-

tents at the lower tensions. In this way the curves of Fig. 2 were obtained. In these only the residual water is considered, beginning with the amount of water left under a vapor tension of 12 mm to which all clays were subjected. It is at once observed that the amount of the residual water varies, being largest, 5.3 per cent., in the case of No. 1 and lowest, 0.85 per cent., for No. 10. The more plastic and "sticky" clays, therefore, show the highest water loss for the given difference in vapor tension. It is evident from this that the rate of drying at a constant temperature likewise varies for the different clays being slowest in the most plastic materials. These facts indicate not only varying amounts of plastic clay base in the different clays, but deep-seated variations in the

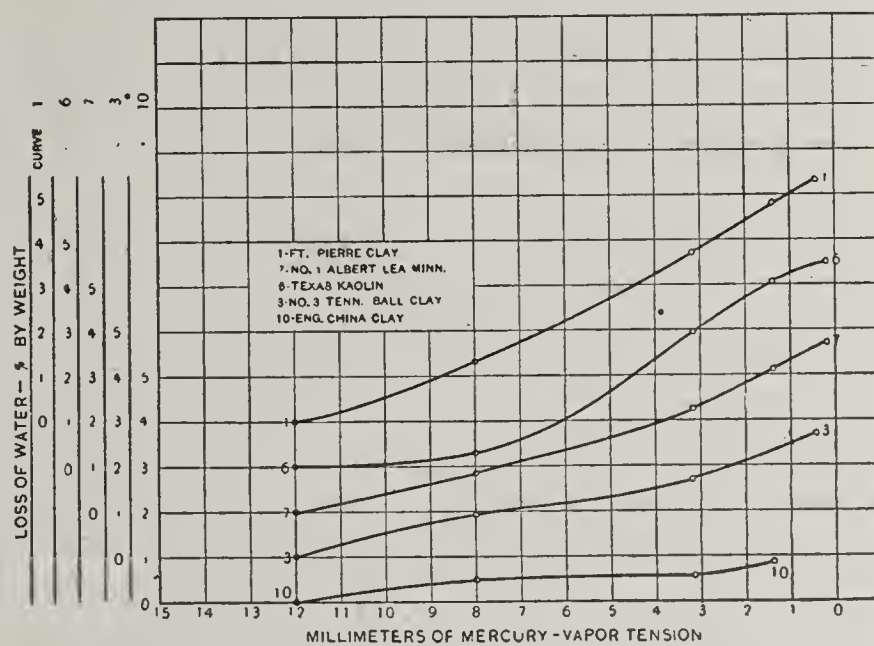


Fig. 2. Relation Between Loss of Water and Vapor Tension of Fire Clays.

micellean structure itself as well, since it is hardly probable that the larger content of residual water remaining in an impure material such as No. 1 could be attributed to a higher content of theoretical clay substance ($\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$) than is contained in the far purer clays Nos. 3, 6, and 10.

After having been replaced in the desiccators the samples were again weighed after three months and were found to possess practically the same weight. It seems thus that the conditions of equilibrium had been approached sufficiently close for the purpose of the experiment.

The drying shrinkage of a homogeneous clay body of geometrical symmetry, free to contract, is uniform in all directions. The most accurate valuation of shrinkage is obtained by means of volume measurements, though for practical work the linear dimensions in the wet and the dry state will suffice. The linear shrinkage is readily deduced from the volumetric values by the relation:

$$\% l = \frac{\sqrt[3]{v_1} - \sqrt[3]{v_2}}{\sqrt[3]{v_1}} 100$$

where v_1 and v_2 are the volumes in the wet and the dry state, respectively, and l is the linear shrinkage in terms of the wet length. If the linear contraction is desired in terms of the dry length, the denominator of course becomes $\sqrt[3]{v_2}$. The assumption commonly made that the volume shrinkage is

equal to three times the linear shrinkage is not sufficiently exact even for practical purposes. If the initial (wet) volume is assumed to be unity and a = linear shrinkage, the dry volume becomes $(1-a)^3$, or $1-3a+3a^2-a^3$. The shrinkages, therefore, $=3a-3a^2+a^3$, in which the term a^3 may be neglected, but not $3a^2$.

Owing to the fact that the amount of water used in making up the same clay is not constant, the apparent volume of a lump of a definite weight of dry clay varies somewhat even with the most painstaking manipulation. Likewise the pore space remaining in the dried material does not remain the same in each case. For this reason it has been thought advisable to express the volume shrinkage in terms of the true clay volume; i. e., weight of dry clay divided by its density in the powdered state.

In the study of the drying behavior of clays two factors are of considerable significance, viz, the amount of water required to produce a plastic mass and the shrinkage on drying. Ordinarily the more plastic and difficult drying clays require the highest amounts of water and show the greatest drying shrinkage, although there are exceptions to the rule. Some materials, owing to peculiar conditions, such as excessive fineness of the granular matter, may dry more difficultly with lower water of plasticity and shrinkage than clays with higher water content and shrinkage.

In seeking for approximate values expressing the drying behavior of a clay by means of an experimental test it is necessary to know the total amount of water required to develop plasticity, the volume shrinkage, and the time required to evaporate the shrinkage water at a constant temperature. This means that the length of the test specimen must be carefully measured at short intervals. Then, knowing the time required to reach the point at which shrinkage ceases, and the total shrinkage, an estimate may be made of the drying behavior of the clay by multiplying together the values obtained for time and shrinkage. This numerical expression is inversely proportional to the ease with which it dries.

For the purpose of illustration the following description of a similar experiment might be cited.⁸ Spheres of clay 7.11 cm in diameter were made, maintained for some time under conditions of moisture saturation in order to establish a condition of equilibrium, and then placed in an oven at a constant temperature of 60°C, regulated by means of a thermostat. The diameter of the sphere was measured from time to time by means of a vernier caliper. Thus the point was determined at which shrinkage ceased. A shale was found to possess a linear shrinkage of 4.0 per cent. in terms of the diameter in the dry state, and it lost its shrinkage water in 4 hours. The factor in this case would be $4 \times 4 = 16$. Similarly, a washed No. 2 fire clay showed a shrinkage of 6.5 per cent. and lost its shrinkage water in 5.1 hours, giving a value of $6.5 \times 5.1 = 33.15$. Finally, a fine-grained, glacial clay, very difficult to dry, possessed a shrinkage of 8.5 per cent. and ceased contracting in 8.9 hours, resulting in $8.5 \times 8.9 = 75.65$.

Since these measurements were made under strictly comparable conditions as to drying temperature, initial size, and shape (spherical) of the test pieces, the numerical values are inversely proportional to the ease with which the clays dry in practice. The actual drying behavior of these clays was well expressed by the factors, the shale being the easiest and the glacial the most difficult to dry under commercial conditions.

Practically the same results could be obtained by determining the initial diameter and weight of the test piece, weighing it at frequent intervals, and measuring the size in the dried condition. The time when the calculated weight of shrinkage water (which should be equal in volume to the volume shrinkage) has been evaporated could be readily obtained from the time-weight curve.

⁸E. F. Lines, Trans. Am. Ceram. Soc. II, 146.

The rate of drying has some influence upon the shrinkage of clays, inasmuch as rapid heating is said to result in a lower total contraction. As far as known to the writer, no experimental proof of this statement is at hand.

(To be continued.)

MILWAUKEE AND WISCONSIN BRICK NEWS.



ILNS are in blast, orders are piling up, shipments are being made as fast as cars or teams can take them away, and the outlook for the 1911 season is probably the best that Wisconsin brick and tile manufacturers have experienced in a long time. Reports from a number of the largest clayworkers in the State are to the effect that they expect to produce as many, or more, brick as during any season in the past, and that the tile production will greatly exceed the banner year of ceramic history.

It would be only natural to suppose that the progress of concrete construction has gradually produced a decline in the demand for common brick, but while this is true in one way, there is the compensating feature of an increased demand for common brick for residences, veneering, and a dozen other purposes invented or originated as the natural development of production and the law of supply and demand. The actual falling off in the demand has been much more than offset by new demands.

With the progress of sanitation and modern ideas on prevention of disease, even the smallest cities and villages are laying sewers by the wholesale. The middle class of cities is constructing many brick trunk sewers, while the extensions of the vitrified pipe sewers are increasing the demand for that class of clay product. Irrigation and drainage are two of the most important subjects in the minds of agriculturists and land owners today, and miles of pipe are being laid for these purposes.

While there are few, if any, new brick manufacturing companies springing up in Wisconsin, those existing are making the best of every opportunity afforded by the fine clay beds, the limit of which will probably not be reached for centuries to come. There seems to be an inexhaustible supply of clay, especially in northwestern and south central Wisconsin, the latter territory furnishing the best quality of cream brick known. All the available clay beds known are in the hands of established manufacturers, which doubtless accounts for the absence of new manufacturers entering the field. The foresight of the pioneers has left no known new fields to conquer.

Milwaukee jobbers and wholesalers of fancy brick have practically finished their heavy work of the present season, and report that it was the best in history, not excepting even the banner year of 1907, before the storm came. An indication of the possible demand for clay products in Milwaukee is found in the record of the building inspector's office. During May the aggregate total of permits issued was in excess of \$2,350,000. In May, 1907, the total was \$2,475,000, but this included the permit for the sixteen-story Majestic building, which carried a stated value of \$1,700,000. It is easy to see that the 1911 record is by far the better of the two.

Concerns of importance such as the Pennsylvania Coal and Supply Company, Caswell block; Ricketson & Schwartz, University building; Milwaukee Building Supply Company, 1006 Pabst building; Chicago Brick and Supply Company, 69 Loan and Trust building; Standard Brick Company, 496 Clement street, and M. Develaar, Son & Co., 153 Pryor avenue, all in Milwaukee, state that they have never known such a demand as this year. They are preparing for another record-breaker in 1912 and are already at work on sounding proposed work and lining up prospects.

The Black Hawk Clay Manufacturing Company, of Davenport, Iowa, will furnish the gold bronze pressed brick selected by the Bushey Brothers, at Appleton, Wis., for the front of

their new business college building. The company will also furnish coffee-brown pressed brick for embellishments. The building will be one of the handsomest in Appleton.

The city of Marinette, Wis., will build an extension to its trunk sewer at a cost of \$9,000 this summer. It is a 36-inch brick sewer.

A BADGER.

Written for THE CLAY-WORKER.

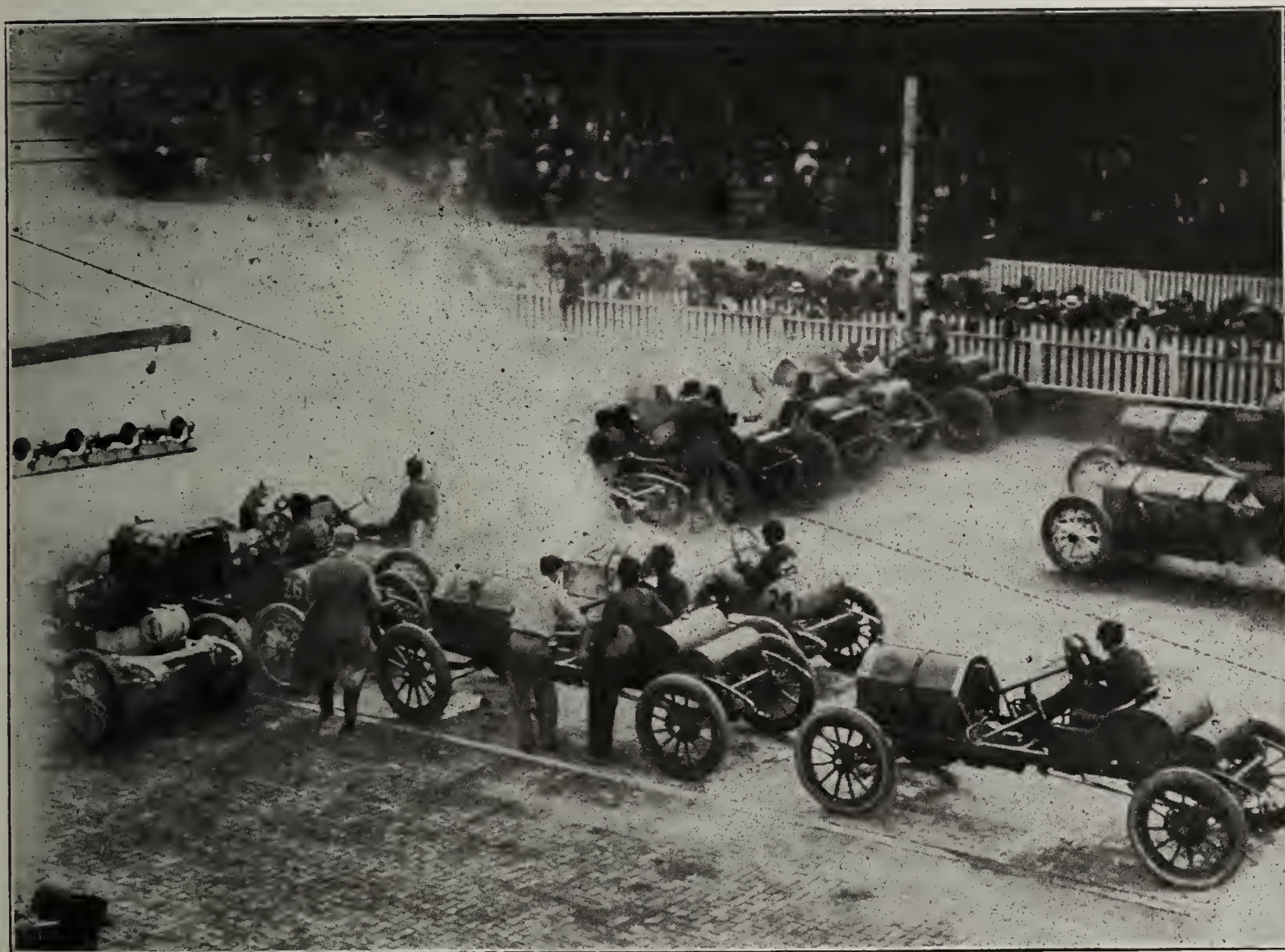
BRICK PAVED SPEEDWAY THE BEST.

THE RECENT automobile long-distance contest at the famous Indianapolis brick paved speedway, during which a number of world's records were broken, proved again the superiority of brick pavements over all others. No other paving material could have withstood the terrible wearing and tearing grind of a 500-mile race in which over forty cars participated, and during which an average

Written for THE CLAY-WORKER.

GOOD ROADS CONVENTION AT BIRMINGHAM.

THE National Good Roads Congress convened, according to promise and program, in the city of Birmingham, May 23, and continued its program of sessions and exercises up to and including Friday evening, the 26th. The papers and addresses might properly be divided into three classes; those which developed the inspiration and enthusiasm of the subject, that which related to the way and means with which good roads are to be possible, and manner and method of construction out of which must come the satisfaction in use of roads, as well as their economy of maintenance. These various phases, all of which are proper for the consideration of a convention in the interest of highways, were ably dealt with. Jesse Taylor, the Secretary of the Ohio Good Roads Federation, should be credited with creating the enthusiasm



The Start of a Long Distance Race on Indianapolis Brick Paved Motor Speedway.

speed of 75 miles an hour was maintained by the winning Marmon. The brick pavement not only stood the test, but was, if anything, smoother and better at the finish of the race than it was at the beginning. This is true of every properly constructed brick street or roadway.

The merit of the Indianapolis speedway is due to a combination of causes, chief of which is the use of good material and proper construction. It was built according to No. 1 specifications of the National Paving Brick Manufacturers' Association. Any street or roadway so paved will prove most satisfactory no matter what the character of traffic. If the reader is interested in the improvement of any street or highway he is invited to familiarize himself with these specifications, a copy of which will be furnished gratis on application to the National Paving Brick Manufacturers' Association, Will P. Blair, Secretary, Board of Locomotive Engineers Building, Cleveland, Ohio.

of the convention, inspiring all with a renewed interest and determination to do everything possible to make the roads of this country equal to the demands now made for their use. The honored Alabama Senator, John H. Bankhead, who is perhaps the ablest advocate of national aid for good road construction in the Congress, made the convincing speech of the congress. The entire delegation by a rising vote endorsed his plan of national aid, which is now pending in Congress, and which is believed by many will soon become a law.

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, delivered an address on manner and method of construction, which proved of decided interest to the students of road building, who now are greatly concerned in the economic questions of road building. Many felt that the enthusiasm which now engages the country's interest in road building, may lag in the nearby future, unless roads are built with a view of lessening maintenance charges, thus as-

asuring good roads with the greatest economy. His address was illustrated by stereopticon views, comparing the result of wasteful expenditure in road building with those built for permanency. Vitrified brick roadway was certainly the choice from the evidence submitted by Mr. Blair.

The convention was a success, and yet there was a feeling on the part of many attending that the different organizations of this character, which are doing so much to interest the general public in road building, should concentrate their efforts through one strong organization, and many felt that this should be brought about at once. Many look with favor upon the organization known as "The American Good Roads Association" that has for its present president, Logan Waller Page, the present director of the office of public roads in the Department of Agriculture.

WOMEN WIN IN FIGHT FOR BRICK PAVEMENTS.

William Rockefeller and the Women's Civic League won a victory in North Tarrytown, N. J., last month, when the proposition to raise \$144,000 for bricked streets was carried by a vote of 200 for to \$9 against.

Mr. Rockefeller agreed to give \$10,000 toward bricking Broadway and also spend \$15,000 for a Washington Irving memorial bridge.

Much of the credit of the victory for the brick pavement, however, belongs to the women, for they polled seventy-five votes. The Civic League workers were busy all day getting out the votes. When the members of the league learned that one of the neighbors was working against the proposition they put on their best dresses and brought twelve women to the polls.

That wealthy residents living along the Hudson from Hastings to Scarborough intend to use their influence and money to have the old Post Road bricked between those points became known to-day. William Rockefeller started the improvement when he gave \$10,000 to the town of Mount Pleasant to have Broadway bricked from the North Tarrytown line to Scarborough.

Frank Vanderlip has agreed to take up the matter with the village of Briarcliff and have it brick Broadway within its limits. Tarrytown, Irvington and Dobbs Ferry will be taken up later. Hastings is now at work bricking Broadway.

While the scheme originated with William Rockefeller, he has the support of the members of the Sleepy Hollow Country club, most of whom are wealthy land owners.

MANUFACTURERS OF "NEW SOUTH" BRICK MACHINERY BUSY.

J. C. Steele & Sons, Statesville, N. C., manufacturers of brickmaking machinery and appliances, write that they have been very busy this season, having all the orders they could take care of. They have recently made shipment of a 40,000 capacity outfit to Barbourville Brick and Tile Company, Barbourville, Ky., replacing a smaller outfit. They have also made shipment of an outfit of 25,000 daily capacity to Major J. T. Gooch, Weldon, N. C.; also a 40,000 per day capacity outfit to Altavista Brick Company, Altavista, Va., an automatic end cutting table to Guignard Brick Works, Columbia, S. C., a 25,000 capacity per day outfit to the Brick and Lumber Company, Wadesboro, N. C., a 15,000 capacity per day outfit to Washington Long, Rockingham, N. C., a complete outfit of 40,000 capacity per day, including the Steele system of drying, to the Bourne Lumber Company, Savannah, Ga.; the New Berne Collegiate and Industrial Institute, New Berne, N. C., a 25,000 capacity per day outfit; the Davenport Brick and Tile Company, Davenport, Okla., a complete outfit of 75,000 capacity per day; the Georgia Brick Company, Athens, Ga., a 40,000 per day capacity outfit; also, the Winfield Brick Works, Winfield, La., an outfit of 25,000 per day capacity; the Sumter Brick Works, Sumter, S. C., an automatic cutter of 75,000 daily capacity. They have also shipped Steele system of drying to the Selma Brick Company,

Selma, N. C.; H. Weill & Bro., Goldsboro, N. C.; Farish Brick Company, Reynolds, Ga.; Victor Cushwa & Son, Williamsport, Md.; Ogeechee River Brick Company, Rocky Ford, Ga.; Roger Moore's Sons Company, Wilmington, N. C., and the Easton Brick and Tile Company, Easton, Md., together with numerous other shipments.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE BUILDING situation in San Francisco is decidedly satisfactory at present, and while the future is rather uncertain the general indications seem to be favorable. Last month's building record in this city was \$1,925,847, a slight increase over April, but still somewhat below the same month of last year. In Oakland, the total of \$570,507 is considerably above the average for that city, though very much below the March figure. Building values in Los Angeles are about up to the recent average, falling only a little below the total of San Francisco.

For some reason conditions are more satisfactory to brick manufacturers than the official values would indicate, and one reason is probably the fact that brick is finally winning out in the competition with other materials. Whatever the cause, May was about the best month in the last two years, and dealers feel fairly confident of continued activity. So far the great bulk of the business has consisted of small jobs, but figures are being taken on some of the largest jobs ever let in this territory. The number of such prospective contracts is small, however, and it is expected that most of the year's business will be of a rather unimportant nature. So far no decision has been made on the site of the exposition, and the brick men still look for an increased demand when the site is announced.

The common brick market remains in excellent shape, and the manufacturers look for a gradual improvement. The price per thousand is still \$6.75, but some brick have recently been sold as high as \$7, and there is little doubt that this will be the prevailing price within a short time. The operating kilns in the territory tributary to San Francisco are practically all producing at full capacity, and the amount delivered and absorbed in the local market has been unusually large, while a large part of the output is sold up for some time in advance of production. There are, it is true, some kilns which are not being operated, but it is not believed any serious competition will come from this source. The present price in San Francisco will not net the manufacturers much over \$5 per thousand at kilns outside the city, and this is hardly a sufficient inducement to cause the opening of any more kilns. It is also believed that the demand in other quarters is still sufficient to prevent any great surplus from outside plants being dumped in this market.

The figures received on the Oakland city hall were higher than the estimate, and the outcome is still in doubt. The Mayor, however, is very anxious to have the plans carried out on the original scale, and efforts will probably be made to get the necessary funds, though it may be some time before the contract is let. The structure will require several million common brick and partition tile, but the principal work will be the terra cotta facing for the upper stories, the lower part being of stone. There is naturally considerable competition for the terra cotta job. New figures are being taken on the new Masonic Temple, which may be let at any time, and an important terra cotta job for the Southern Pacific station in Oakland is to be let within a week or two.

The United Materials Company has booked an unusually large lot of orders for the Los Angeles Pressed Brick Company in the last few weeks, one of the most important jobs being Spanish roof tile for sixteen buildings at the Presidio. This is believed to be one of the largest roof tile orders ever placed on the Coast.

The Steiger Terra Cotta and Pottery Works of this city has found May by far the best month so far this season, and

while nothing of individual importance is noted the plant is extremely busy. The company is making heavy shipments of sewer pipe to various towns in the Sacramento and San Joaquin valley.

Mr. Edwards, of the Carquinez Brick Company, refers to last month as the biggest in point of production that the company has ever had.

W. W. Dennis, of the McNear Brick Agency, says the plant is now running at full capacity, and the output is being disposed of here without difficulty.

A great deal of favorable comment has been made on the new First Church of Christ, Scientist, in this city, faced with polychrome terra cotta and rustic brick made by N. Clark & Sons.

The Lone Fire Brick Company is starting the season with very favorable prospects, having taken contracts covering about half its output for the year. The first kiln, opened a few weeks ago, has shown the new mixture to be a great success, and from now on the plant will be kept in full operation.

There seems to be a steady increase in the demand for fire brick all over California, and even in Oregon and Washington, and material of local make is meeting with more favor than ever. The oil interests will require an unusually large quantity of material this season, as the Standard Oil Company is about to commence work on a large refining plant in southern California, and is making extensive improvements to the works at Richmond, Cal., while several other oil companies are putting in refineries and asphalt plants in the southern part of the state.

The Livermore Fire Brick Company, of Livermore, Cal., is preparing to increase the scope of its operations materially, and to this end will hold a meeting of stockholders July 18, to increase the capitalization from \$10,000 to \$150,000.

The California Pressed Brick Company, of Oakland, with a large plant near Niles, Cal., has been tied up for several weeks on account of trouble with the employees, the foreman and a number of men having left. The rest of the hands returned to work about a week ago, and are cleaning up the business on hand, but it is understood that the plant will not start any new work for some time.

The San Luis Brick Company, of San Luis Obispo, Cal., has had its equipment overhauled, and a new screen installed, and started work for the season late last month. It is producing about 25,000 per day.

James Tiffany, of Trenton, N. J., has been investigating the feasibility of starting a new pottery plant at Napa, Cal.

The Silica Brick Company's large plant at Sacramento, Cal., is now approaching completion, the kilns being now under construction, and it is expected that actual production will be started within a few weeks.

The Pacific Brick Company, San Pedro, Cal., is now turning out about 40,000 brick a day, and finds an active demand in that vicinity.

The West Side Brick Company has been at work for some time on a plant of moderate capacity at Pentland Junction, in the Kern county oil fields, and will have its material on the market very soon. This district is at some distance from any of the older brick plants, and as there is considerable building going on the company expects to find a good demand for its product.

E. Gurney and Otis Riser have purchased the old Catching brickyard at Forest Grove, Ore., and have incorporated under the name of the Forest Grove Brick and Tile Company. They expect to increase the variety of materials produced.

J. Parker, formerly of Colorado, has leased the Long Beach Brick Works at Long Beach, Cal., and is starting up the works after a shut-down of several weeks. G. M. LaShall, former manager of this establishment, is now at the head of a new firm known as the Contractors' Supply Company, which has started up a general retail material business at the same place.

The Pacific Sewer Pipe Company, of Los Angeles, has taken a large contract for sewer work at San Diego, Cal.

N. Clark & Sons are showing samples of quite a lot of new colors and shades of terra cotta, for which they are now ready to take orders.

Written for THE CLAY-WORKER.

SHALE BRICK INDUSTRY OF BIRMINGHAM.



HIDE THE EYES of the world and the minds of most of Birminghamians have been centered upon the wonderful resources of the iron and coal industries in the district, many of the other potentialities of the mineral belt have been overlooked.

But with the new spirit which census reports and activities of great corporations have aroused, citizens of Birmingham are now beginning to look about them for things other than coal and iron, and among a number of other discoveries of great value, such as the development of the gas fields and the manufacture of the by-products of the mineral deposits, are the enormous and valuable deposits of shale overlying the coal measures.

At present there is something over \$600,000 invested in shale paving brick plants and the industry is still in its infancy, and the possibilities for the development of the industry are so amazing and bright that it may be well looked upon as one of the substantial industries of the future Birmingham.

It is perhaps little known that in Jefferson county over 100,000 shale paving bricks are manufactured daily; these bricks exactly similar to those which make the Indianapolis motor speedway famous, and which are used in the roads around Cleveland, Ohio, are regarded as the most perfect in the country. While the investments in coal and iron have overshadowed the smaller industries which go to make up the diversified manufacturing, so essential to the welfare of the district, men have failed to see that the shale paving brick industry is not only to furnish its product to Birmingham, but to all other Southern cities which will outstrip all other cities of other sections in the next ten years in municipal improvements.

But the shale brick industry differs from many others in that it is strictly a home industry, owned and operated by Birmingham men. Practically every dollar spent in brick pavement anywhere in the South gets to Birmingham, for the majority of the material is supplied by the Birmingham industry. Nothing goes into the manufacture of paving brick but home material and home labor.

The products are purchased by all the larger cities west to the Mississippi river, east to the Atlantic coast, south to the Gulf coast and north to the Mason and Dixon line, several shipments having been made to Baltimore, Md., and a number of scattered shipments west of the Mississippi. The geographical situation of Birmingham with reference to the Mexican and Cuban ports is of the utmost importance to this district the realization of which will be strikingly evident in the near future, and more so, upon the opening of the Panama Canal. While the export trade is of little extent yet, there have been several shipments made to Mexico and Cuba, and this without making special efforts to get the contracts.

The government has used Birmingham-made paving brick for roadways in Charleston, S. C.; Fort DeSota, Fla., and Fort Morgan, Ala., while cities like Savannah, Ga.; Tampa, Fla.; Jacksonville, Fla.; Mobile, Ala.; Montgomery, Ala.; Pensacola, Fla.; Memphis, Tenn.; Atlanta, Ga., and New Orleans, La., have all used quantities of the Birmingham-made-shale paving brick and incidentally have all contributed to the upbuilding of the industry, and to estimate the enormous quantities that Southern cities of all sizes, will consume in the next ten years, when the greatest municipal improvements will be introduced, will show to what extent the industry will grow and the importance in the manufacturing life of this district it will attain.

An idea of the extent to which the industry has reached even at this time is well illustrated by the reply made by the foreman of one of the shale-paving brick companies, who upon being asked about how many skyscrapers could be built from

the bricks produced from one of the pits in the past ten years, replied after thinking it over, "Oh I guess about one hundred."

The enormous deposits of carboniferous shales in such close proximity to the coal enables the companies to mine and deliver to the machinery all their raw material at a minimum cost of handling. Immediately beneath the shale lies a quantity of coal in a six-foot vein, which is delivered to the power plant at Coaldale, Ala., has a capacity of twelve million bricks there is any place in the South where this double advantage is to be had for such an industry.

The first paving brick made in Birmingham district was manufactured by John W. Sibley, of Coaldale, one mile east of Warrior, on the Louisville & Nashville railroad, in the year 1898. This plant was later consolidated with two others owned by W. M. and T. H. Lasley, of Chattanooga, at Robins, Tenn., and Chihowie, W. Va. These plants are now being operated by the Southern Clay Manufacturing Company. The plant at Coaldale, Ala., has a capacity of twelve million bricks a year, backed by an unlimited supply of shale and an enormous supply of coal.

A few years after the establishment of the plant at Coaldale, Capt. W. H. Graves, one of Birmingham's most substantial citizens, was told by a visiting friend who was looking over the mineral lands owned by Captain Graves, that his shale deposit over the coal measures was worth many times more than the coal vein underneath. After some investigation Captain Graves was induced to build a modern, up-to-date brick plant at the mouth of the mines, outputting the coal from the mines in front of the kiln. Since then the plant has flourished, and is now looked upon as one of the largest in the South.

In 1906 the Copeland-Inglis Shale Paving Brick Company was organized, and bought 400 acres of mineral lands on the main line of the Seaboard Air Line Railroad, eleven miles from Birmingham, where they now operate one of the largest, most modern and up-to-date brick plants in this part of the country.

A. L. A.

HEARD IN NEW ENGLAND.

THE BRICK YARDS at Bangor, Me., are in a fair way to do more business than ever before. Many business blocks will have to be erected following the great fire, and there will be many residences constructed of brick. The average output of the yards in and about the city has been 10,000,000. This year it will reach 15,000,000 at least, and may go even higher.

Running from Concord Junction in Massachusetts to Nashua, N. H., a distance of some 25 miles, several dismantled brick yards are passed. The inhabitants of this district are largely farmers, or villagers, and when asked why these yards are no longer in operation they ascribe it to the indisposition of manufacturers to take a chance on the market. Of course these yards are not extensive. Probably the largest turned out no more than a few hundred thousand in a year. Yet they might have developed into important enterprises if business conditions had been different.

The building prospects up and down the Connecticut Valley are more promising this year than ever before. Holyoke manufacturers expect to send out from 15,000,000 to 20,000,000 brick this season. The Dwight Manufacturing Company at Chicopee, one of the largest cotton manufacturers there, will use 7,000,000 in extensions and improvements about their plant. Three new mills will shortly be erected at Holyoke. William Skinner & Sons, Goetz Silk Manufacturing Company, and the Crocker-McElwain Paper Company will, it is expected, all erect new plants this season, and brick will likely constitute the principal portion of the building material. To accommodate the influx of operators which will be employed in these mills several large apartment houses will be erected. Louis La France is preparing to build some of the most modern apartment houses in Holyoke.

HIRAM.

AN APPEAL TO THE BRICKMAKERS OF THE COUNTRY.

REALIZING THE importance of the work of the Ohio Face Brick Association in obtaining the reduced express rate on brick, and the great benefit that brickmakers generally will derive from same, the Executive Committee of the Building Brick Association, at their recent meeting, decided to appeal to the brickmakers of the country to help defray the expense incurred in connection with the work, and the following circular is being mailed to the trade:

RE SAVING IN EXPRESS RATES.

May 25, 1911.

Gentlemen—If a perfectly reputable and reliable man had walked into your office a year ago and said:

"Without the slightest effort or risk on your part I will save you one-half of your express bills from this time on, provided you will give me half the savings for the first year," you would probably have said: "All right! go head."

The Ohio Face Brick Manufacturers' Association quietly and earnestly took up this question about a year ago and have accomplished for you exactly the above result, as fully set forth in the accompanying circular.

This was a great undertaking and has brought forth glorious results, but it has involved the Ohio Association in an expenditure of some \$1,500.00 which is far beyond their present resources.

At a meeting of this committee held in Cleveland, May 16th, the propriety of asking the Brickmakers of the country for a contribution to help defray this expense, which has been incurred for the benefit of all, was discussed, and in accordance with a unanimous vote there taken, we now desire to bring this matter to your attention.

The results obtained by this little body of determined men will greatly benefit every brickmaker in the United States who has occasion to send any sample brick by express, and we believe that an appeal to your generosity, not to mention your duty, will bring forth a liberal contribution, as we feel sure that none will care to accept the benefits without "chipping in" on the cost.

We do not suggest, however, that you contribute half of your savings; will you roughly estimate about how much you are paying a year for express bills and contribute 10 per cent. of the saving for one year? This is equivalent to about 5 per cent. of your present annual express bills.

Please send checks to L. G. Kilbourne, Treasurer, Ohio Face Brick Manufacturers' Association, Columbus, Ohio.

Very truly yours,

FRANK W. BUTTERWORTH,
WILLIAM HANLEY,
J. PARKER B. FISKE,
R. L. QUEISSER,
RALPH SIMPKINS,

Executive Committee,

The Building Brick Association of America.

1301 Flatiron Building, New York City.

FUNNY IF TRUE.

Theodore C. Jacoby, of the Hydraulic Press Brick Company, St. Louis, according to the local press, has a grievance. His company owns a plant and yard near Euclid avenue on Guinotte.

When it came time to pave the adjoining streets the company was the majority property owner and had the right to say what paving should be used. The company was partial to brick, inasmuch as it would pay the cost of itself, and so the city officials ordered it paved with brick.

When the bids were opened, the discovery was made that an outside concern had "put one over" on the Hydraulic Company and got the contract at a lower figure than that named by the concern itself. So Jacoby's company will pay its own money for its own paving to somebody else while it makes brick within a few yards of the work.

Sweeping Reduction in Express Rates

VICTORY FOR THE OHIO FACE BRICK MANUFACTURERS' ASSOCIATION

For the Benefit of Every Brickmaker in the United States

WE are in receipt of a letter from President J. M. Adams of the above Association advising us that their bill of complaint to the Interstate Commerce Commission seeking to compel the Express Companies to re-establish reasonable rates on sample brick has received favorable action and that the Commission has reported and ruled substantially as follows:

That the complainant's members make extensive use of the Express Companies for the transportation of sample brick over a wide range of territory; that the rates were increased in 1903 from merchandise pound rates to merchandise graduated rates, and that a shipment weighing twelve pounds from Columbus, Ohio, to Chicago cost 35 cents on May 24, 1902, and on November 10, 1910, a shipment of the same weight between the same points cost 60 cents, an increase of over 71 per cent.; that the brickmakers are almost wholly dependent upon the Express Companies for the transportation of their samples; they cannot be sent by mail because one brick exceeds the weight limit, nor can they be sent by freight because in most instances time is an important factor; that the Express Companies have no serious competition for this business, and that they derive a very considerable revenue therefrom.

The Commission rules as follows:

"FOR THE TRANSPORTATION OF SAMPLE BRICK THE EXPRESS COMPANIES ASSESS MERCHANDISE GRADUATED CHARGES. DUE TO THE PECULIARLY FAVORABLE CHARACTERISTICS OF THIS TRAFFIC FROM A TRANSPORTATION STANDPOINT, THE CHARGES NOW ASSESSED ARE FOUND TO BE UNJUST AND UNREASONABLE IN SO FAR AS THEY EXCEED MERCHANDISE POUND RATES WITH A MINIMUM CHARGE OF THIRTY-FIVE CENTS."

The Commission further rules substantially as follows:

That the defendants are required to establish on or before the 1st day of June, 1911, and to maintain for a period of two years thereafter, rates which shall not exceed merchandise pound rates with a minimum charge not in excess of 35 cents.

THIS MEANS A SAVING, TO EVERY BRICKMAKER IN THE
UNITED STATES, OF ABOUT 50% IN HIS EXPRESS BILLS

A TOTAL ANNUAL SAVING OF \$50,000

All secured through efforts of the Ohio Manufacturers working together for mutual good.

A member of the B. B. A. recently made one shipment of Samples on which the saving under the new rates would have been over \$80.00. This ought to open the eyes of every brickmaker to the value of

CONCERTED EFFORT

That is what the Building Brick Association of America stands for—to promote the use of Building Brick and the General Welfare of the Brick business—and we are making good!

How much longer can you afford to "PLUG ALONG ALONE" with everyone against you? Why not join the B. B. A., and get the benefit of its help, the help of the largest and most progressive men in the brick business, banded together to promote their general interests?

NOW IS THE TIME

The Building Brick Association of America
1301 Flatiron Building. NEW YORK CITY

If you are eligible for membership you ought also to

JOIN THE OHIO ASSOCIATION



Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



HOME BUILDING AND the use of brick received considerable impetus in Cleveland and vicinity as the result of the holding of the Ideal Home show here for two weeks beginning May 27th, and ending June 10th. The show was devoted to an exposition of materials used in home building as well as other apparatus and equipment for the modern home.

The ideal home itself, erected in the middle of the big Central armory, was constructed of hollow interlocking tile of burned clay finished with strucco. Fifty masons rushed up the walls in a short space of time, the red Spanish tile roof was put on and the complete house finished in less than a week's time. The home attracted a great deal of attention during the exhibition and much interest was shown in the use of hollow clay tile as a building material.

In the Tudor village, an annex building to the main armory, Barkwell & Bradley showed an attractive type of hollow clay tile, which it has recently patented. This was presented in built-up walls, showing the different uses to which the brick could be put, especially when combined with facing brick for the outside surface. The show was voted a great success, and it is believed that many inspirations have been imparted to those who will build homes within the next few months.

The volume of brick building this year in Cleveland is slightly above the average. While no large jobs of importance have been announced during the past month, a number of projects which have been planned have been started and are now under way. These include the two Y. M. C. A. buildings for the East and West Sides, costing about \$100,000 apiece, and the foundations for the Central Y. M. C. A. building, which is to cost about \$400,000 completed.

One of the important projects which was made known during the past month is a memorial building for the College for Women. The building, which is to cost \$180,000, is the gift of Samuel Mather, a Cleveland millionaire, to the college in memory of his wife. It is to be a large structure with a tower sixty feet square at one end. A special brown red brick will be used for the structure with red trimmings. Architect Charles F. Schweinfurth has prepared the plans and is superintending the construction. The mason work has been let to the W. B. McAllister Company.

Everything is working along favorably toward the erection of the big \$4,000,000 interurban depot, hotel and office building at the southwest corner of the Public Square by Cleveland and Chicago capitalists from plans by Daniel H. Burnham, of Chicago. About half of the bonds have been taken by Cleveland banks, outside investors agreeing to supply the balance of the money. The buildings will occupy about two-thirds of a city block and will be of brick and white tile, being fireproof throughout.

The Hunkin Conkey Construction Company has been awarded the foundations for the twelve-story hotel to be erected at Euclid avenue and East Twelfth street for E. M. Statler and others. The foundations will be of brick, on which the steel work will rest. The building as planned by the architects, George B. Post & Sons, will cost \$2,000,000 complete, the furnishings costing another \$500,000. Contracts for the superstructure will be let shortly. The exterior is to be of brick and white glazed terra cotta.

A large number of apartment buildings are being erected in Cleveland this year. One of the newest is a sixteen-suite structure for J. R. McGinness, on East Seventy-ninth street near Hough avenue, by Huberty, Summerell & Gillman, architects and engineers. It is to cost about \$45,000, when completed October 1 next. F. C. Marlitz has the contract for the mason work. The same architects are busy erecting another

apartment building, three stories in height, for D. Rubin, on East Sixty-third street. A. Schultz & Son are the contractors.

A four-story brick and steel factory building is being erected from plans by the Osborn Engineering Company at Chestnut avenue and East Thirtieth street, for the K. W. Ignation Company. It is to be 75 by 168 feet in size and modern throughout. The general contract for the work has been let to the Hunkin Conkey Construction Company.

J. Milton Dyer, architect, of this city, has been awarded the contract from a field of seventeen competitors for a United States treasury building at Pine and Sansome streets, San Francisco, to cost about \$500,000. It will be two full stories in height, of classic design, stone and brick being used in its construction throughout. The building will be used for the storing of money to be distributed to banks and to government agencies, such as the army and navy.

A five-story brick building has been started for the Y. W. C. A. at Youngstown, Ohio, and is to be completed within the next six months. It will cost \$200,000, the money having been raised for the purpose by popular subscription. The building, which will be one of the finest of its kind in the country is to be equipped with dining rooms, dormitories, gymnasium and all other facilities used in buildings of its character.

A building permit was issued during the past week for the \$400,000 building to be known as the West Side Technical High School. It will be a duplicate in many respects to the East Side school of the same nature, and will be ready for occupancy early next spring. It will be built of red face brick and steel. Many of the rooms will be finished in white enamel brick, particularly the shops.

Road building work is progressing rapidly in and about Cleveland, many thousands of dollars being spent for this purpose. The city of Cleveland has under contract nearly thirty miles of brick pavement, while Cuyahoga county is spending nearly \$1,000,000 this year for a similar purpose. The roads are costing slightly more this year than usual, but this is in no way interfering with the progress of the work. It is hoped that in two or three years' time that every roadway within the boundaries of Cuyahoga county, with the exception of some isolated streets in Cleveland, will be paved with brick on a concrete base.

Hugh Blair, of Cleveland, has been re-elected president of the Ohio Bricklayers, Masons and Plasterers' Association. The association at its convention in Lorain, O., during the past month recommended the establishing of a home for aged members.

During the past month a meeting of the executive committee of the Building Brick Association of America was held in Cleveland at the Hollenden hotel. Those present were President R. L. Queisser, of the Queisser-Bliss Company, of Cleveland; Secretary J. Parker B. Fiske, of Fiske & Co., of New York; Ralph Simpkins, of the Hydraulic Press Brick Company, of St. Louis; F. W. Butterworth, of the Western Brick Company, of Danville, Ill., and William Hanley, of the Bradford Press Brick Company, of Bradford, Pa. A number of matters pertaining to the work of the association were discussed before an adjournment was taken. Among other things a determined campaign is to be inaugurated to build up the membership of the organization and to impress upon members the need of publicity for the brick business.

BUCKEYE.

BRICKS THEY USE IN LONDON.

Something less than a century ago there used to be a tax on building bricks in England, and in order to evade it the bricks were made of larger and larger sizes. These were used for cellars and other concealed places. To stop this fraud an act was passed in the reign of George III fixing the legal size of bricks. Early in Queen Victoria's reign the tax was taken off, and bricks may now be legally made of any size whatever. But any change from the standard size would bring about great inconvenience. All calculations are made for building on this standard size, and the London-building acts have practically fixed it at 9 by 4½ by 3 for all time. —London Standard.

A NEW VENTILATING DEVICE.

Blows in—Exhausts Out—Reversible.

THE necessity for pure air is being more fully and more widely recognized every day.

There is, therefore, no need for the manufacturers of ventilating devices to "create a demand"—it already exists, and their problem is simply to convince their clientele that they are prepared to meet this demand in a manner calculated to give best results with minimum expense.

The new and unique ventilating outfit illustrated in Fig. 1 is designed for placing simply and inexpensively into top-sashes of windows, transoms or ends of skylight. Outfit includes 12½-inch motor driven "Ventura" fan, cast-iron housing, cut worm-gear reversing mechanism, rod, bearing and handle, and is furnished complete as illustrated Fig. 1, ready for connection to plug or ordinary lamp socket.

Fig. 2 illustrates outfit adjusted for supplying fresh outdoor air.

The ingenious reversing mechanism makes it possible to discharge the air straight ahead, upward toward the ceiling, downward toward the floor, or at any intermediate location. Pure, invigorating air introduced under slight pressure, can be supplied without direct draft or directly onto occupants at will.

A simple turn of the hand wheel (Fig. 1) reverses the outfit so that it exhausts from the room, thus providing for absolute ventilation by complete air change.



Fig. 1.

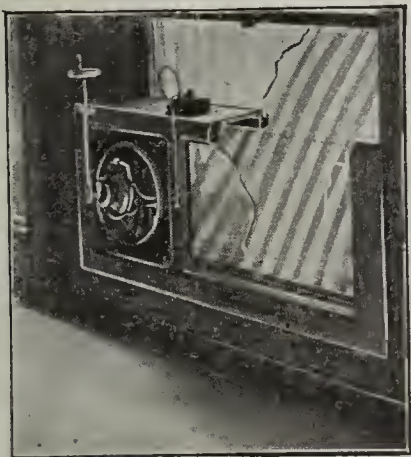


Fig. 2.

Figs. 2 and 3 illustrate the simplicity of installation. To conserve the lighting effect, and add to the appearance, the filler which accommodates the ventilating set can be glazed as shown in Fig. 3.

The electrical connection can be made from nearby plug or ordinary lamp socket.

Any carpenter or millwright can install the outfit at small cost.

This device, known as the "Ventura" Electric Ventilating Set, is being marketed by the American Blower Company, Detroit, Michigan, from whom further information can be obtained.

MAKE KANSAS CLAY VALUABLE.

Plans have been completed for the new clayworking laboratory at the Kansas state university at Lawrence, Kans., and as soon as the appropriation is available the work on the building will begin. The legislature appropriated \$7,500 and the building will be three stories high, 24 x 60 feet. The first floor will contain the dryers, kilns and clayworking machinery. The second floor will contain the laboratories and library, a microscopic room and two physical laboratories. The third floor will be used for a storeroom.

Kansas has immense deposits of clay that are utilized now only for brickmaking. The clayworking laboratories have already developed that there are Kansas clay deposits the

equal of any in this country for pottery and developments indicate that there are clays valuable for terra cotta. The clayworking laboratories, when completed, will begin the work of determining what each deposit of clay in the state is good for.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



THE SAME CONDITIONS which maintained last month have continued during the last twenty or thirty days, except that the situation is worse. Efforts to settle the brickmakers' strike are still being made, and at date of writing prospects of success are fair. It is a sufficient indication of the situation to note that the number of building permits taken out during the week ending with June 2, were more than sixty per cent. less than the number taken out for the corresponding week last summer, and that the contemplated expenditure involved was about fifty per cent. less.

It is estimated that work on more than 1,200 buildings in Chicago has been tied up by these labor troubles, and these buildings involve all of \$20,000,000 in point of value. One thing is certain, the slugging and rough work, and even "gun-play" is far worse than during the building trades' strikes of 1900.

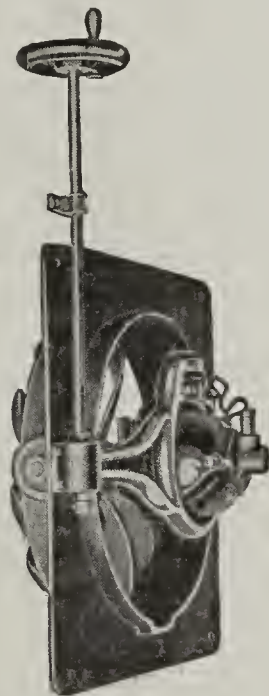


Fig. 3.

In spite of all the trouble, however, building in Chicago is by no means at a standstill, buildings by the score, and some mighty good ones are being planned each week. The latest announcement is to the effect that the Chicago, Burlington & Quincy railroad is to build a fourteen-story skyscraper for its offices with the plans so drawn as to permit the addition of six stories at a later date, making a total of twenty. The most interesting part of this announcement is the fact that the new building will be the first skyscraper to be erected on the great West Side. It is to stand at the southwest corner of West Jackson boulevard and South Clinton street. In architecture it will be gothic, largely of brick construction and will cost in the neighborhood of \$1,000,000. It will cover an area of 152 by 175 feet.

Work already has been started on another million-dollar building, the City Hall Square building and theater, which will stand opposite the county building in Clark street, running to a height of twenty stories, mantled in vitrified red brick and terra cotta, and will cost about \$1,250,000.

A number of other important buildings are projected for the downtown district, and if the present trouble can be ironed out within the next few days, the season may yet be a creditable one.

Another month of disorder, however, will mean a bad year for builders and material men. All the pressure which public sentiment can bring to bear, is being exerted from many angles, and it is hoped that peace will reign within a short time. Still it is more difficult to settle jurisdictional disputes among the unions themselves than to settle out and out disputes over hours, wages or conditions of labor between trades unions and employers, and there is no ground for exaggerated optimism.

Chicago, June 1.

SCRIP.

Some of our newspapers simply can't do without a war scare, and the disturbance in Mexico was about the only thing that saved them from making us have a little war trouble with Japan, whether we would or not.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



HERE HAS NOT been a May in years when the building permits were as light as they have been in the past month in this city, and there seems to be absolutely no reason for this condition of affairs, but as it is not a theory, but a condition, the trade has it to cope with. Brick people hardly know what to do. The local plants have made arrangements to run through the season, expecting building operations to be up to the normal, and the slump has caused them to draw in their horns to a considerable extent already. The Flanagan Brothers are using most of the product of their own yards in their own building operations, and they are keeping everything going steadily. The Lyle Brick Company is also operating steadily, and may be able to pull through the season without a shut-down, as its brick is in favor here, but other plants are not figuring on a regular season from this time forward. They can control the market to a large extent by cutting their prices down to a point where the freight keeps out the Kansas brick, but this would mean operating upon a margin which would cause a loss unless the plants could be made to produce every possible brick every day, thus cutting down the cost per thousand to the minimum, but it is not likely this will be done, for it will probably be thought better to fight for the business at a little better price.

At the present time the Kansas plants are looking to Kansas City for a market, and are offering low prices, the price quoted being \$5.75 to \$6.00 per thousand for common gas-burned hard brick, but even this price is not maintained, as at least in one case a price of \$5.50 per thousand was made and has not been accepted. This indicates that the Kansas plants are having an exceedingly slow business at home, and are not able to get rid of their product in other directions, or they would not be dumping them here at any old price, for Kansas City is the dumping ground for this product, and does not get much of it if there is a big demand in other directions.

The city has more office room than is needed, but most of the room in the new office buildings is already occupied, and it is said that a good deal of space has already been spoken for in the building now under construction at Eleventh and Main. The property at the corner of Twelfth and Main, southwest corner, has just changed hands, and it is stated that a large office building is to be erected there. The Sharp building, only a little over a year old, is going to add two more stories, showing that there is a demand for space in it, and still with all this demand there seems to be plenty of office space, at least as large a percentage of extra space as in other buildings where building operations have stopped.

As far as money is concerned, it is stated by builders that any one wanting to get money for building purposes can now get it on good terms, as every one seems anxious to make loans just at this time.

The excavation for the new union depot has been completed, and the foundation work will begin in July, it is promised. If this building is pushed to completion it will cause the erection of a large number of buildings in that neighborhood, as plans have already been prepared for many of them, to meet the new conditions caused by the change of the depot location, but these investors have no use for the buildings until the depot is completed, so they will aim to begin in time to have everything completed about the same time, thus avoiding the investment of capital so long before there is a possibility of an income from it.

Brick people are reporting a decrease in the demand for paving brick. This is the first time in several years that such a report has come to this city. There has been a phenomenal demand in the past couple of years, everything that looked

like a paver being salable, but from present indications it will not be long before only the producers of the best paving brick will be busy, as their business seems to hold steadier than any other line of brick work. If the quality is forthcoming to stand the tests there seems to always be a place for paving brick in the South and West. Formerly there was a tendency on the part of cities to delay placing their contracts, so contractors could arrange for brick, but of late they have been earlier with this work, so indications now point to less paving the coming fall and winter than usual.

K. A. W.

CORONATION MUG FOR CHILDREN.

One of the features of the coronation of George V. as King of England will be the presentation of souvenir coronation mugs to school children in London. A preliminary contract for 12,000 mugs has been awarded to a Staffordshire firm, having been taken away from a German manufacturer, following protests from English makers against such official work going outside the kingdom. The mug is of the shape known as a "half-mug" in some sections of the United States,



Coronation Mug.

and is shown in the accompany photo. It bears portraits of King George and Queen Mary in black on one side. Between the portraits are the royal arms of Great Britain with a design of English roses beneath it. On a ribbon beneath the portraits are the words, in the following order: "June 22. Mary. To Commemorate the Coronation of. George V. 1911." The other side of the mug is plain.

CODDLING TO THE FARMERS.

Just why it is is hard to explain, but it is a fact nevertheless, that the governments of the world have always coddled the farmers. We know that our government does it, and right now, when we are chastising some of our trusts for boosting the prices of commodities, we are paying an extra value for coffee. The explanation is that Brazil is the greatest coffee producer and the Brazilian government has been assisting the producers to virtually corner coffee and increase its value and it is said to have borrowed seventy-five million dollars to finance the undertaking. It may be good for the Brazilian coffee planters, but it is pretty hard on American coffee drinkers.

THE NEW HOME OF THE STANDARD DRYER.

DURING THE PAST quarter of a century the Standard Dry Kiln Company, of Indianapolis, made rapid progress in spreading "The Standard Drying Idea" among the brick manufacturers of the country and created such a demand for their well tried drying equipment that a larger factory was naturally the only solution in handling the trade. Consequently a large, modern plant was erected on Harding and McCarty streets on the Belt Railroad. It was completed only a short time since but is now running full force. The new plant is ideal in every respect. All the manufacturing equipment is on one floor and all of the machinery is electrically driven, doing away with smoke stacks and the resultant inky atmosphere. Every department is so economically managed that the manufactured product is made with a great reduction in cost. This is of vital importance to the trade, for it means that the installation of the Standard drying equipment will be made at a smaller cost than heretofore. This should appeal to the average brick manufacturer. It means an attractive estimate whenever the manufacturer is ready

conference committee; George Hutton, F. P. Luther, of Kingston; Hiram Merritt, of Newburg; H. Corse and H. R. Brigham, of Saugerties; John Lynch, John Peck, Frank DeNoyelles, John Shankey, Everett Fowler and Denton Fowler, of Haverstraw, and Edward Brockway, of Brockway's.

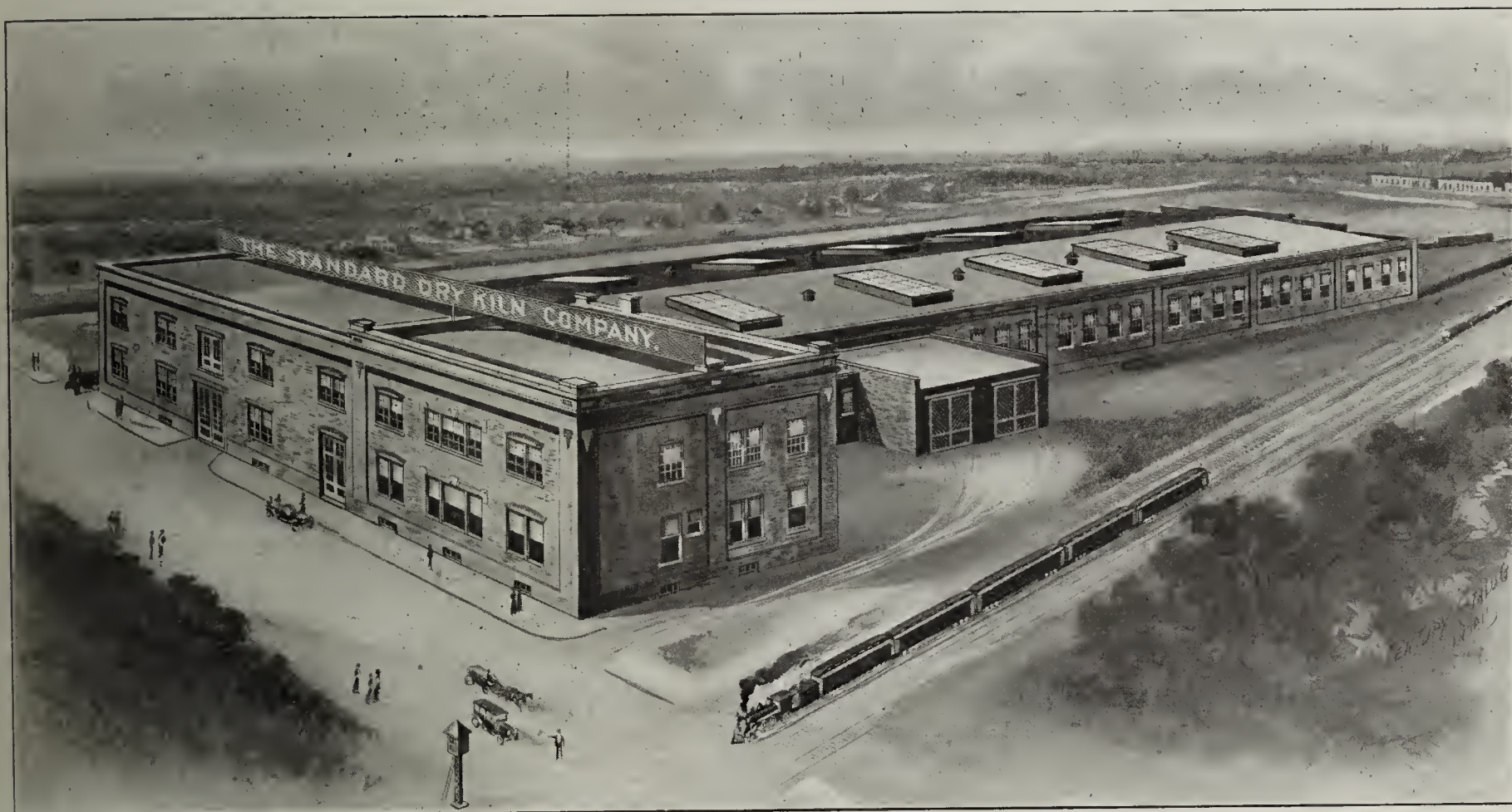
Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



THE BUILDING situation in Buffalo has not been encouraging this spring. The brick business has partaken of the general tendency to dullness, which has been characteristic of all other lines of work, and the brick men have seen some dull days since the new year opened. The demand for common brick has not been as brisk as could be desired. In the face brick line the situation is just normal. Sewer pipe and paving brick have been in the greatest demand.

There are at present several large buildings under con-



New Home of the Standard Dry Kiln Company, Indianapolis, Ind.

to figure on new drying equipments. See their ad on page 844 and write them for their "Book of Smiles."

HUDSON RIVER BRICKMAKERS CONSIDER PERMANENT ORGANIZATION.

A meeting of the brick manufacturers of the Hudson River territory was held recently at Haverstraw, N. Y., which was attended by about 100 manufacturers. The sessions were presided over by Senator John B. Rose, and while the meetings were held behind closed doors, as a rule, it is rumored that the object of the meeting was the formation of a permanent organization to regulate the annual output, and to provide for better dock facilities in New York City. Mr. R. C. Penfield, of the American Clay Machinery Company, Bucyrus, Ohio, was present by special invitation, and presented his famous moving picture entertainment, showing his brick setting machine in full operation. Mr. Penfield is anxious to introduce this machine on the Hudson River yards.

Nearly all of the prominent brick men along the Hudson were present, including Senator John B. Rose, of Roseton, and Robert Main and George W. Washburn, of Saugerties, the

templation which will use brick largely in construction, and for this reason the brick men look forward to certain activity in business along every line.

Fortunately there are many factories which will be built both in Buffalo, Lockport and the Tonawandas, and for these a large amount of brick will be called for.

The most important of these plans was that of the Wood Products Company, which recently had part of its plant on Fourth street destroyed by fire. This company has filed plans for a new two-story factory building of brick to cost \$25,000. The next largest amount filed called for plans for a two-story brick front at 272 Seneca street for the Hill Distilling Company, costing \$1,000.

Out at North Collins, N. Y., the new plant of the Shale Brick Company is now in full operation and business is exceptionally good. The owners are well pleased with the product and over thirty men are steadily employed on full time.

The Queen City Brick Company reports a normal business. Manager Walraith believes that with the adjournment of Congress business will pick up all over the state. This month, he states, has seen a slight improvement over last

and the prospect is better for summer, so that the end of the year 1911 will be far better than its beginning.

George W. Schmidt, at North Boston, N. Y., has just finished the construction of a new brick manufactory which is reporting an excellent business.

John H. Black is doing some strong publicity work in the daily papers. Under the title "Brick Talks" he is telling the reading public some interesting things not only about brick but about psychology.

One of these "Talks" is well worth reproduction as a sample of what can be said about advertising brick:

BRICK TALKS.

Talk No. 3.

We learn by comparison, by association.

By comparison and association is exercised thought.

With all—from all—is evolved—experience.

KNOWLEDGE

is virtually the result of

EXPERIENCE,

THOUGHT and COMPARISON.

History discloses the fact that since "Brick" has been a factor in Building, people whose Building ideas are the result of experience, thought and comparison

"BUILD WITH BRICK."

Our many years of frequent contact with the "SOURCE OF SUPPLY," viz.: The factories—insure proper and satisfactory SERVICE to our customers. It is as much a part of our Business to know the possibilities of our Factories as to solicit the business of our clients. Securing the order is only a part of our obligation.

Write, 'phone or —call, that's better.

JOHN H. BLACK CO.,

Office and Showrooms—Builders' Exchange Bldg.,
Corner Corner and Pearl St.

Word has been received from Lancaster that The Niagara Contracting Company, of Corning, N. Y., has been awarded the contract for paving several of the principal streets of this village with brick, the contract price being \$68,800. The pavement will be thirty to forty-five feet in width. Work will be begun at once. City Engineer Gatchell will start work the coming week on the Clark street sewer. A local contractor, Charles V. Reid, has the contract and the work will be pushed rapidly forward to completion. KNICKERBOCKER.

ILLINOIS CERAMIC STUDENTS VISIT OTTAWA PLANT.

Professor Albert V. Bleininger, head of the Ceramic Department of the University of Illinois, and a number of his ceramic students were the guests recently of Mr. Charles S. Reed, of the Chicago Retort and Fire Brick Company, at their new plant at Ottawa, Ill., which is considered one of the "show" places of that vicinity. The plant is fully equipped with the latest and best type of clayworking machinery and employs up-to-date methods in every department. It is at this plant that the famous Ajax fire brick are made. These brick are especially adapted to the building of kilns. Professor Bleininger and his "boys" were much pleased with their day's outing.

SEWER PIPE MEN PLAN PERMANENT ORGANIZATION.

Stockholders in the big \$250,000 sewer pipe factory to be erected here held a meeting Monday evening and planned a permanent organization. A committee on permanent organization was named as follows: J. L. Kamrar, H. R. Dodge, W. O. McConnell, P. W. Hearn and J. N. Iliff.

A testing committee was also named to take a car load of Lehigh clay and see to it that it is given a thorough test.

W. A. Johnson, P. W. Hearn and J. N. Iliff. Once this test is made, the balance of the stock will be taken and work on the plant will begin.

FIFTY YEARS A BRICKMAKER.

Back in 1853, or on January 11 of that year to be exact, Mr. E. J. Rutland was born at Sheerness, England. As a small child he played around the brick yard and as a small boy he worked there, having a knowledge of the clay business that would have done credit to a man. When twenty years old, Mr. Rutland came to America, landing in New York in 1873. A year later he removed to Ohio and became identified with the clayworking business and with the manufacture of clayworking machinery. Since that time he has been constantly engaged in the manufacture of clayworking machinery or its operation.

Mr. Rutland is not a theory man but one of practice. He has been through the practical end of the clay manufacturing business from his early infancy to the present day. He knows the clay business better than a book because his knowledge has been gained by his own personal observation and experi-



Mr. E. J. Rutland.

ence, and there are few men who are better authority in his line.

Since arriving in Ohio in '74 Mr. Rutland has been identified with The American Clay Machinery Company and its predecessor. His first employment was with J. W. Penfield at Willoughby, where he was put to work in the Penfield Clay Works. Here he developed such good practical qualities that when the end of the season stopped the manufacture of clay products until spring, Rutland was transferred to the Penfield machine shop to build clayworking machinery, being engaged on the erecting floor.

In those days the great demand was for the Penfield plunger machines and Mr. Rutland became expert in the erection of these machines. His duties at the clay plant had made him thoroughly conversant with their operation on the large variety of clay goods being constantly manufactured there. In both the machine shop and the clay plant, Mr. Rutland evinced excellent qualities of mechanical skill and he soon graduated from the shop to the field, where it was his duty to erect and start new machinery for customers. In this capacity Mr. Rutland developed a selling ability and a circle of friends and acquaintances which maintain to this day.

His special ability in the manufacture of soft mud brick

made his opinion and judgment sought after and valued by those contemplating the establishment of plants. Many customers of the American company to this day will willingly testify to the good judgment he exercised in selecting their outfit for them, and to his assistance in erecting their plants.

Owing to his wide experience and acquaintance Mr. Rutland had many offers to take charge of clay plants, all of which he declined, because he sought greater and more extensive knowledge. However, in September, 1890, he became superintendent of the Virginia Paving and Sewer Pipe Company, with factory at Chilhowie, Va. Here he remained for three years, when the plant changed hands and Mr. Rutland returned to Willoughby to resume his former position with the Penfield interests.

In 1896, when the American Clay Machinery Company was formed by the consolidation of Penfield & Son and the Frey-Sheckler Company, Mr. Rutland dropped out of active work for a few months, until the selling forces of the two companies could be reorganized, after which he resumed his work with the American Company and he has since remained on its staff.

Mr. Rutland still maintains his home at Chilhowie, having been married to a worthy lady of that place, and there he enjoys the happiness of domestic felicity.

This, then is, in brief, the history of an authority in his line. Earnest, sincere, industrious, honest, capable and trustworthy, the young Rutland became the man. His life so lived that confidence and respect were his freely given portion. To know him was to respect him. His ability, industry and knowledge has helped to build the American line of clayworking machinery, almost from the time of its inception, when a few hundred brick a day was the limit of capacity, to the present when hundreds of thousands are no extraordinary day's run. From a few machines of small capacity the line has grown to hundreds of machines, some with seemingly limitless output.

Mr. Rutland is widely known and as widely respected. His acquaintances in the trade will be pleased to note the excellent likeness which accompanies this article.—The American Clay Machinery Magazine.

ARKANSAS BRICK COMPANY BURNS WITH LOSS OF ONE HUNDRED THOUSAND DOLLARS.

The plant of the Arkansas Brick and Manufacturing Company, located just outside the city limits southwest of Little Rock, Ark., burned recently, causing a loss estimated at \$100,000. A strong wind and inadequate fire protection rendered it impossible to check the flames. Flying embers ignited four cottages.

ADVERTISING TRAVELS AROUND THE WORLD.

The secretary of the Building Brick Association of America calls our attention to the fact that inquiries for literature mentioned in their magazine advertisements have been received not only from every state in the Union and from Canada, but from Mexico, South America, England, Scotland, Australia, China, and Hawaiian Islands.

A NEW CLAY FEEDER IN THE FIELD.

Arbuckle & Co., of Rushville, Ind., the successors to the Madden & Co. and the Scott-Madden Iron Works Company, have but recently put upon the market a new clay feeder that is constructed somewhat different than the others now in the field, for the knives are more like granulator or pug-mill knives and will, therefore, do more granulating and pugging than the usual run of feeders. This feeder is much stronger than other machines, the gears and shafts are heavier and the frame more substantial. The adjustable gate in the end of

hopper controls the feed perfectly. Another feeder worth while is their two-shaft feeder, which is a distinct departure from other machines because the majority are too large for small plants and can not be shut down to a small capacity. This machine is made to take care of such cases and is sold very cheap, in fact within the range of every manufacturer. See their page ad on page 933 of this issue.

FANCY BRICK IN DEMAND.

The coming of concrete construction has perhaps done more for the pressed and fancy brick industry than any other thing could have possibly accomplished. It is true, too, that common brick requirements for concrete structures are now far below those for other types of construction. So far as fancy brick are concerned, it is a fact that common brick no longer will do for the most unpretentious little store building; fancy brick they must have. At this time there are under construction in Milwaukee and numerous other cities, banking houses, and fancy brick form the frontage now, where formerly only limestone or sandstone would fill the bill. There are so many beautiful effects to be obtained that the more ordinary and more expensive stone has been relegated to the rear. The campaign of education conducted without any great ado by brick manufacturers throughout the country is bearing fine fruit.

OBITUARY.

J. H. Chambers' Son Killed By Accident.

Theodore Chambers, twenty-one years old, son of Mr. and Mrs. J. Howard Chambers, of Philadelphia, Pa., was killed by a fall from a tree on June 4th. He was hunting on his father's country place at Audubon and climbed into a tree to secure a hawk which he had shot and which had lodged in the tree. He only lived a few hours after falling.

A Member of N. B. M. A. Succumbs to a Surgical Operation.

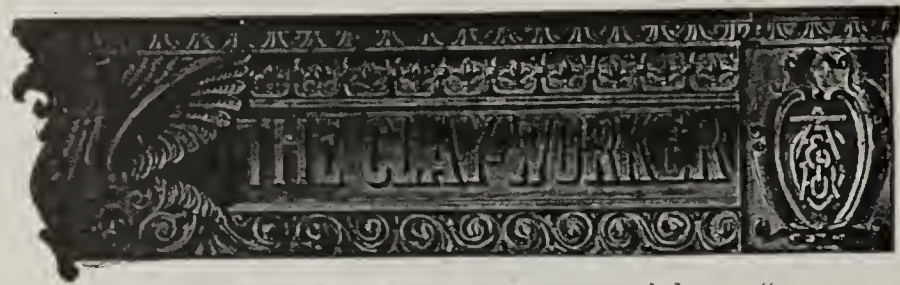
Willis Edson, general manager of the Capital City Vitri-fied Brick and Paving Company of Topeka, Kans., died May 1, following an operation. Mr. Edson was seventy-four years old and was a resident of Topeka for forty-one years. He had been engaged in the brick business since early in the nineties and while he had not attended many of the conventions of the N. B. M. A., he had been a member for many years. His wife, one son and a daughter survive.

Death of a Prominent Clayworker.

Henry Hasbrouck, the well-known paving brick manufacturer of Olean, N. Y., died May 1, at Williamsport, Pa., where he had gone for rest and recuperation, after having suffered from a complication of heart and kidney troubles for more than a year. Mr. Hasbrouck was born at Stone Ridge, N. Y., in July, 1850, and had been engaged in the brick business for the last twenty-five years. For many years he was manager of the Johnsonburg Vitri-fied Brick Company, Johnsonburg, Pa. About five years ago he left that company and became associated with the Sterling Paving Brick Company, at Olean, as general manager.

Mr. Hasbrouck was a faithful and enthusiastic member of the National Brick Manufacturers' Association, and had missed but one or two conventions in the last fourteen years. When the paving brick manufacturers organized a few years since, he at once became identified with that association, as he had always been identified with every movement for the advancement of the brickmaking craft. In his death the brickmaking fraternity generally and the N. B. M. A. and the N. P. B. M. A., have suffered a great loss.

A wife and one son fourteen years old survive.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LV.

JUNE, 1911.

No. 6.

CURRENT COMMENT.

Fish stories will take second place and obscure corners this summer. The big tales will be those of the trips to the other side and hobnobbing with the aristocracy at the Coronation.

* * *

After all it is steel and wood that concrete is replacing more than brick, and in the average big business building with concrete construction there is practically as much clay products used as if it were steel frames.

* * *

The man that subscribes for a trade journal has taken one of the important steps to keep informed and up to date, but this step will not carry him very far unless he reads the paper as well as receives it.

* * *

According to a government report there is only one truly arsenic mine in the United States, and that is located on the south slope of Lick Ridge, one of the minor elevations of the Appalachian mountains, near Brinton, Va.

* * *

The general casting about for another and better roofing to take the place of the wooden shingles is making many good openings for the development of trade in clay roofing tile. And it looks like there is room for building up several new industries in this line in the next few years.

* * *

That there is need for amendment of the American patent laws many people are ready to concede. And an example of the fact that the need is becoming urgent reaches us in a report from Germany that when the last treaty was made in this country in relation to patents it was formed with the understanding that the American patent laws were to be amended to make the working of a patent within a certain time essential to its validity. If it is not amended soon we

may expect the other countries to inaugurate a movement for the incorporation in their commercial treaties provision against American patents.

* * *

Just as soon as asphalt paving loses favor under one name it changes its name. It would be better for the city fathers to change their methods and pave with brick, then no further changes would be necessary.

* * *

The record for the export of manufactures so far this year is bigger than ever was known before and the indications are that it will keep growing all the year and then keep gathering momentum for another year of record breaking.

* * *

Riding a hobby is said to be a splendid diversion—good for both physical and mental health. The idea has our indorsement, with this suggestion: that the brick and clay products people already have their hobby before them—that of pushing clay products.

* * *

It seems from the experience of those who have tried it that the best way to get plenty of brick-drying capacity without rushing the work and cracking the product is to have about 25 or 30 per cent. more dryer capacity than you expect to have producing capacity.

* * *

Plenty of work is the best preventative of many of the business worries that we call evils, and it looks like there will be plenty of work for everybody this year. There is only the attendant annoyance of dissension between the man that works and the man that pays. When we get rid of this annoyance busy times will mean happy people.

* * *

The cement people have done one good thing. Where we used to import as high as three and one-half million dollars' worth of cement a year we are now exporting about that quantity and the import item has been nearly wiped out. This shows that American energy and enterprise can not only produce for its own requirements, but turn around after it gets started and feed back to the rest of the world whatever it goes in enthusiastically to produce.

THE FUTURE OF BRICK.

We can look back for a decade and see that quite a lot of progress has been made in the brick industry, not only in manufacturing methods but an enlargement of the market. We can look back twenty-five years and get a comparison with the present that indicates what might be termed remarkable progress both in manufacturing methods and in the development of the use of brick and other clay products.

In doing this some may be inclined to think we have reached the crest of the wave. Others may assume that this is perhaps a fair gauge to measure the progress in future years. What it really looks like to one who has studied the brick business more or less carefully in its progress, is that never before in the history of the industry has there been the room for or the development made that will likely come in the next decade.

Indeed, it looks like there is a new era opening in which there will be a magnitude to the brick business never dreamed of before. It won't all come at once or all in the present or next year, but each year should bring with it now not only the natural steady growth, but a great enlargement and extension of the brick field on all sides.

There are several reasons and indications pointing toward this. Among them is the progress of manufacture, the scarcity of timber, which has been the strongest competitor of building brick, and the desire on the part of the people to be more substantial in their home building, and to make of each community more of a solid institution.

One of the greatest aids to future business will undoubt-

edly come from the active boosting of brick which has been going on. We gather a certain amount of the fruits of these efforts right now, but the great harvest is to come in future years. So, if we keep on at the rate we are going and conditions remain as they are now, it should mean a new era in the brick industry, in all branches of it, an era in which there will be more brick manufactured and used than was ever dreamed of before.

TO ELIMINATE THE STRIKE.

At last the industrial world seems awakening to the idea and making up its mind to do something along the line of devising a sort of legal status to prevent strikes, to take care of labor disputes, and eliminate the strike. Moreover, the labor world itself should be to the point by this time where it can recognize that something of this kind may easily be to its advantage.

The strike as a means of settling disputes between capital and labor belongs to ancient history and has no place in this civilization of modern industrial workings. This is a view that might well be taken by labor and employer both, and not only taken as a view, but accepted as a doctrine, and then some steps taken to eliminate the strike.

There are multitudes of reasons why the strike is out of place in modern industry and in a civilized nation. And one of the important of these, one that brings it directly into line for some legal enactment, is the fact that no strike stops at involving the people in the dispute.

Take a strike in the building trades, for example, and it doesn't merely involve the employer and employes, but it involves the men having the building done, the men supplying material for the building, and often, to quite an extent, the general public.

It is the same way with variations wherever a strike occurs, and because of this fact, of the interdependence of one on another and one branch of people on another it all becomes what might be termed a sort of interstate matter and needs federal regulation. This should not be construed to mean that working men need coercing or an interference with their liberty, but it does mean that the general public and commercial world is entitled to fair consideration, and when people get into an entanglement that involves hardship and embarrassment to others it is time for the state or federal authorities to take a hand.

In other words, to sum the matter up briefly, what we need is some court of resort for the settlement of differences between capital and labor. If we can not get it with our present legal machinery then let us create something special for this purpose that will insure reasonable fairness to both capital and labor, and then make the strike and the boycott illegal implements. They are in a way related to the mob rule and the lynch law and constitute in principle, if not legal effect, the taking of the law into their own hands by the people who perform these things. The surprising thing about it is that we have gone along and tolerated such things interfering with industry and commerce for generation after generation without striking some specific means to not only end, but in the future to prevent them.

THE COST OF LIVING.

The ups and downs of the world of industry and commerce during the past three years has demonstrated pretty thoroughly that the cost of living as a whole is not dependable upon, or influenced solely by, one thing or combination, neither by trusts nor by the toll of trade, but by a multitude of things, many of which are beyond the power of men to regulate.

What is termed the toll of trade has been blamed for much of the high cost of living, that is, the difference in cost of an article to the ultimate consumer and the amount received for the article by the original producer.

There have been cases of what might be termed exorbitant

charges by those handling and controlling trade, and these, wherever found, are, of course, objectionable and need mending.

On the other hand, as offsetting this there has been great progress made in the way of facilities for handling from the producer to the consumer that we are inclined to lose sight of. Take the railroads, for example, with all their iniquities, real and imaginary, and yet when we consider them in the light of the cost of living we are bound to admit that they are wonderful aids in the matter of the distribution of products. If we had to go back a hundred years for our appliances of distribution and methods of merchandising, the cost of living for some might be reduced, but there would be a multitude of others that would not be able to live at all.

What is true of the railroads is true in a different way of modern business and commercial enterprises, even though we feel at times that they take an unfair share of toll for their work. They do, nevertheless, serve the people better and at less cost than it was possible to get the same service in previous years.

The cost of living depends more on the desire of the liver and on the relation of agricultural products to the world's demand than on any toll of trade or any charges for transportation or any trust methods.

Really we are getting more for our money today than ever before and though a man may spend two thousand dollars where formerly he only spent one thousand, he often gets in return more than four times the amount of living, if we but consider it in the right light. That is, the luxuries and pleasures of living.

The meat and bread of life are things that in the course of events are bound to cost more, especially the meat end of it, and their costing more has made the cost of existence a little higher. But there is a wide difference between the cost of existence and the cost of living. The cost of living today depends more on the appetite and desire of the liver than on any one thing or even on a combination of several things.

ADVERTISING DOCTRINE.

Boosting is the by-word of the enterprising brick manufacturer today, and advertising is one of the common mediums useful to work. It is a good one, too, one of the most effective means of reaching the most people at the smallest expense and in the shortest period of time that can be adopted.

It is a business, however, at which one can waste a lot of money in a little while, and one which can be turned into a boomerang if not properly handled. Advertising doesn't consist, as some people imply by their methods, of devising the most unique and catchy phrases that can be thought of regardless of whether or not they are strictly applicable to the article offered or whether or not they adhere strictly to the truth.

The weakest spot in modern advertising, and the most inviting pitfall for the average man to tumble into, is that of extravagant statement, which in time leads to faking, pure and simple.

Truth is just as essential and important in advertising as it is in business dealing. Without it advertising becomes worse than useless, because false claims beget in time results that leave the claimant in worse condition than when he started. Merchants who are persistent advertisers are beginning to realize this now and the thoughtful ones are taking a strong stand for truths and no faking in their advertising.

There have been too many people with fake schemes that have carried highly colored advertising to make this advertising attractive to a really thoughtful man on its face, and an industry with as much permanence and long standing and substantial backing as the brick industry can not afford anything of this kind associated with it. It can not afford to stand for misrepresentation of any kind. All such things are diametrically opposed to the doctrine of brick and clay products generally.

Clay products represent durability and permanence. They stand for the highest thing in quality of building material and

the advertising doctrine of clay boosters, therefore, should be in harmony. It should boost brick for what it is. There are enough good things to say about brick and clay products, their use and advantages, and enough ways to say it invitingly without making false claims or extravagant statements calculated to reflect on the veracity of the brick trade.

Really after all is said and done, the great idea in advertising is to print the things you would say if you had a chance to talk to a man. You can not print all of them, but you can select what you consider the salient points here and there, embody them in advertising, and get as much of interest and attraction out of the truth strongly stated as should be needed for the great work of upbuilding the brick business through the use of advertising as a medium for boosting.

CHICAGO STRIKE CALLED OFF.

The strike of brickmakers, called May 1, as a result of which 40,000 men have been idle in the building trades and \$40,000,000 of building was tied up, ended June 8. The offer of settlement, which the thirteen striking locals voted to accept, was a compromise, giving the men last year's wage scale. The men struck nominally for a slight advance, but in reality to prevent a reduction. Most of the 2,500 brickmakers returned to work immediately after the agreement was reached.

TRADE LITERATURE.

THE PULSOMETER, a well-printed catalog mailed to the trade by the Pulsometer Steam Pump Company, at New York City, contains a wealth of information on the field of the Pulsometer, its operation, accessibility, workmanship and material, economy and points of superiority. Also tables giving sizes, capacities and dimensions of the pumps, notes on Pulsometer replacement parts and many valuable pointers worth knowing for solving pumping problems. This catalog will be mailed any clayworker on request.

"SIDE LIGHTS ON CLAY CUTTERS" is the title of a neat pocket pamphlet recently published by the J. D. Fate Company, Plymouth, Ohio. It contains forty pages of interesting information relative to the various cutters made by the Fate Company, in the beginning telling of Bensing's first automatic end-cut brick table and tracing it through its many changes to suit rapid advancement of the clayworking world since the old days when everything was crude, but the best attainable at that time. The old table is still in existence although not in use, but it is kept to be shown to visitors for comparisons with the modern end-cut table. While the first table was crude and far from perfect, it was a good beginning for it embodied the very principles that make the present day Fate cutting table so popular. The pamphlet is full of good points and should prove of interest to every clayworker. Write them for a copy.

PROVED BEST BY TEST.

After making a thorough test and finding that the oil-burning appliances of Tate, Jones & Co., Inc., enabled them to make a saving in fuel cost and in addition very greatly improved the quality of their output, the Pfaltzgraff Pottery Company, at York, Pa., have just awarded a contract for the complete fuel oil-burning equipment of their pottery plant to Tate, Jones & Co., Inc. Mr. G. E. Luce, ceramic engineer, of Tate, Jones & Co., Inc., conducted this test and secured the contract

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 912.]

FOR SALE, WANTED, ETC.

FOR SALE—Brick and tile yard, with 17 acres of land and house. Equipped ready to run. Good clay and trade. Best reasons for selling.

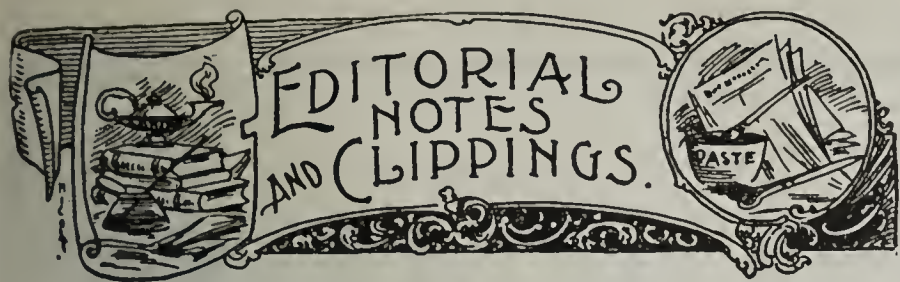
L. P. WALKER,
Hartford, Mich.

BRICK PLANT FOR SALE.

Modern, up-to-date brick plant in Georgia, now in operation, making 25,000 common building brick per day. Only one in this locality. Complete set of grinding machinery, 75 h. p. engine, steam dryer, plenty of clay, labor, wood, etc. Best of reason for selling. Good proposition for a live man who can give it his time. Address

BOX 6—GA.,
Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
pages 904 and 905.



The Abraham Brick Company has recently been organized at Magnolia, Miss.

The Roanoke Press Brick Plant, of Roanoke, Va., has filed a certificate of dissolution of partnership.

H. B. Millikan Sewer Pipe Company, Louisville, Ky., has certified to an increased capital stock from \$5,000 to \$15,000.

The warehouse of the Summit China Company, of Akron, Ohio, was destroyed by fire recently. The loss is estimated at \$20,000.

The works of the Plant City (Fla.) Granite Brick Company were completely destroyed by fire recently, causing a loss of \$45,000.

John Madson has sold a half interest in his brick yard at Antigo, Wis., to Fred Ziek, who has been associated with Mr. Madson for the past year.

An immense stone ware pottery is to be erected by Ransbotten Bros. at Zanesville, Ohio. They contemplate spending \$125,000 on the plant.

C. E. Sikes' brick yard at Hampton, Ill., was destroyed by fire recently. The cause of the fire is unknown, and, though he carried no insurance, Mr. Sikes will rebuild at once.

Two workmen were killed at the Livesey Brick Company's plant at Omaha, Neb., when a portion of a kiln they were building collapsed. Three other men were injured, but not seriously.

Henry H. Everhard, president and treasurer of the Everhard Brick and Tile Company, Massillon, Ohio, died suddenly of pneumonia, May 23. He was seventy-four years old, and had lived in Massillon all his life.

The New Jersey Unit Brick and Tile Company, of Belleville, N. J., has been incorporated with \$45,000 capital stock to manufacture brick and tile. The incorporators are F. M. Dyer, Closter; H. C. Low, Jr., Brooklyn; N. J. W. A. Sweet, Newark.

John J. Jelks, Sr., a pioneer brick manufacturer of Macon, Ga., died at his home at Rivoli, May 12. His death was caused by heart trouble, and until a few moments before he passed away he seemed to be in perfect health. He is survived by five sons and five daughters.

James R. Holt, Sr., a partner of the firm of Holt & Gregg at Redding, Cal., died at his home in that city recently following a short illness. He was seventy years old and had been in the brickmaking and contracting business for many years. A wife, one son and two daughters survive.

The brickmaking plant of Burnham Bros., Milwaukee, Wis., was struck by lightning during an electrical storm and damaged to the extent of \$10,000 by fire which followed the lightning. The machine house and the boiler house were the only sections of the plant saved. The works will be rebuilt at once.

B. H. Retecker, one of the pioneer brick manufacturers of northern Illinois, died at his home in Rock Island May 18, after several months' illness. Mr. Retecker was born in Germany, in 1829. He came to this country while still a young man and settled in Rock Island in 1872. He established a brick plant that is still in operation.

John Miller, employed by the Robinson Clay Products Company, Akron, Ohio, received what was feared to be fatal internal injuries when he was caught between the elevator and the floor. It is not known just how the accident happened. His cries were heard by another employe and when found he was in a semi-conscious condition.

In the Hartford County Superior Court Judge Williams has approved the accounts of Virgil M. Palmer, receiver of the Phoenix Brick Company, of New Britain, Conn., who was appointed in July of last year at a time when the concern had a lot of brick to burn for market. He has settled the affairs of the defunct company so as to give the creditors a small dividend of six or seven per cent on the common claims. While but \$8,117.69 has actually passed through his

hands in cash, Mr. Palmer has sold the plant for about \$27,000.

The Big Ben Mining Company of Terlingua, Texas, will establish a plant for the manufacture of 250,000 brick for its own use.

The name of the New Ulm (Minn.) Brick, Tile and Sewer Pipe Company has been changed to the Tri-City Brick and Tile Company.

The Baibb Sewer Pipe Company, of Macon, Ga., which was incorporated some time since with \$200,000 capital stock, will erect a \$100,000 plant at that place.

The Thurber Brick Company, at Fort Worth, Texas, resumed operation May 20, after a shut-down since May 1 owing to labor troubles, the differences having been adjusted.

J. W. Marshall, of West Point, Va., is in the market for new or second-hand machinery for a soft mud brick plant. He would like to correspond with parties having a complete brick plant for sale.

The Stockdale Tile and Brick Company, of Carrothers, Ohio, has been incorporated at \$10,000 capital stock by Philip Ralph and William Stockdale, Ralph R. Gillespie and W. E. Bowers. The new company will manufacture drain tile and brick.

The Dixie Clay Products Company has been incorporated at Chattanooga, Tenn., with a capital stock of \$100,000. The plant will be located at Graysville, and will manufacture brick and tile and other clay products. The general management of the plant will be in charge of Will H. Fox.

The general office of the Utica Fire Brick Company has been changed from Chicago to Utica, Ill., where the plant is located. George J. Gleim of Ottawa, Ill., was recently elected to the presidency of the company and Finley M. Drummond, of Utica, was elected secretary-treasurer and general manager.

Mr. H. A. Hunt has been appointed eastern sales agent of the Edgar Allen American Manganese Steel Company, with headquarters at New Castle, Del., which appointment was made in order to fill the vacancy caused by the resignation of Mr. W. V. Mason, Jr. The change became effective May 16, 1911.

The annual meeting of the Ostrander Fire Brick Company, Troy, N. Y., was held recently at the office of the company at Fords, N. J. J. K. P. Pine, Francis N. Mann, Jr., H. W. Gordinier, J. W. F. Podmore and R. Rynders of Troy, F. A. Ostrander of Sewaren, N. J., and Charles Ferry of Bridgeport, Conn., were elected directors.

The Franz Woerfel Brick Company at Manitowoc, Wis., has taken over the plant of the Boettcher Brick and Tile plant adjoining them and both plants will be run under the same management. The Woerfel yards is one of the oldest yards in the state. Adolph Woerfel will have active management of the yards in the future.

Improvements to the extent of \$30,000 will be made to the plant of the Watertown (Pa.) Brick and Clay Products Company in order to meet the increased demand for their output. The works are now being operated to the full limit with a constant increase of orders from all parts of the country. The addition to the plant will increase the capacity 20 per cent.

Charles Vredenburg, who for some time has been superintendent of the Troy, N. Y., plants of the New England Brick Company, has been promoted to the office of general manager of the company's entire system, which includes nine brick yards in the Eastern States. Mr. Vredenburg's headquarters will be in Boston. J. Bert Hutchins will succeed Mr. Vredenburg as superintendent of the Troy plants.

The Clymer Brick and Fire Clay Company, at Clymer, near Indiana, Pa., has added another shift, now running their plant to full capacity all the time, day and night. Orders are now on the company's books for more brick than possibly can be turned out by the plant for several months. The brick from this plant is being used in the construction of the new radial brick chimney for the Eastman Kodak Company, at Rochester, N. Y., which, when complete, will be 366 feet high. Recently the company started to make a number of experiments with fancy building bricks and other products of fire-clay in addition to the manufacture of the regular building and paving bricks. The success which attended these experiments was far beyond the expectations of the

(Continued on page 894.)

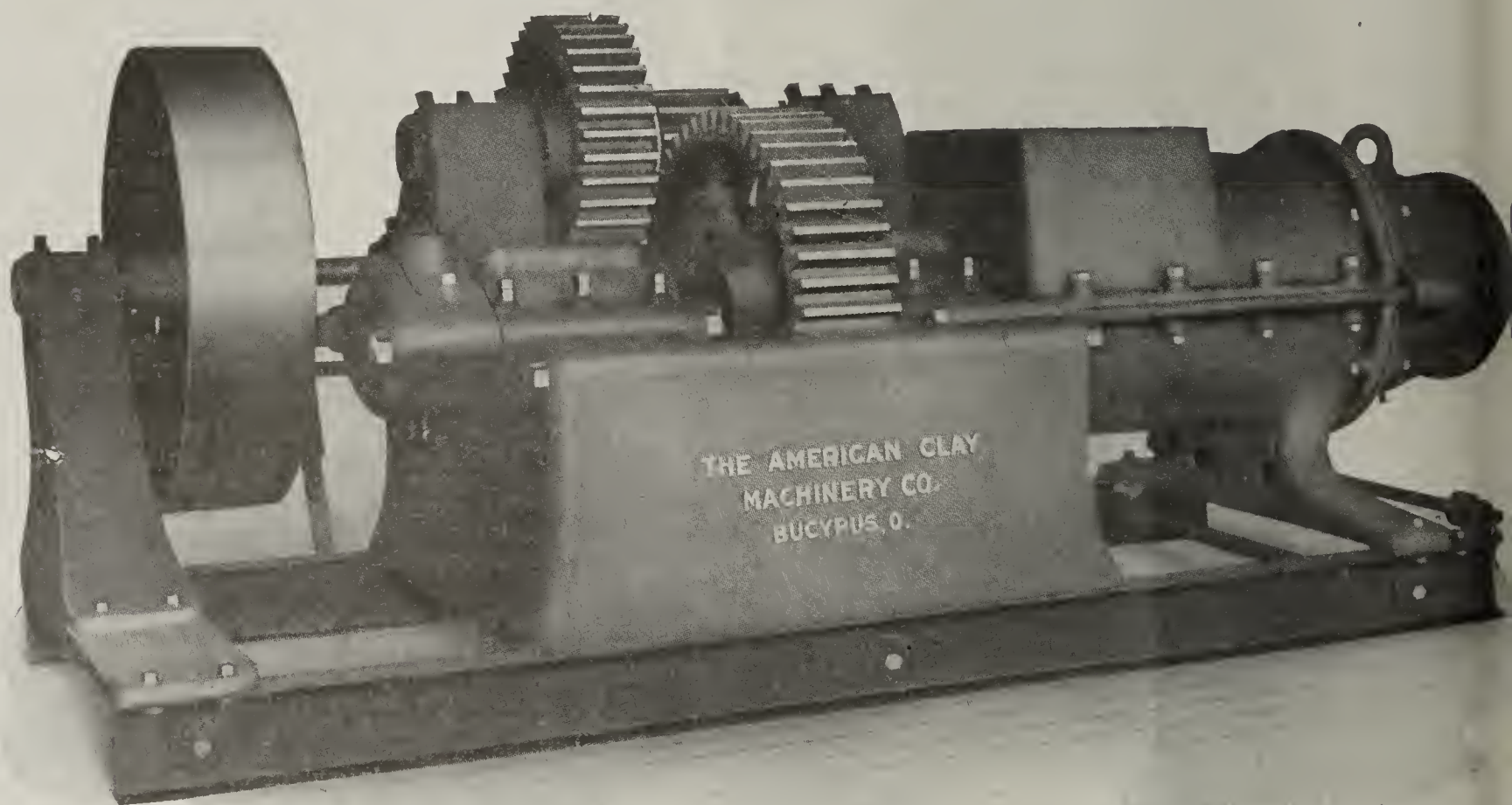
"A Quality Above All Others in Clayworking Machinery."

THE GREATEST AUGER BRICK

The greatest brick plants in the country—the plants where capacity and quality go hand in hand, and where the most up-to-date machinery and methods are installed to raise the clay trade to its highest plane. In such plants the No. 65 Auger Machine here shown is doing its part toward elevating and enriching the business. In all cases where the No. 65 Machine has been installed they attain the highest record of capacity ever known in these plants, and without sacrificing the quality. Here then is a machine that has made good and will make good again wherever it is installed. Where machines of less capacity are desired we have them embodying the same high grade of excellent construction which makes them able to run up to and beyond their rated output. No matter what machinery or appliance you may want and no matter for what process or product you may want it, so long as it is used in the clay trade we can supply it.

The No. 65 Auger Brick Machine is designed for the manufacture of brick, tile, hollow blocks and similar products. The construction of the machine is high class throughout, the material used is of the best quality and the workmanship of the highest standard. The machine is built with a high factor of safety.

It is entirely self-contained, being mounted on heavy steel I-beams. The massive self-contained gear frame contains all the principal journal bearings which are long and well babbitted. The end thrust bearing is secured to the gear frame by heavy steel bolts. This bearing consists of two large chilled plates between



BOTH SIDES OF THE NO

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

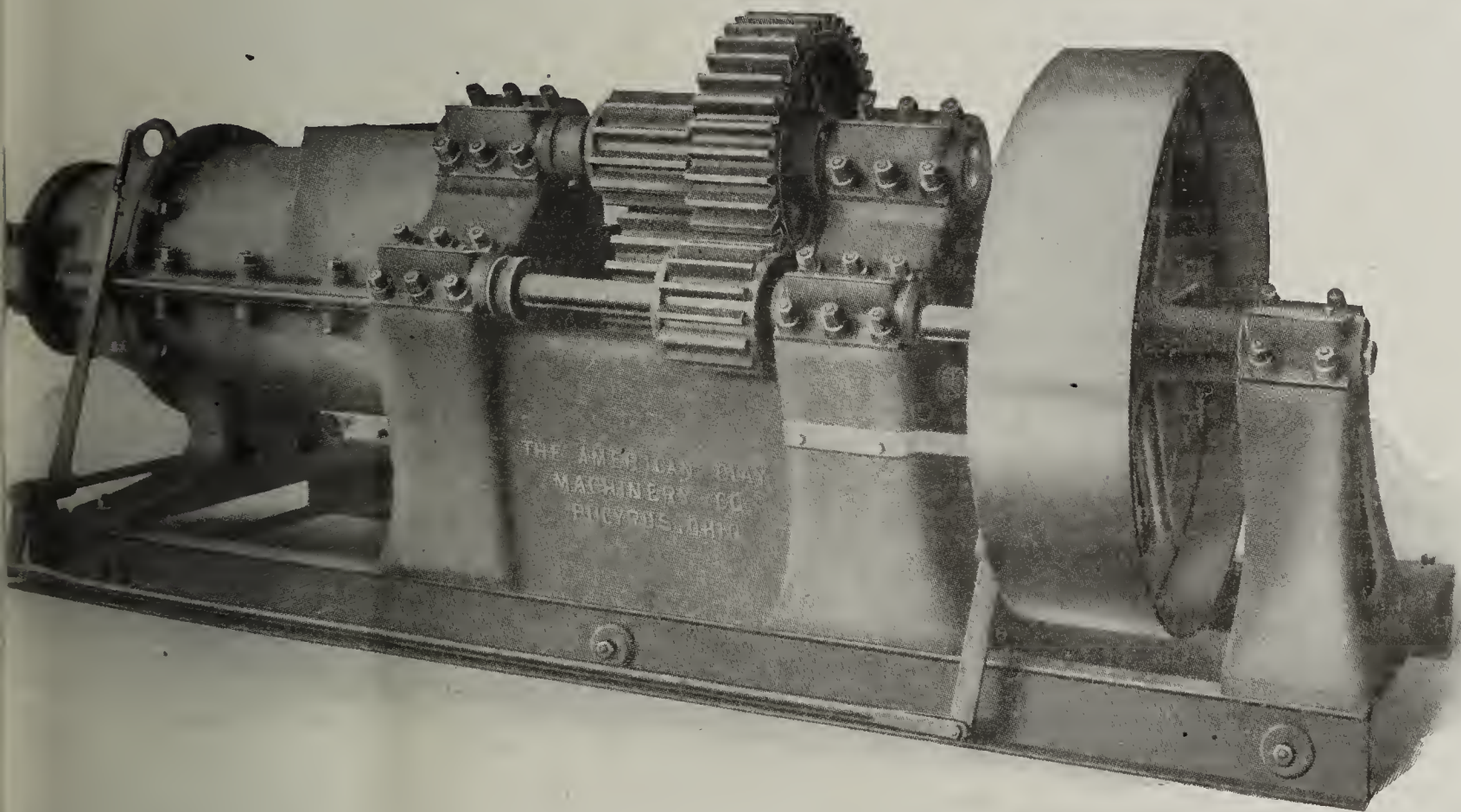
MACHINE ON THE MARKET

which is a phosphor bronze wearing plate revolving in a bath of oil. The main shaft is hammered steel $6\frac{1}{4}$ inches in diameter. The hammered steel intermediate shaft, is mounted in the gear frame above the main shaft where the bearings are accessible and the gears may be protected from the dirt. The gears are covered with a neat steel housing. The gears are heavy and made with strong teeth, designed for smooth and quiet operation. All end thrust is taken on steel rods which parallel the main shaft and pass through the gear frame. The nozzle is fitted with a renewable corrugated lining made of a special mixture of white and gray iron which is also used in making the auger and knives. This special mixture, we have found, gives great strength and wearing quality. The die front is hinged to the nozzle and provided with a safety-pin attachment which will shear off should the clay become too stiff and the strain excessive, thus preventing serious damage to the machine.

The machine is driven by a friction clutch pulley 48 inches in diameter, 12 inches face operating at from 250 to 300 revolutions per minute, capacity ranging from 7000 to 9000 standard size cut brick per hour.

We also equip this machine with automatic oiling system if desired.

THE AMERICAN CLAY MACHINERY CO.
BUCYRUS, OHIO.



65 AUGER BRICK MACHINE.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

EDITORIAL NOTES AND CLIPPINGS—Continued.

officials of the company. The manufacture of these new bricks will be begun soon.

W. A. Carver, of Rougemont, N. C., wants prices on brick machinery for a plant of 30,000 daily capacity.

The S. S. Kimbell Brick Company, of Chicago, has been incorporated with \$65,000 capital stock. L. D. Binyon is president of the company.

The Hobson Brick and Tile Company, of Hobson, N. C., was granted a charter recently. The company certifies to \$75,000 capital stock. W. L. Leggett and others are interested.

The plant of the Hancock Shale Brick Company, at Hancock, Md., destroyed by fire May 31, entailing a loss of \$35,000, is being rebuilt and the company expects to have the same in operation by the first of July.

The brick yard of the Citizen's Coal Mining Company at Lincoln, Ill. was damaged to the extent of several hundred dollars by fire caused by sparks from a passing engine. For a time the fire threatened to spread from the storage sheds to the rest of the plant, but was finally subdued.

W. A. Anderson writes that a company is being organized at Wickliffe, Ky., for the purpose of erecting a plant for the manufacture of stone ware. The parties are in the market for machinery and equipment for the plant. J. C. Lysatt is a thorough practical brick man and will be superintendent and general manager of the plant.

"The cost of a House" is the title of a booklet published by Sunderland Bros., of Omaha, Neb., giving "Facts and Figures" about brick. A large number of the new buildings going up in Omaha and vicinity this spring are of brick and Sunderland reports a larger demand for face brick this season than any previous season in former years.

The brick plant of the Hocking Valley Products Company at Nelsonville, Ohio, began operation June 1 after having been completely overhauled and converted into what the owners claim is probably the finest clayworking plant in the country. The plant has a capacity of 150,000 brick per day and they expect to manufacture other clay products.

The jury in the case of Ray Barnhart against the Cherryvale (Kans.) Brick Company, for damages for the loss of a part of his hand while working at the plant of the brick company, returned a verdict for the boy for \$10,000. The attorneys for the brick company have made a motion for a new trial and, if it is refused, will take an appeal to the Supreme Court.

The Barr Clay Product Company, of Wanamingo, Minn., have plans under way for the erection of an immense plant for the manufacture of brick, tile, hollow building block and clay products of every description. They will spend about \$200,000 on the plant, which will be equipped throughout with modern machinery and appliances, and will be ready for operation some time in August.

At the recent annual meeting of the Bickford Fire Clay Company, of Lockhaven, Pa., the following officers were elected: President, James B. Graham; treasurer and general manager, James A. Bickford; secretary and sales manager, Samuel M. Bickford. The directors are Allen P. Perley, James B. Graham, John W. Villinger, James A. Bickford, Samuel M. Bickford and Howard T. Janney.

The Superior Sand and Gravel Company has placed a contract with J. H. Phinney & Co., Detroit, Mich., representatives for the Jeffrey Manufacturing Co., of Columbus, Ohio, for a Shoemaker & Casparis elevating and loading machine. The machine will be placed in the company's pit at Utica, Mich., and will dig, screen, wash and load from fifteen to twenty forty-ton cars of sand and gravel per day.

The Oliver China plant, the first pottery built in Sebring, Ohio, by the Sebring Brothers, and afterwards transferred to George E. Sebring, has been sold to E. H. Sebring, formerly of the French China Company. The change will be made on July 1. There will be no stoppage in the running of the plant. The Oliver China plant has a good reputation with earthenware merchants. E. H. Sebring, the new owner of the Oliver china, is a man of ability and experience, and a practical potter as well as a business man, who has worked his way from the potter's bench to the manufacturer. Until recently, E. H. Sebring was a part owner of the French china plant, this plant being owned

jointly by him and O. H. Sebring. Several improvements will be made at the Oliver china plant.

Jacob J. Bram, superintendent of the Phoenix Ceramic Works, Perth Amboy, N. J., writes that his firm is in the market for stiff clay machinery, and he will be glad to receive catalogues and price lists.

L. D. Morris, for many years associated with the Golden Pressed Fire Brick Company, at Golden, Colorado, has taken a position as general superintendent of the Denver Sewer Pipe and Clay Company, Denver, Colo.

The large brick manufacturing plant of the Jamestown Shale Paving Brick Company, at Jamestown, N. Y., was destroyed by fire late in the afternoon of June 14, entailing a loss of \$60,000. The fire was caused by lightning.

Edward Taub, an employe of the Brookside Brick Company, Cleveland, Ohio, was badly injured by having his right hand caught in a clay crusher and mangled to the elbow before it could be extricated. The arm was taken off to the elbow.

The Excelsior Brick Company, of Fredonia, Kansas, is making extensive improvements to its plant, including new machinery from the shops of the Bonnot Company, Canton, Ohio. They will be in shape to make high class repress brick within sixty days.

The city of Sheboygan, Wis., has contracted with the Metropolitan interests at Canton, Ohio, for 1,000,000 Metropolitan paving block brick for the South Water street improvement work. The brick will cost the city about \$20 per thousand, as there is a freight charge of \$10 per thousand to be added to the price of the brick f. o. b. Canton.

A company has been organized at Brookhaven, Miss., to take over the brick plant of Seavey Bros., where brick have heretofore been made by hand. The company will install the latest improved machinery for making pressed brick. Those interested in the company are W. H. and John H. Seavey, W. D. Davis, S. E. Moreton and G. B. Perkins.

The Colorado Pressed Brick Company, of Colorado Springs, which recently purchased the plant of the Colorado Brick and Tile Company, has been consolidated with the Hot Springs Gypsum Company, of Hot Springs, S. D. The new firm has purchased an immense tract of land and will carry on the business on a much larger scale than ever before. G. A. Krause, of Colorado Springs, F. H. Perry, of Hot Springs, and W. H. Miles, of Colorado Springs, are the chief movers in the enterprise.

The Washburn Brick Company, of Washburn, Wis., has started for the 1911 season with the best of prospects. The company was organized only in the summer of 1910, but was a success from the start. About a year ago Manager Skjelberg, an old and experienced brick man, investigated the clay beds in the vicinity of Washburn, which is on the south shore of Lake Superior, and pronounced the stuff equal to the finest he had ever seen. The company was then organized and Mr. Skjelberg put at the head of the plant. He estimates that there is enough clay in the company's present holdings to keep the plant busy for 100 years or more.

The Jefferson Brick and Tile Company, at Jefferson, has resumed operations with considerable new labor-saving equipment. During the winter the entire plant was overhauled and among the improvements made was the installation of a cable system to convey the fresh brick from the machines to the dry racks. This work has always been done by men and boys and it was a favorite occupation for Jefferson high school boys to "get muscle" by haking brick during the vacation period. Many of the new leading residents of Jefferson recall the time when they thought it the acme of joy to work in the Jefferson brick yards and tote soggy brick to the racks.

The Fon du Lac Pressed Brick Company, of Fon du Lac, Wis., held quite a celebration last month in honor of the re-opening of its big brick yards operating with a new process, the "wire-cut." Equipment has been added to give the yards a capacity of 40,000 wire-cut brick daily. About \$5,000 has been expended in improvements and new equipment. E. H. Korrer, secretary of the company, gives his personal attention to the actual producing end of the business, as well as other departments, and has built up a large business. Among the large supply contracts received this year are the following: Pressed brick for the cold storage plant of F. J. Castrow at Lomira, Wis.; residence for George Kissinger at Jackson, taking 35,000 brick; undertaking and furniture store for Gilboy & Senn at Campbellsport.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



RECORDS at the office of the city building inspector in Toledo for the month of May show a gain of about 15 per cent. over the figures of the corresponding month in 1910. New structures last year aggregated \$424,500 in estimated valuation while this year they exceeded \$484,000. The same figures show a lesser number of permits for new structures this year than last, while on the other hand, commercial and industrial work has been far more general. Brick plants of this section have been exceedingly busy all spring, and are now running at full capacity in an effort to meet the growing demand for building brick. It may safely be said that there is a very inconsequential surplus on hand now, and with the present outlook it would be far from surprising if the supply would run very short before the building season draws to a close. One thing that has prevented such a condition before now is the fact that the heavy Michigan demand which characterized the local brick market for months, has dropped off materially recently, and but few Toledo brick are now being shipped to Detroit or other Michigan points. Many large building contracts have recently been signed, the work to be done this summer, and brick men say that building business generally will be more active a little later in the season. Money is very plentiful for building purposes, and is to be had from many sources at fair rates. One prominent financier in speaking of the financial condition recently said, "There is plenty of money for all comers who have the security. In fact it has been a long time since there was so much money seeking investment, and this condition appears to be general in this section." Prices are very firm and show no signs of weakening. Good building brick are now selling here at \$7.50, and face brick are bringing about fifty cents more per thousand. There is a demand at these figures for all that manufacturing concerns are able to turn out. All the smaller towns show considerable activity in building lines, and there is a large amount of public work in progress.

The same satisfactory condition also pervades the paving brick and sewer pipe industries. With plenty of easy money to do business with there has been but little delay in public work, such as street and sewer improvements. The coming of the automobile has brought with it a demand for better streets and highways, and in some instances even country roads are being paved with brick. In cities and towns the influence is being felt, and a gradual increase in street paving in nearly all municipalities has resulted. Each year is bringing an increased demand for paving brick, and it is safe to say that in northwestern Ohio there will be more money expended for paving this year than ever before in the history of the business. Sewer improvements are also general, and the business is now enjoying a season of great prosperity. Other clay-working institutions report just a fair amount of business, but most of them manage to keep busy and to find a fair market for their output.

The city of Jackson, Ohio, is making rapid progress in the matter of street improvements. W. J. Kuhner, of Wellston, recently secured the award to do paving to the amount of \$8,000.

Toledo brick men are interested in the first meeting of the Transportation Club to be held since the election of officers. It will be held Saturday evening when plans for the club's picnic in Central Grove Park and the annual excursion to Sugar Island will be discussed.

That there will be a demand for sewer pipe in Ohio is shown by the following list of sewer improvements under way and in process of legislation, in some of the smaller Ohio towns: New Philadelphia will vote to issue bonds to the amount of \$100,000, for sewer system; Bedford, \$46,000; Springfield, \$40,000; Circleville, 1,466 feet of 20-inch pipe;

Massillon, sewers in six streets; Findlay, 15,000 lineal feet; Niles storm and sanitary sewers in ten streets; Jackson, \$25,000, contract let to Hunt & Martin; Xenia, \$2,700, contract let to Huonker & Williams; Sandusky, several streets let to M. J. Callan and Fred Hobbe; Springfield, \$21,000 contract let to Huonker & Williams. Extensive work is also planned in Toledo, Youngstown, Conneaut, Canton and many other cities. A heavy demand is also reported for drain tile from rural sections.

The new Geleerd law of Ohio, recently passed by the legislature, allows municipalities to use any and all kinds of materials in municipally owned and conducted street departments.

Toledo paving contractors failed to land the handsome award made last week for the paving of a long stretch of Second street, extending from Hickory to Pine streets, in Perrysburg. The plum was pulled down by D. J. Mulligan, a Lima contractor, at his bid of \$35,538. The street will be paved with Wassell block brick, and will be rushed to completion this summer. Four Toledo bidders entered the contest, one from Piqua, one from Richmond, Ind., and one from Detroit. George B. Campe, of Toledo, was engaged as engineer to look after the job.

A freight rate war is threatened in Toledo territory, affecting all east and west roads, as a result of the action of the Delaware & Hudson, which recently filed with the interstate commerce commission a reduction in class freights between New York and Chicago. The reduction is from 75 cents to 62 cents per hundred weight, first class, and proportionate reductions on other classes. Other roads say they will contest the action and have asked that the new rate be suspended pending an inquiry into its reasonableness.

A unique organization was recently launched in Toledo, known as the American Industrial & Commercial Agency. It has a capital stock of \$100,000, and is intended to place obstacles in the path of the professional deadbeat. Laborers are to be rated as to workmanship, character, production, and appearance, in a book to be published in the near future. Agencies have been established in 35 cities, and it is planned to be nation wide, with agencies in 1,000 towns and cities in the United States. In addition to the rating book educational pamphlets dealing with various trades will be published and furnished to men in those trades. A vacancies bulletin will also be sent out at regular intervals, giving the names of manufacturers in the various cities of the country having jobs for men. A charge of \$3 a year will be made for the service. The new concern has offices in the Nicholas building in Toledo, and A. C. Fischer, who organized it is general manager.

A market for a large number of building brick will be furnished by the American Can Company of Toledo, at its new factory building which will be erected this summer. The structure will cost approximately \$300,000, and will be 80 feet wide and 280 feet long, and four stories high. It will, when completed, furnish employment for about 1,000 workmen.

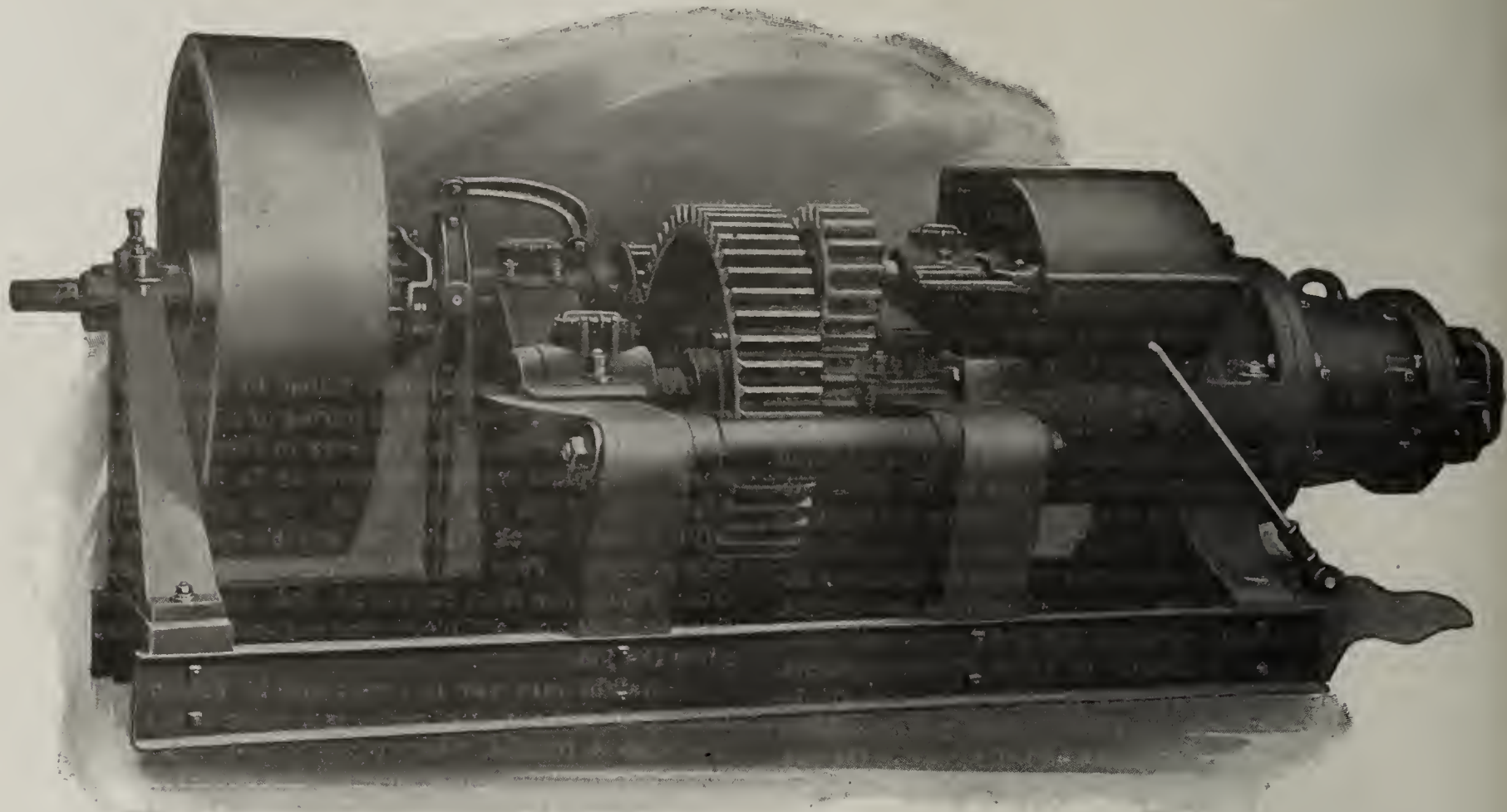
T. O. D.

YOU CAN'T FADE 'EM.

In these days of fancy and artistic brick, wider mortar joints are used and therefore a great deal of attention is given to the selection of a color that will show off the brick to the best advantage. The Ricketson Mineral Paint Works, of Milwaukee, Wis., pioneers in this line of work, make a particular study of the manufacture of the mortar colors to suit the fancy of every one. Get in communication with them.

MAN, THINK WHAT YOU ARE WORTH!

Andrew Carnegie recently said that he would gladly give \$100,000,000 for an absolute assurance of ten more years of life. Grab a pad and pencil and figure out your own capitalization on this basis!—Chicago Journal.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 936-939.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE BRICK SITUATION this year at the end of five months in the new year is still one of being not clearly determined, whether there will be a fairly good sale for the season's output or not. Much may happen during the next two months to make or mar the season as a whole. So far the demand for brick has fair, but only fair, while the stocks in a number of the yards were somewhat above normal, and require a better demand if the year is to have a normal sale. But the time for the heavy demand is yet to come. Much building has been held back, particularly in the country, because of the feeling of doubt about the outcoming of the crops. The partial failure and the dry season last year, caused many to anticipate another dry summer this year. But the month of May, just past, has had well over the normal rainfall, and has had over three times the volume that fell last year. This has gone a long way toward restoring the country to a normal state. The ground still needs more rain, for the extreme dryness last year exhausted every bit of reserve, but the frequent rains have gone a long way toward restoring it.

The dry season helped the standing of tile drainage, for it had been freely predicted that tiled ground would be simply baked dead in a dry year. The past year has shown to the contrary. While tiling does not produce moisture, it does not hinder the subsoil moisture, and it does away with the surface moisture so that crops have a better and earlier chance to get going. The conditions were so overwhelmingly in favor of tiled work, that there will be a marked increase in its use.

In the Twin cities, building has been hampered somewhat by the strike of carpenters for a raise of forty cents per day,—five cents an hour more. The general contractors usually refused the raise and imported carpenters from outside in order to carry on their work. The fact that they were able to get men as they wanted them, establishes that there has been less activity in building than common, for in a normal year, it would hardly be possible to bring in men in any craft in numbers. There has been little real interruption to building under way, on account of the carpenters' strike. The structures of brick or other construction with more or less carpenter work in connection, have been carried along with only occasional interruption.

Crop conditions are very favorable now, and seem to promise a better than average yield, if the present conditions shall continue. If there is a good crop this fall, there is no doubt that there will be a heavy volume of building. It will be greatly to the benefit of the brick industry if the individual concerns will shape their advertising to the public along lines urging the use of brick and permanent construction. Permanent brick barns, brick chicken houses, brick granaries, brick dwellings and all the other buildings about a farm should be urged. The fact that warm stables and chicken houses mean better conditioned stock and better yields of milk, eggs, etc., as well as requiring less feed for the stock to carry them through the winter, will afford telling points which will be quite effective with the possible builders.

Ed. Barr, a well-known clay expert, who has been connected with the business at Austin, Minn., for a number of years, is credited with the intention of starting an elaborate clay and tile plant in the Midway district between St. Paul and Minneapolis, on some of the extensive trackage which is available there. The clays for the enterprise are to come from a newly discovered bank at Zumbrota, Minn., about sixty miles south of the Twin cities. This deposit which Mr. Barr has found, consists of an exceptional shale bank, of an inexhaustible quantity, and of a character not heretofore found in Minnesota. It is said to be suitable for various use such as face brick, tile and building blocks, and will burn to vitrification with good results. There is about 22 per cent. of alumina, and something over 5 per cent. of iron oxide in it. The burned product will take a high polish. The project which Mr. Barr is said to contemplate will require about ten cars of clay a day to furnish the needed material.

M. C. Madsen, proprietor of the brick and tile plant at

Hutchinson, Minn., has just installed an electric motor at the plant.

The brick yards through the Northwest are now pretty generally operating for the season, if their proprietors expect to run at all this season. There are only a few yards which are not operating.

The Schroeder brick plant at Shakopee, Minn., has just installed a new brick-making machine with a daily capacity of 45,000.

The North American Tile and Pottery Company is just completing a plant at the new town of Walsh, near Tower, Minn., in the northeastern part of the State. The plant includes a model brick machine, automatic cutter, disintegrator, hoisting drum drop cars, boilers, engines, etc. Manufacturing has just been started in temporary kilns.

The new Acorn Brick and Tile Company, of Glenville, Minn., has just started its plant in operation. It is expected that it will take several months to develop it to the full capacity.

The Fairmont Drain Tile and Brick Company, of Fairmont, Minn., finished burning its first kiln of drain tile the latter part of May. This company has done a large amount of drain tile production, and the demand for tile has been exceptionally active in Southern Minnesota.

Hoglund Bros., of Minneapolis, received the general contract for the erection of a brick school building at Warren, Minn., to cost about \$26,000. F. E. Halden, architect, Minneapolis.

John H. Hoffman, general contractor, St. Paul, received the general contract for the erection of a three-story brick school building to be erected for St. Joseph Female Academy, in St. Paul. The building will be 145x130 feet in size, three stories and basement, pressed and common brick construction, modern throughout. Cost \$115,000. J. H. Wheeler, architect, St. Paul.

Hoy & Elzy, general contractors of St. Paul and Minneapolis, received the general contract for the theater building to be erected in Minneapolis, on Hennepin avenue, between Sixth and Seventh streets, by Finkelstein & Rubins, of St. Paul and Des Moines. There will be an office building in front, in connection with the building. The exterior walls will be of pressed brick. De Brauwere & Hopper, architects, Minneapolis. It will cost complete, about \$150,000.

James Leck, of Minneapolis, has received the general contract for the erection of the superstructure of the rebuilt Syndicate block, which was burned in January. The new section will be six stories and basement, steel frame construction, pressed brick walls, etc. Cost complete, \$300,000. Long, Lamoreaux & Long architects, Minneapolis.

Lindstrom & Almars, architects, Minneapolis, have plans for an extensive brick apartment hotel building to be erected at Selby avenue and Dale street, St. Paul, by Henry A. Kennedy. The building will contain a total of 350 rooms, which will be divided into 200 apartments of one and two rooms, with kitchenette and bath. The exterior walls will be of Colonial brick laid Flemish bond, with Bedford cut stone trimmings. Cost complete, \$250,000.

Kirby T. Snyder & Co., architects, Minneapolis, are preparing plans for a modern brick school building for Paynesville, Minn., to contain twelve rooms. Cost complete, \$36,000. The same architects are preparing plans for a handsome pressed brick church building for the Methodist congregation of Kingsley, Iowa. It will be 52x92 feet in size, pressed brick exterior walls. Cost complete, about \$20,000.

Splady & Albee received the general contract for the erection of the Hastings Hotel building to be erected at Twelfth street and Hawthorne avenue, Minneapolis, for John Gorfien, lessee. It will be eight stories and basement, brick exterior walls. Cost complete, \$150,000.

Lindstrom & Almars, architects, Minneapolis, have prepared plans for a complete factory plant to be erected by the Segerstrom Piano Manufacturing Company, now of Minneapolis, at Menomonie, Wis. The building will be three stories and basement, brick construction, with a complete outfit of machinery, and individual motors throughout. Cost \$10,000.

The Stone & Webster Engineering Corporation has started work on an elaborate electric steam power station in Northeast Minneapolis. It will be four stories, of brick, steel and concrete construction. Cost, with equipment, \$400,000.

Caledonia, Minn., will erect a fireproof brick city hall to cost \$25,000. It will be on plans by J. E. Nason, architect, of Minneapolis.

T. WINN.

THE LINE

Twenty-One Years
1890 of Unbroken Record Between 1911
Maker and User of
THE CHAMBERS BRICK MACHINERY

In the spring of 1890 James W. English ordered of Cyrus Chambers, Jr., for the Chattahoochee Brick Company, of Atlanta, the first Chambers Brick Machine introduced into the State of Georgia. This was followed within a few months by an order for the second machine, and every year since has marked some additional order, and still further cemented the cordial business relations between the two concerns, now extending to a second generation. Sometimes it was Pug Mills or Granulators, a new conveying system, an installation of Dry Pans for grinding a shale deposit, and again a rearrangement of the plant to suit new location of clay supply.

Finally after 21 years of service the old machine gave way. Just plumb tired out, it struck the job, and

although we stated it could be patched, Captain English said, "No, boys, put in a new one," and with some complimentary remarks, handed our Mr. Morrison an order for one of THE CHAMBERS SPECIALS, with cut steel gears, heavy steel shafts and everything that long experience has shown will contribute to a better machine. One that fits into the space of the old machine, but weighs 25 per cent more and yet is sold at a lower price.

During these twenty-one years the Chattahoochee Brick Company has shipped its brick over long distances; in some cases the freight per M exceeding the price of the brick at the yards.

In the same period the Chambers Brothers Company has shipped its brick machines to California and Oregon, to Canada and Louisiana, to Texas and Florida, as well as throughout the Central and Eastern States. Several machines have been sent to China, Japan, New Zealand, France, Germany, Sweden and South America.

Mr. Post claims, "THERE IS A REASON."

Whatever it may be that has held Captain English's trade in brick machinery for twenty-one years, that induces customers in China and Japan to send repeat orders for the **Chambers Brick Machinery** is at the service of other brick manufacturerers if they desire to avail of it.

CHAMBERS BROTHERS COMPANY

Brickmaking Machinery.

Philadelphia, Pa., and
Chicago, Ill.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS FROM ALABAMA.

THE PLANT of the Chattahoochee Brick Manufacturing Company, at Eufala, Ala., was almost totally destroyed during the latter part of May by a disastrous fire. Four kilns and two box cars loaded with brick also were destroyed. The plant is in the suburbs of the town and the failure of the telephone to work made it too late to get assistance from the fire department. The origin of the fire is unknown, but the blaze is not thought to have been incendiary. The loss is heavy with no insurance. The plant was operated by B. B. McKenzie & Sons. The plant will be rebuilt at once.

A terra cotta plant to cost in the neighborhood of \$25,000 will be erected at a near date, it is understood, at Ragland, Ala., by the stockholders of the Atlantic and Gulf Portland Cement Company. Details have not been made public yet, but it is thought that before long work will start on it so as to get in in working condition in the shortest possible time.

George O. Berry, the well-known Columbus, Ga., brick manufacturer, has been honored by being elected one of the grand representatives of the Georgia Odd Fellows to the Sovereign Grand Lodge of that order. Mr. Berry is a Past Grand Master, and is one of the most prominent members of the Georgia Grand Lodge.

The Chatham Brick Company, of Savannah, Ga., is installing a brick kiln for the manufacture of brick according to the process patented by Mrs. Francis D. Shaw, Chicago.

The National Mosaic Flooring Company, located in Mobile, Ala., has changed hands, the interests of the Cuban stockholders numbering in the majority having been bought by Mobile capitalists, William F. Tebbetts and F. Benemelis, who were later elected president and vice-president, respectively, of the concern, with Captain A. C. Danner as secretary and treasurer. The transaction represents an investment of over \$200,000. At present the company has over 1,500,000 tiles of different designs and qualities on hand and for this reason the plant will not be operated on a large scale as formerly, until a certain amount of the stock is sold. Salesmen will be sent out over the country for that purpose, and as soon as a sufficient amount of the stock has been sold additional forces will be used. The plant of the National Mosaic Flooring Company was established in Mobile about two years ago by a Cuban syndicate. After making 1,500,000 tiles over the demand, the factory was practically shut down.

W. L. Sanderson, general manager of the Improved Brick and Stone Company, of Dalton, Ga., is contemplating the establishment of several new brick plants. Mr. Sanderson's company controls the Sanderson patent process for manufacturing bricks, and Mr. Sanderson has been lately investigating conditions in several cities of the states of Georgia, South Carolina, North Carolina, Virginia and West Virginia for the purpose of finding suitable sites for the erection of plants to manufacture bricks by his patented process.

The Southern Mosaic and Tile Company, of Birmingham, one of the South's largest concerns in that line, has secured the contract for the tile work to be done in the Charity Hospital, now being erected at Jackson, Miss. This tile work will include the walls, ceilings, floors, baths, operating rooms, sterilizing rooms and will be done in both enameled and mosaic tiles. Among the large jobs recently completed by this company is that of tiling the floor of the remodeled Louisville & Nashville railroad depot in Birmingham, which has been pronounced one of the most perfect and best executed pieces of work done anywhere.

A. N. Davidson and T. J. Williams, two well-known business men of Lockesburg, Ark., will establish a brick manufacturing company to be known as the Lockesburg Brick Manufacturing Company. Machinery will be purchased with a capacity of

20,000 building brick, daily, and sheds and other buildings will be erected immediately.

For the purpose of increasing the capacity of the plant, in accordance with the increasing demand for its product, J. M. Walker, a prominent brick manufacturer of Water Valley, Miss., will purchase additional machinery in the near future.

Dulin & Peter Brick Company, of Jackson, Tenn., is the name of a new brick manufacturing concern just going into business. Machinery and accompanying material have been ordered and work on sheds and other buildings has been started. It is the purpose of the company to make itself a factor in the brick industry of Tennessee.

The Wili-apacobe brick plant, of Ragland, Ala., has been bought by H. M. Goldson, who has long been connected with various enterprises in the South, from Atlanta, Ga., parties, former owners, of whom C. H. Pitman was the manager of the plant. The plant, since the new ownership, has been undergoing repairs and several improvements are contemplated. The quality of shale brick turned out by the plant in the past has made a good name for itself.

W. A. Carver, of Rougemont, N. C., was in Birmingham recently for the purpose of gathering information and data concerning the manufacture of brick, it being the intention of Mr. Carver to build and operate a plant at Rougemont of about 30,000 per day capacity. Local brick manufacturers saw to it that Mr. Carver was given all information needed; in fact, he was taken to several of the brick plants and personally shown the methods of manufacture, etc.

In reply to a request that manufacturers of bricks of all kinds in Alabama, Georgia, Florida and South Carolina furnish the Prairie Pebble Phosphate Company, of New York, with data of manufacture and prices, several Birmingham manufacturers have sent in the desired information.

The brick plant of Seavy Bros., at Brookhaven, Miss., has been taken over by the following prominent business men of that town: W. H. and John E. Seavey, W. D. Davis, S. E. Moreton, C. B. Perkins and others. It is the intention of the new owners to install hydraulic pressed brick machinery.

Machinery with a capacity of 10,000 pressed bricks has just been purchased by the Improved Brick and Stone Company, of which F. Kees is president, this in addition to the machinery already being operated by the company, which is growing quite steadily.

The following Southern cities have recently voted bond issues for street and road paving: Americus, Ga., \$40,000; Cullman, Ala., \$25,000; Decatur, Ala., Elberton, Ga., \$5,000; Northport, Ala., Selma, Ala., Albany, Ga., Gadsden, Ala., Mobile, Ala., Atlanta, Ga., Augusta, Ga., Demopolis, Ala., New Decatur, Ala., \$14,000; Newnan, Ga., \$50,000.

Gates Bros. & Co., Union City, Ga., invite quotations on 220,000 average brick, delivered at Fairburn, Ga., and 80,000 average brick delivered at Atlanta, Ga.

Jacksonville, Fla., has awarded to Georgia Engineering Company, Augusta, Ga., contract for laying of brick pavement, employing in all about 3,000,000.

A. L. A.

INSPECTING PAVING BRICK.

William A. Howell, engineer of the street department of the Board of Works of Newark, recently visited Jamestown, N. Y., to make an inspection of a type of brick pavement known as Jamestown block. He found that the block had been used extensively in Jamestown and has given satisfaction there. At the plant where it is manufactured he was informed that the demand for it has been so great that enlarged facilities are necessary and will be provided as soon as present plans can be carried out.

Our exports of manufactures are now going out at a rate of a billion a year and represent a little more than half our total export trade. It is pleasant to note, too, that among the increases mentioned are earthen and chinaware.



Barrett's PAVING PITCH



Barrett's Paving Pitch being applied to a brick street in HIAWATHA, KANSAS.

We call attention to the novel pouring machines shown in this photograph, which we understand were successfully used on this job.

"EVERY JOINT IS AN EXPANSION JOINT"

The chief trouble with cement-filled brick pavement is the inadequacy of the special expansion joints to provide for the changes caused by expansion and contraction. No matter how carefully expansion joints are used, sooner or later changes of temperature will create strains that will tear the pavement apart and produce long, unsightly cracks. The ideal solution of it is to have "every joint an expansion joint." Instead of using pitch filler in two or three joints every forty or fifty feet, use the pitch in every joint surrounding each individual brick. Under these circumstances, expansion and contraction have no effect whatever. Cracks and breaks do not occur. If one brick should be broken by a hard blow, its neighbor is not affected at all. When the brick expands, the pitch in the joints is squeezed up a little higher; when the brick contracts, the pitch simply sinks a little lower. The pitch has great tenacity and will adhere firmly to the brick,

giving to the foundation continuous protection against water and frost.

The supporting power of pitch is, of course, much less than that of cement, but this is an advantage, not a defect. Pitch has sufficient body to prevent the bricks from grinding on each other or shifting, but on the other hand, it allows each brick to rest on the foundation independently of its neighbors. If the foundation is properly laid in the first place, the pitch will protect it from damage by water, and the contour of the pavement will never be seriously altered.

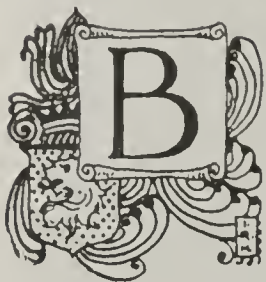
As contrasted with asphalt filler, pitch retains its elasticity longer, has greater adhesive power, and accordingly is more waterproof. It does not, like asphalt, cleave off the brick, and expose the foundation to the percolation of water in cold weather. The best paving pitch is "Barrett's Paving Pitch," especially made for the purpose. Booklet on request. Address our nearest office.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburg	Minneapolis	Kansas City	New Orleans	Seattle	London, England	

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



BUILDING in the suburban sections of New Jersey, both about New York and Philadelphia, promises unusual activities this year. Indeed, development of this character is much more rapid in suburban districts than it is in the cities, relatively. The suburban district about New York is developing faster and in a more substantial way than any other similar district in the world, probably. Before many years the entire district from Jersey City to Nyack, N. Y., a distance of 30 miles or more, will be built up solid. And the distance west from the Hudson river is about the same, including the great cities of Newark and Paterson, and the smaller ones around them.

It is surprising how extensively brick is being utilized in structural work in these localities, in both public and private buildings. New rapid transit lines are extending in every direction, causing an ever extending circle of development. Nor is the end yet. Within ten years twice the population of the present will be accommodated in all these places. Timber is high in price. Stone is impracticable. Cement is uncertain. It remains now for the brick man to take advantage of his opportunities.

The yards along the Hackensack are all in operation, and the arches are being laid preparatory for the first burning. So far the weather has been unsurpassed, hot and dry. In truth, it has been the driest May ever known. Nearly all are operating to practically full capacity. About 75,000,000 will be turned out this season.

The Pedrick Brick Company, of Flemington, has increased its force this year under a larger demand, and is now operating its plant to full capacity.

At Florence is located the New Jersey Brick Company, making brick and terra cotta. Some 50 or 60 men are employed, and the product turned out is of sufficiently attractive quality to find a ready market.

Woodbridge has a number of burnt clay manufactories, all of which are busy this year. The Fords Terra Cotta and Sanitary Works employs about 25 men on sanitary earthen ware. They are busy this season. The Ostrander Fire Brick Company employs 150 hands and has all the orders it can handle. Its fire brick are in demand wherever such brick are needed. The Perth Amboy Fire Brick Company employs 110 men in the manufacture of fire brick, and finds orders plenty. S. G. Brinkman deals in fire clay and sand and keeps 25 men busy getting it out.

B. H. Reed & Bros., Hightstown, are running their works to their full capacity, making brick and tile. They never employ less than 15 men, and this season full capacity has been reached.

The Homestead Brick Company, Homestead, employs 40 to 50 persons in the manufacture of common brick. This season it has made some additions to its plant and is operating to full capacity. The clay is dredged from the meadows, which are there as low as tide water. The brick made is of excellent quality and is used in buildings as well as for heavier work.

J. H. Gautier & Co., Jersey City, manufacture fire brick, tiles and blocks. They are running 125 hands this season and have sufficient orders to keep them busy for a considerable time to come.

At Keasby, the Didier-March Company, manufacturers of fire brick, are operating 200 men. The National Fireproofing Company has 260 men, and the Raritan River Clay Company has 130 men all at work on the products indicated in their names. The plants are all busy. Fire brick and fireproofing are in especial demand, and sales are made as rapidly as the

product can be turned out. The plants are working to their full capacity this year, and the fireproofing people will have to increase their capacity they say to keep abreast of the demand.

A. L. B.

OFFICERS OF B. B. A. REPORT PROGRESS.

A MEETING of the Executive Committee of the Building Brick Association of America was held at the Hotel Hollenden, Cleveland, Ohio, May 16th, every member of the committee being present, and the entire day was spent in careful consideration of the affairs of the association. The Secretary-Treasurer reported an increase of 56 per cent. in the subscriptions of this year as compared with the corresponding date of the year 1910, the amount being nearly \$14,000 after deducting the subscription of the eleven members of last year who have resigned.

The present membership of the association is 240, which is a gain of about 100 members as compared with the corresponding date in 1910.

Sufficient money is now in the bank for paying every obligation, including all the advertising which has been done, and leave a small balance in the bank still on hand.

Considerable money is still due on subscriptions and a vigorous effort will be made immediately by the Secretary-Treasurer to secure the payment of the same.

The question of further advertising was thoroughly discussed, and it was unanimously voted to appropriate the further sum of \$4,500.00 for advertising in the following publications:

"Saturday Evening Post," "Everybody's Magazine," "McClure's," "Cosmopolitan," "Country Life in America," "Suburban Life," "Craftsman," "Good Housekeeping," and "Literary Digest."

These publications have a national circulation and reach every part of the United States, and will therefore bring the "Publicity for Brick" vigorously before the entire country. Every brickmaker or brick dealer in the United States will feel the effect of the advertising upon his business, and it was the unanimous opinion that efforts should be made to bring this before the attention of those who have not yet joined the association, and that they should be urged to bear their proper share in this important work.

What the brickmaker needs to bring him up to the level of the modern merchants is "publicity," which in almost every line of business has revolutionized selling methods. The fact that the brick business has been one of the last to adopt modern sales method is undoubtedly one reason for the fact that it is such a poor field for profit.

Very encouraging reports were received from the South. Director W. E. Dunwody writes as follows:

"There is a great revival of interest in brick building—the greatest I have ever seen in my experience of the past twenty years in the 'brick game.' We have probably nearly ten times as many inquiries now on the subject of brick for residences as we have ever had before and the interest is increasing daily."

A large part of this increased interest is due to the advertising propaganda of Mr. Dunwody in co-operation with the work of this association. What has been done in the South can easily be done in the East, North and West. All it requires is a little progressiveness on the part of the brickmaker and a ridiculously small amount of cash.

The fees for membership in the association are approximately ½c. per thousand on yearly production of common brick manufacturers, and 1c. per thousand for face brick manufacturers. When the smallness of this contribution is considered it is astonishing that every brickmaker has not already joined this association and put in his mite to further this work.

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HOW DO YOU DRY YOUR BRICK?

Are you drying them thoroughly?

Are you doing it economically?

Are you doing this at a cost so low
that it cannot be reduced?

Are you absolutely certain your
present method cannot be improved
upon?

Have you ever investigated the
Trautwein System?

The Trautwein System is no ex-
periment.

We have cut the cost of many dry-
ing systems 50%.

There are no repairs with the Traut-
wein System.

Every day you waste the cooling
heat from your kilns you are losing
money.

A two-cent stamp is all it costs to
investigate our ability to serve you.

DO IT NOW.

TRAUTWEIN DRYER & ENGINEERING CO.

Waste Heat Dryer Specialists,
Clay Works Engineers,

417 So. Dearborn St.

CHICAGO.

Mention THE CLAY-WORKER.

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—A stoneware turner. Apply
COWDEN & CO.,
6 1 cm Harrisburg, Pa.

FOR SALE.

10 x 18 Buchanan Jaw Crusher, good condition. Also, 2 pair 14 x 28 crushing rolls. Address BOX 6—B. T.,
6 1 dm Care Clay-Worker.

WANTED—At once, reliable, sober man to take charge of my soft mud brick plant. Capacity, 40,000. Must also be a good burner. Address
BOX 6—BARNES,
6 1 cm Care Clay-Worker.

WANTED—Position as superintendent of fire brick plant. Young man thoroughly experienced in silica, fire brick, etc. Take entire charge. References. Address,
BOX 6—J. A. L.,
6 1 1p Care Clay-Worker.

FOR SALE.

One Scott-Madden clay gatherer and plow complete, in first-class mechanical condition. Has given service but a short time. Address
BOX 6—J. B.,
6 tf d Care Clay-Worker.

FOR SALE—Brick plant in county seat. Brick sell from \$8.00 to \$12.00 per thousand. Railroad division. Reason for selling, want to contract for brick building and can not take care of both. Will sell half or all on good terms.
E. E. SENIFF,
6 1 c Leesville, La.

WANTED.

Position as superintendent of a brick plant making brick by the stiff mud process. Am thoroughly familiar with the business, from construction of the plant to the marketing of the brick. Can furnish best of references.
A. C. BARNETT,
6 2 dm Washington, Ga.

FOR SALE.

Having quit the brick business, will sell the following equipment at a low price, all of which is in good condition: one all metal mold sander, with shafting and pulleys; 200 grate bars for kiln, one dirt crusher and 20-foot elevator with shafting and pulleys.
J. S. COLLINS,
6 4 dm 321 Main St.,
Frankfort, Ky.

WANTED.

A party to co-operate in exploiting a valuable clay property in Illinois. Address
REFRACTORY,
4 7 cm Care Clay-Worker.

WANTED.

Foreman for a plant manufacturing red shale brick, stiff mud process. References required. Address
BOX 4—B. J.,
4 3 c Care Clay-Worker.

WANTED.

Superintendent for a new brick plant, daily capacity of 80,000. All high-grade ware. Must be well recommended and with some money to invest in company. Address BOX 4—P. D. G.,
4 3 d Care Clay-Worker.

FOR SALE—Brickyard, capacity 35,000.

Wire cut, repress and sand mold machines; 11 acres fine clay deposit; railroad siding to kilns; three lines railroad and water transportation; cheap wood. Foreclosure sale—one-third cost of plant.
BONNER COUNTY NATIONAL BANK,
5 4 cm Sand Point, Idaho.

FOR SALE.

Five-foot dry pan, bucket clay elevator and two-mold dry press, made by American Clay Machinery Company; 26-foot 16-inch clay conveyor, made by the J. D. Fate Company; Dunlap Perfect screen. All in good condition. Will sell at half price.

GOLD BROS. BRICK COMPANY,
4 tf d Big Stone City, S. D.

FOR SALE CHEAP.

Second-hand boiler, 12 feet by 54 inches, 40 tubes 4-inch diameter.

One second-hand Nagle slide-valve engine, size 10 by 16.

One second-hand Cookson feed water heater, oil separator and filter combined. All in first-class condition. If you are in need of any of the above, write for price today.

THE HINDE BRICK & TILE CO.,
5 3 c Sandusky, Ohio.

MANAGER WANTED.

A new plant wants a superintendent and manager; a reliable man capable of managing an up-to-date stoneware and drain tile plant situated in Kentucky, can secure a permanent and lucrative position with an interest in the business if he desires it. The plant is well located and has excellent prospects for an increasing business. In writing, give age, experience, and previous connections. Must be reliable. Address
BOX 92,
6 1 dm Care Clay-Worker.

FOR SALE.

One nine-foot dry pan, iron frame.
T. B. TOWNSEND BRICK AND CON-
TRACTING COMPANY,
4 tf d Zanesville, Ohio.

WANTED—Position as burner or superintendent of paving or building brick plant. Best of references. Address
CONTINUOUS KILN,
5 tf d Care Clay-Worker.

WANTED

By a Northwestern Company, a young or middle-aged man thoroughly experienced and capable of handling a stoneware and terra cotta plant. Must be a good mechanic and well up on glazes and handling of clays. Address
BOX 6—CLAY,
6 1 dm Care Clay-Worker.

FOR SALE.

Martin "A" power brick machine.
Pug mill and belt sander.
1 Potts clay crusher.
10,000 wooden pallets, 34-in. long and 10 in. wide, with a strip 2-in. wide and 4½ in. high nailed on each end.
140 24-in. gauge 6 ft. Atlas brick cars.
Cummer dryer fan, 20-in.-blade, 54½-in. high, for a 2 7-16-in. shaft.
2 Atlas car transfers.

JOHN WILSON,
3031 Stillson Ave., S. E.,
5 tf d Cleveland, Ohio.

FOR SALE.

Vitrified brick plant in St. Joseph, Mo., with 17 acres of the finest quality of shale. This is probably the best opportunity in the country. Can be bought for less than its actual value and on the most reasonable terms. It is also a great Hollow Tile proposition.

VAN SANT & VAN DEUSEN,
1107 Corby-Forsee Bldg.,
6 1 dm St. Joseph, Mo.

TILE CLAY FOR SALE.

Forty-seven acres of land, on which is located 20 acres of the finest clay, suitable for making roofing tiles, etc. Location for yard is graded, as is also the tramway to the clay pit. This property has railroad side track, and any one engaged in that business would have practically no competition here, as there is only one other such plant in the State so far as we know. We will be pleased to submit samples of the clay, and name a price to anyone interested.

WASHINGTON BRICK CO.,
6 3 cm Washington, Ga.

FOR SALE—A good drain tile factory; well located in town of 1,200 people; might consider a farm as part trade. Write for particulars. **DAY BROS.**,
5 3 cm Alexandria, Ind.

WANTED.

To buy a brick plant having shale or fire clay, raw material and round down-draft kilns. Give complete description. Address **LOCK BOX 743**,
4 tf d Uhrichsville. Ohio.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address, **BOX 3, B. T. CO.**,
3 tf d Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,
FRANK P. CLEVELAND,
965 Adams Express Bldg.
3 tf d Chicago, Ill.

FOR SALE.

Complete modern tile plant, 4 new 40-foot kilns, steam and open dryers, 23 acres clay land; \$500 worth of coal on hand. Plant ready to start. Owner sick. Will be sold cheap; part cash. **HARRY A. VAN AUKEN**,
309 Hodges Bldg., Detroit, Mich.
5 2 cm

FOR SALE.

Big deposit of white pottery clay covering 414 acres of land. Suitable for brick, tile and pottery. Right up against good countyseat town and on two main lines of railroad. Will sell land to company wishing to work the clay. Plenty of wood and lignite coal on land to burn kilns. **NEWTON & DRISKILL**,
4 3 cm Union City, Okla.

FOR SALE

I have an inexhaustible clay deposit for making soft-mud pressed brick, sewer pipe and tile, but have not sufficient capital to handle. Parties looking for such an opening will do well to write me. Two plants are now running close by—pressed brick and cement plants. Seventy miles from Winnipeg, with railroad running through same. Address **BOX 2—LEARY'S**,
5 2 cm Manitoba, Can.

FOR SALE

Soft mud, pallet system brick plant, manufacturing red brick. Only yard in city of 15,000. Railroad sidetrack i yard. Has been leased for five years, but lessees have now gone to another city to take charge of yard belonging to their father. This is worth investigating, for it will be sold at a reasonable figure, and on terms if desired. **FIFIELD LUMBER COMPANY**,
4 3 cm Janesville, Wis.

WANTED.

I am looking for a good business opening or farm. Price must be right. Will pay cash. Give full particulars in first letter. Address
C. W., BOX 965,
4 6 d Cherry Valley, Ill.

WANTED.

An experienced brick man with a small amount of money who is willing to invest in and manage a proposed brick plant in Vicksburg, Miss. Opportunities unlimited.
VICKSBURG PROGRESSIVE LEAGUE,
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FOR SALE

For Brick or Cement Plants. One No. 48 American Ring-Hammer shale pulverizer; one 10-foot revolving screen, in service one year, good as new. Will sell for 70 per cent. of the original cost. Also one Jeffery chain elevator, 150 feet, with fifty 24x8-inch steel buckets; elevator complete; \$150. **BURKE BRICK CO.**,
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FOR SALE—FACE BRICK PLANT.

Stiff mud machinery, latest design and fully equipped. In active operation making face brick; colors: black, buff, gray, brown, white and mottled brick. Clay at dry pan, coal at boilers. Plenty water. Good market, such as Chicago, St. Louis, Kansas City and intermediate points. Terms reasonable. Will sell all or part to a practical clayworker. Must have good references. Address **BOX 4—A. L.**,
4 3 d Care Clay-Worker.

FOR SALE.

Modern brick plant; capacity 9,000,000 of brick per year; equipped with Chambers' brick machinery and Standard Dry Kiln Company's eight-track dryer, with transfer trucks and turntables, and tracks to the kilns; all complete and in good order; two 90 horsepower boilers; one 125 horsepower Atlas slide-valve engine, with 24-inch double-thick oak-tanned leather belt to drive the machinery; 130 double-deck dryer cars; return trap to take the condensed water from the dryer pipes back to the boilers; kilns are in good repair. We have our own sidetrack to the kilns to load brick on cars to ship. Plant long established.

One ten-room dwelling house at works; stable with ten paved stalls, horses and carts to haul clay and do other work; storage shed for lumber 100 feet long by 27 feet wide; storage building 75 by 27 feet for machinery; tool house for all kinds of tools; 30 acres of clay—inexhaustible. Good reason for selling. Plant can be seen at work any time; in operation any time. Located on the Clinch Valley division of the N. & W. Railway, at Tip Top, Va. Address

GEO. SHAFER,
Supt. Radford Brick Company,
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FOR SALE.

Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new. **F. H. EGGERS**,
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WANTED.

Manager for a new brick plant with a daily capacity of 80,000 brick per day. Must have from \$10,000 to \$15,000 to invest in the enterprise. Steady job all the year around to the right man. Must have a good business experience. Address **BOX 4—I. X. L.**,
4 3 d Care Clay-Worker.

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BOILERS—VERTICAL.

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All sizes, open and closed.

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All sizes, Single and Duplex.

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Saw Mills, Lath Mills, Edgers, Cut-off Saws, Re-Saws, Blowers, Exhaust Fans, Tanks, etc. Write for list.

Also full assortment of new machinery. Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps. Send for circular.

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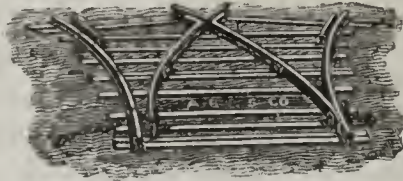
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Long Years

of time and weather
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For Mortar, Brick,
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Proved to be absolutely
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Burns 99 Percent Hard Bricks
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NO HOSE REQUIRED—Connected direct to pipe line from pump.

Does not have to be staked down or anchored in any way.

Universal in movement, it has a greater range of delivery and greater "flexibility" than hose.

EASILY AND SAFELY OPERATED BY ONE MAN.

This nozzle will pay for itself in a short time by the saving of labor alone, to say nothing of the increased amount of material that can be moved, as against other methods of hydraulic stripping.

MADE IN VARIOUS SIZES.

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Chicago Retort & Fire Brick Co.

"AJAX"
Fire Brick for
Building Kilns

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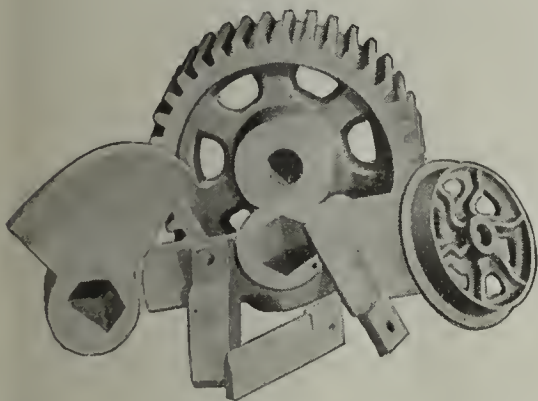
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THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
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Now St. Louis, Mo.



Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent
shut downs.

Let us refer you to other users.

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DESIRABLE CLAYWORKING PLANT On Southern Railway

Favorably located, with good clay deposit nearby.

Owner Of Plant Will Sell

Either all or part of his interest. Capacity, 5 to 10 Carloads Daily of Brick
And Two or Three Cars of Coal Which is Mined With the Clay.

Excellent Opportunity for Man With Money.

Clayworkers Should Investigate This Proposition.

Refer to File No. 9102, and write

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Has a modern and complete equipment for
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THE OHIO STATE UNIVERSITY offers complete
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Terms

reasonable.

First-class

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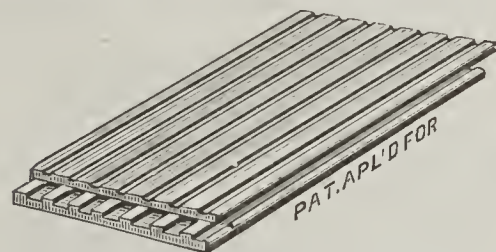
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Special attention paid to dry clay press
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Contracts made contingent upon suc-
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Patent Revolving and Hand Presses for
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Special Roller and Auger Presses for
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Stiff Mud Machinery for smaller capa-
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For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

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Manufacturers of

Red Oxides for Brick-makers' Use.

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The highest grade of
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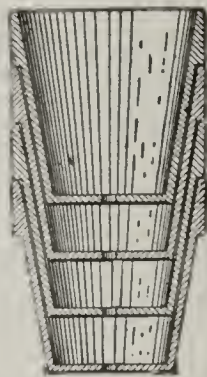
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

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No expert workmen required.

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6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

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Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

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Double Up and Down Draft Kiln.

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Builders of

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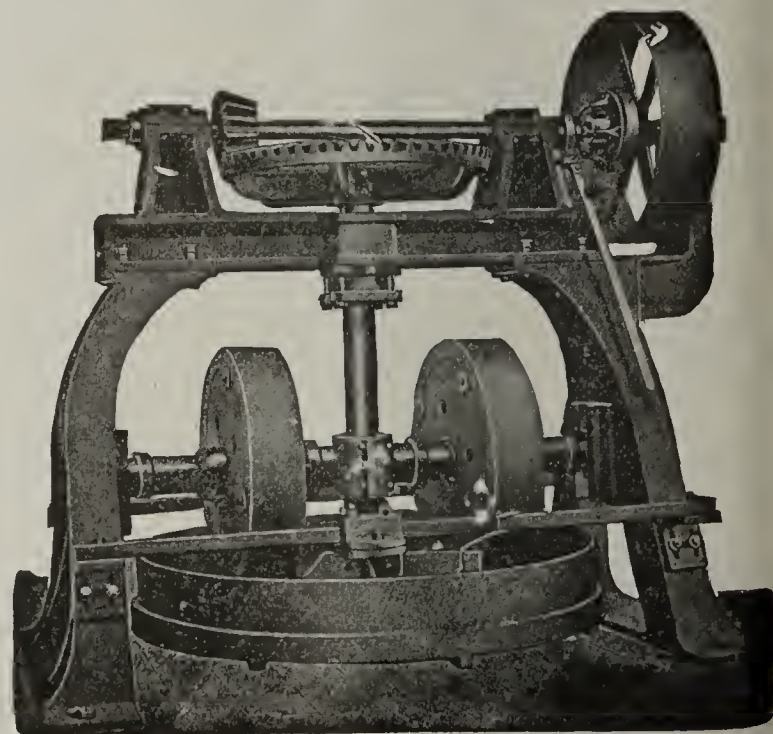
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When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

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Down-Draft Kilns designed for all purposes.

OUR SPECIALTY

A Superior Kiln for Common Brick that is
AS CHEAP AS an updraft kiln.

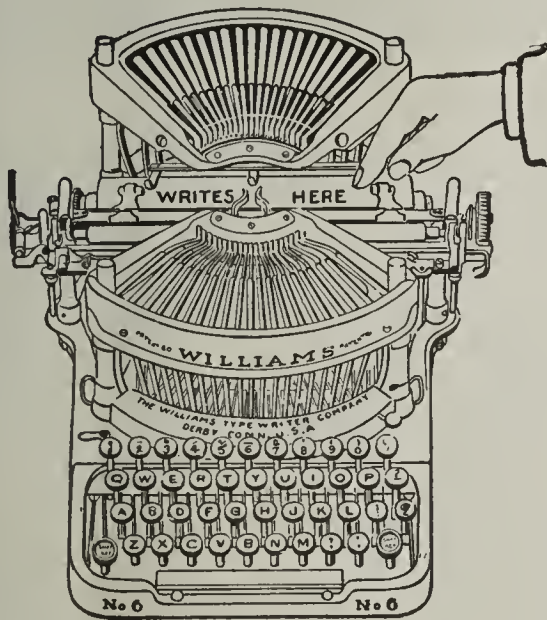
Fort Smith, Arkansas.

References: Munson Bros. Brick and Tile Works, Capron, Ill.;
Patton Clay Mfg. Co., Patton, Cambria Co., Pa.; Tom Hope, Pres.
Ada National Bank, Ada, Okla.; Cooper and Bones Brick and Tile
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Saves time, energy,
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The Williams is sold
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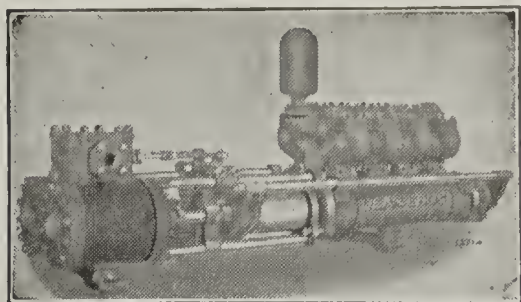
If you want the best
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ever offered, write us.

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Old Machines Taken in Trade.



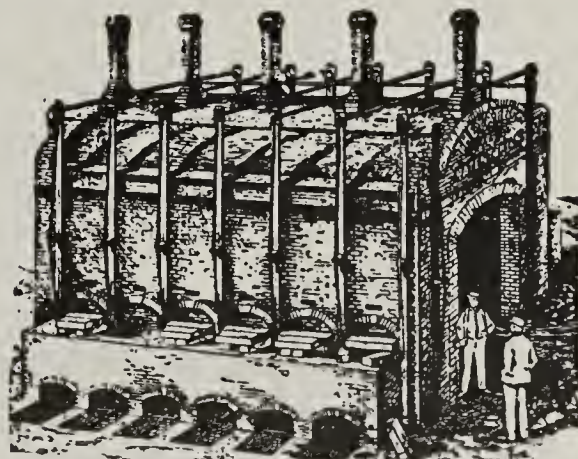
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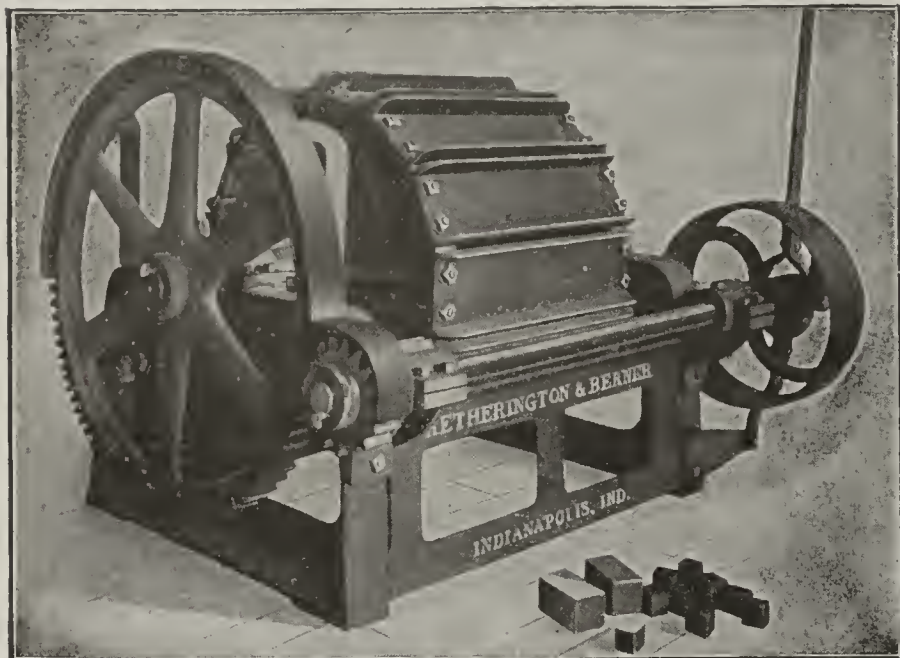
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ONE YEAR (IN ADVANCE)

\$2.00

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This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

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CARBONATE OF BARYTES
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Oxide Tin,
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Red Oxide Iron,
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GEO. E. SNOWDEN & CO.,
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Bolivar Face Brick Co. Bolivar, Pa.

We Make Six Lines of Brick That Are Winners:

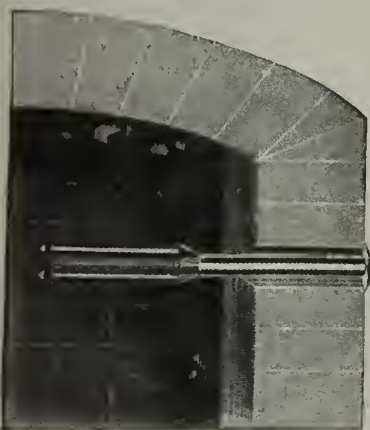
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Agencies Desired.

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Construction of Continuous Ring Kilns of various systems for all kinds of clay products.

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All other systems of kilns built with best results.

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We will send this famous gold-pointed pen, post paid, and THE CLAY-WORKER, for one year, to any address in the United States and Canada for **\$3.00**

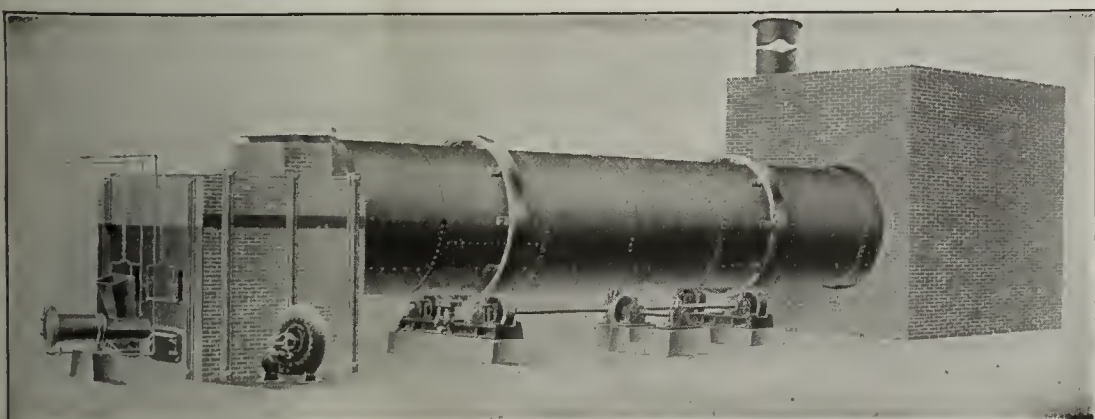
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Gen. Lew Wallace, the author of "Ben Hur," wrote: "I have tried every kind in the market, and unhesitatingly give the preference to the "Post."

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Automatic Improved DRYERS

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Great Capacity.

FOR CLAY, COAL, SAND, MARL, ETC.
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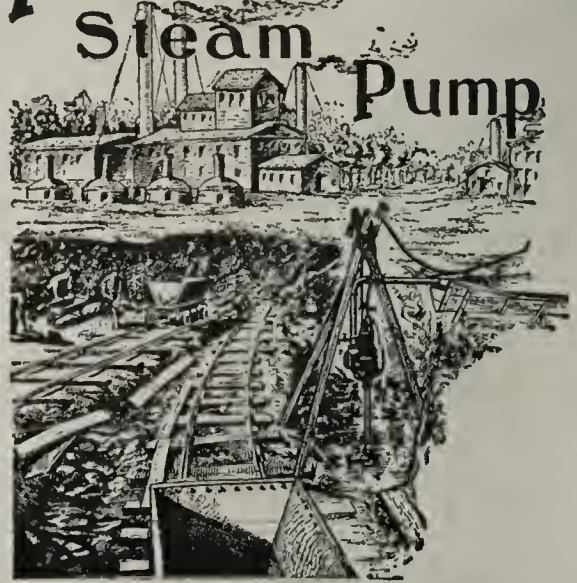
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means of removing water from **Clay Pits, Excavations, Foundations, etc.**, and any other place where the liquid to be handled contains much

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Illustrated, descriptive catalogue gratis.

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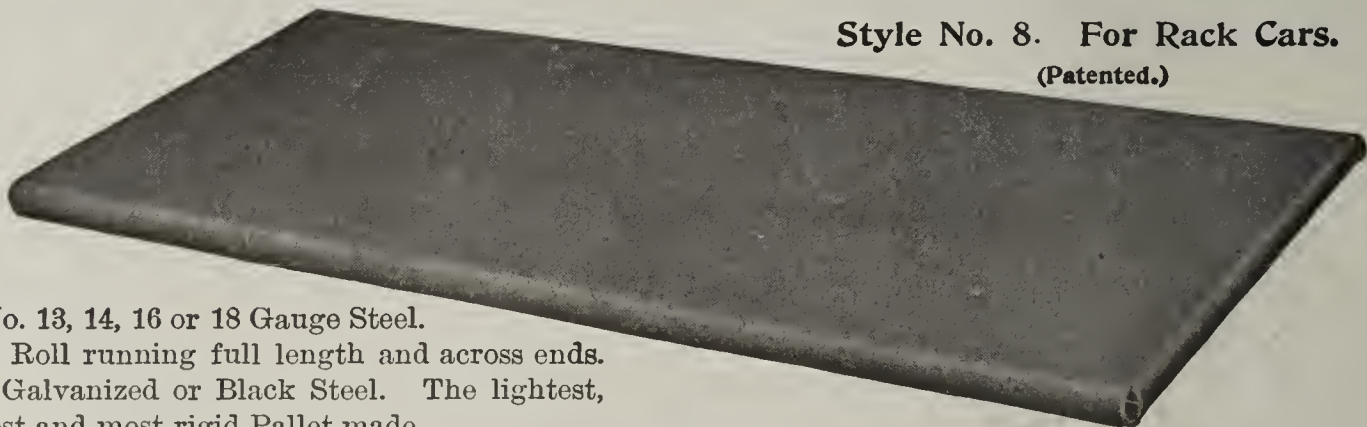
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"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.

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Made from No. 13, 14, 16 or 18 Gauge Steel.

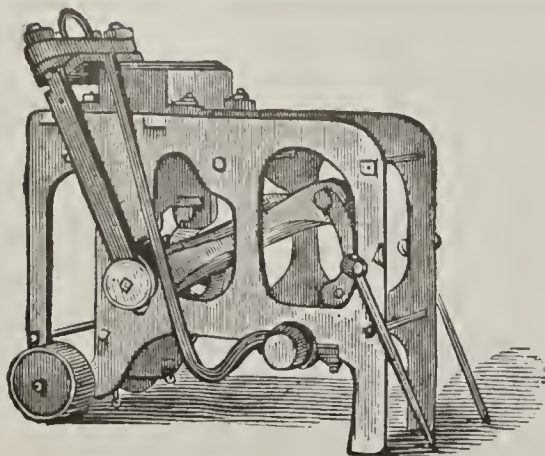
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Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

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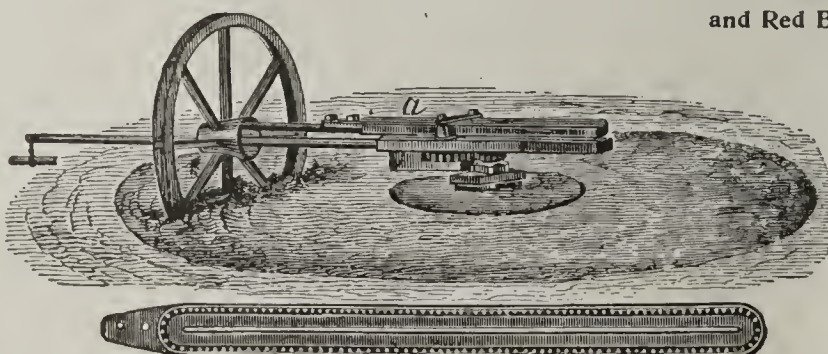
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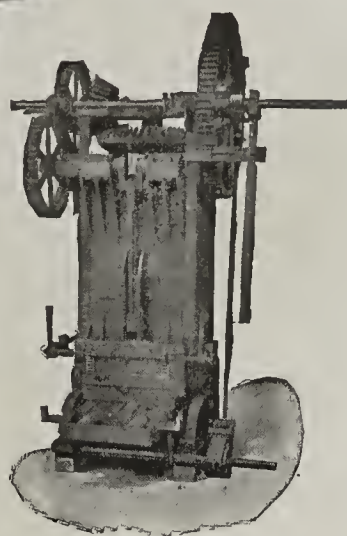
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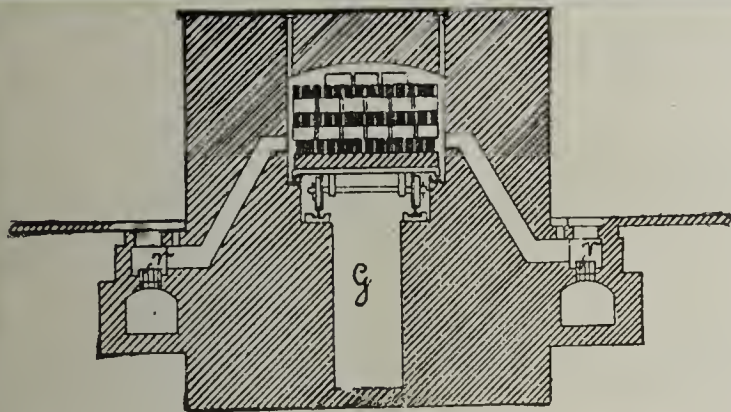
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Burns 1,000 Facing Bricks with 1 to 1½ Cwt. of Small Coal. Burns also,

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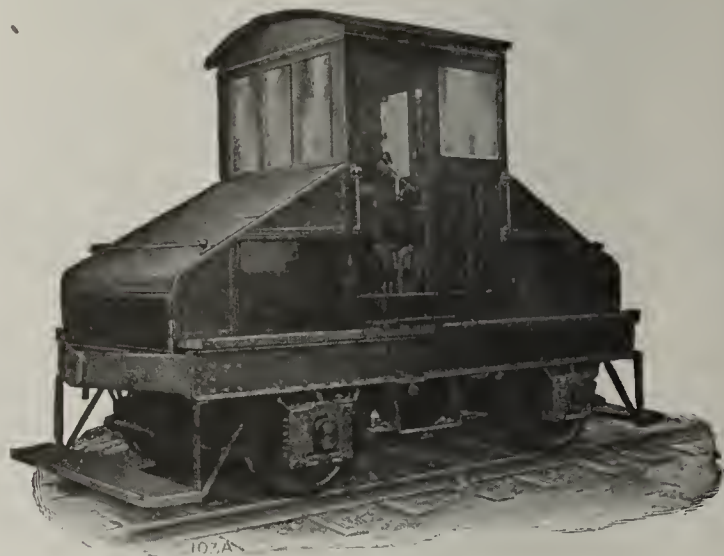
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True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

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To insure insertion in current issue, copy should be furnished early in the month.

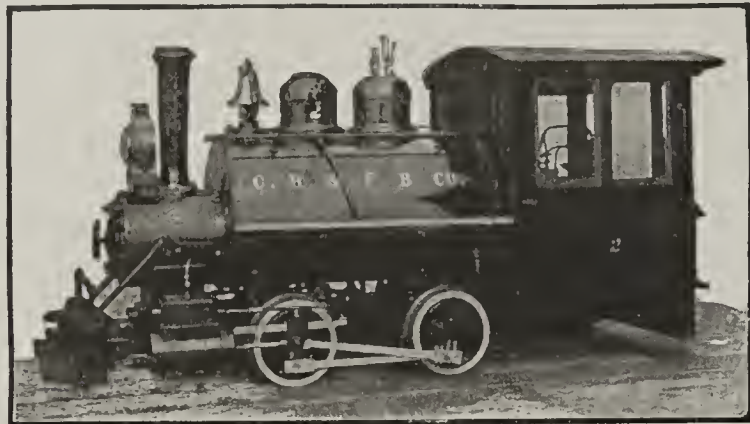
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Built for the Chicago Retort & Fire Brick Co.

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Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

Gilbreth's "Bricklaying System" is a book whose 330 pages are filled with rules and hints for his foremen and bricklayers, designed to increase the output of the workmen and to enable men of moderate skill to do difficult work in the best manner. There are 73 charts showing different bonds, ornamental and plain, some of which would be exceedingly hard to execute were it not for the methods explained in the text. To the architect, 73 ornamental charts alone will prove of great value, for practically none of them can be found in any other book, and no other book has more than 8 different bonds.

Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

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Everybody duplicates orders; they must be used to be appreciated.

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Stock size wheel, 20 inches diameter.
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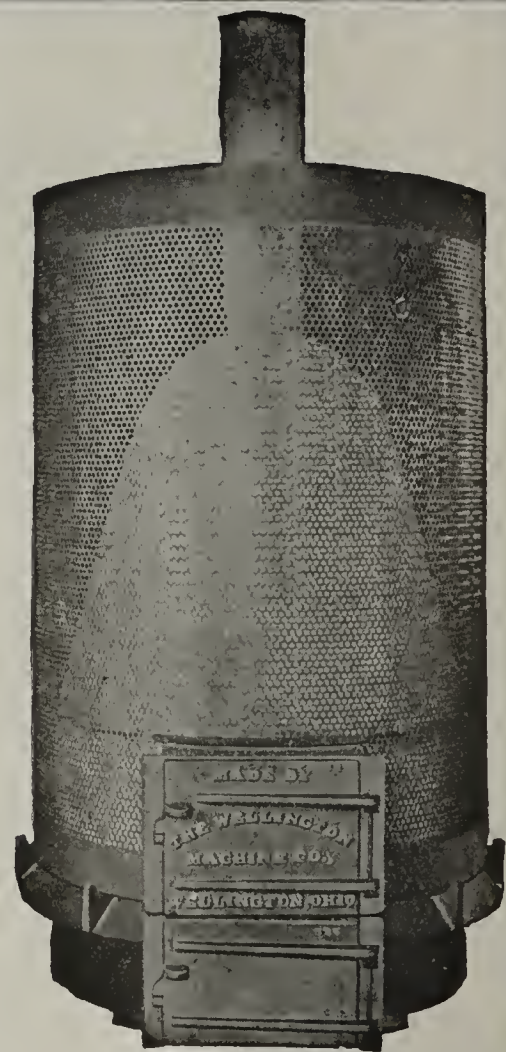


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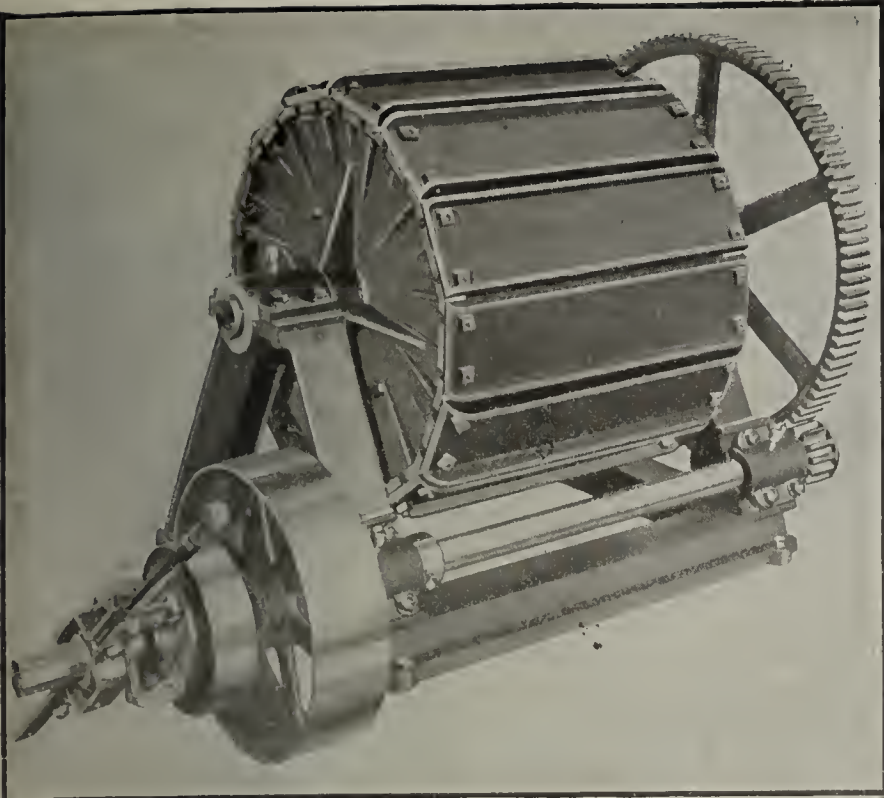
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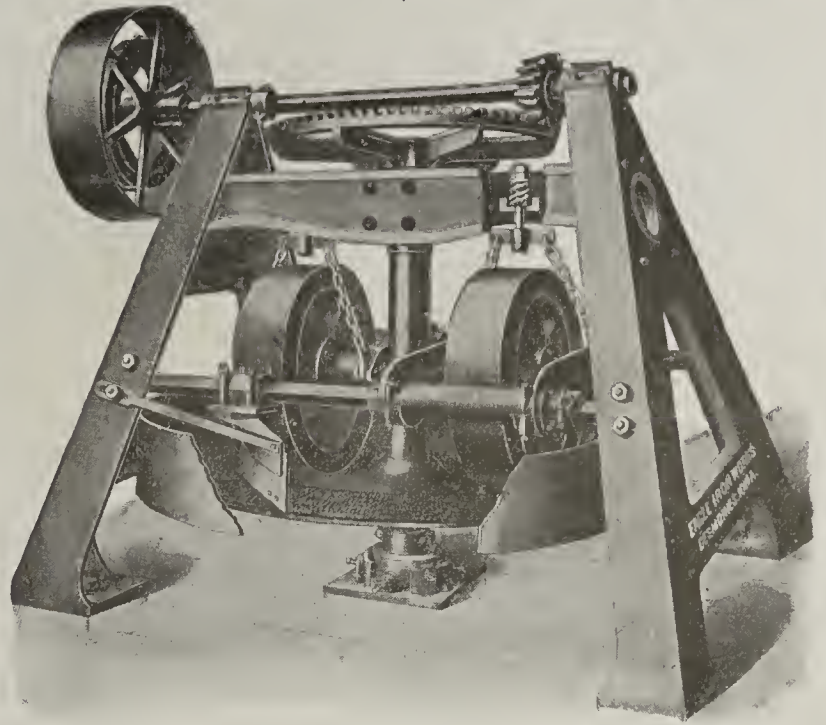


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These Kilns can be seen burning Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 Brick per day.

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We can show you scores of these kilns at work. We claim the nearest to 100% No. 1 product. and want you to see them.

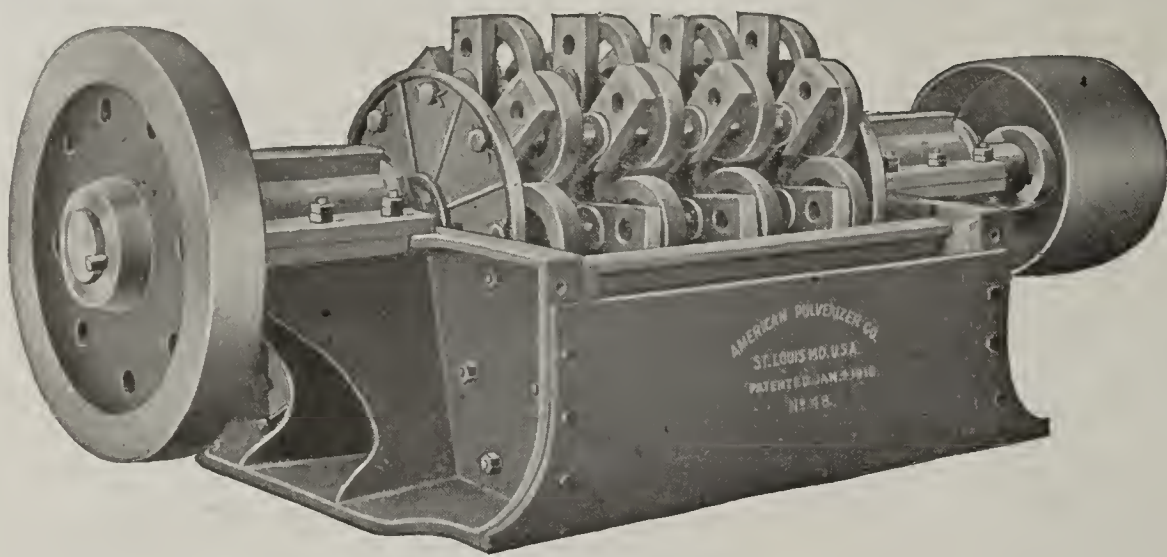
This Kiln can be Fired with Coal, Wood, Oil, Natural or Producer Gas. For economical working, and quality of product, it has no equal.

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It does its work with less cost of operation, does more and better work, withstands more rugged work, and is doing work other types of mills cannot do.

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swinging in a complete circle, will dig and deliver your material in any direction.

For moderate outputs, this is the most economical machine, as it can be operated by one man.

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Does not by any means consist solely of embodying in a structure the required amount of building material and iron work and providing tunnels or other means for enabling the cars of bricks to pass through so as to come into contact with the heat. With such a structure, however, properly designed and back of it a thorough knowledge of the art of drying clay products and a perfect understanding of the air movements, humidity, and temperature regulated to suit any and all conditions, we have a successful, progressive dryer; and in no other are these merits more pronounced than in



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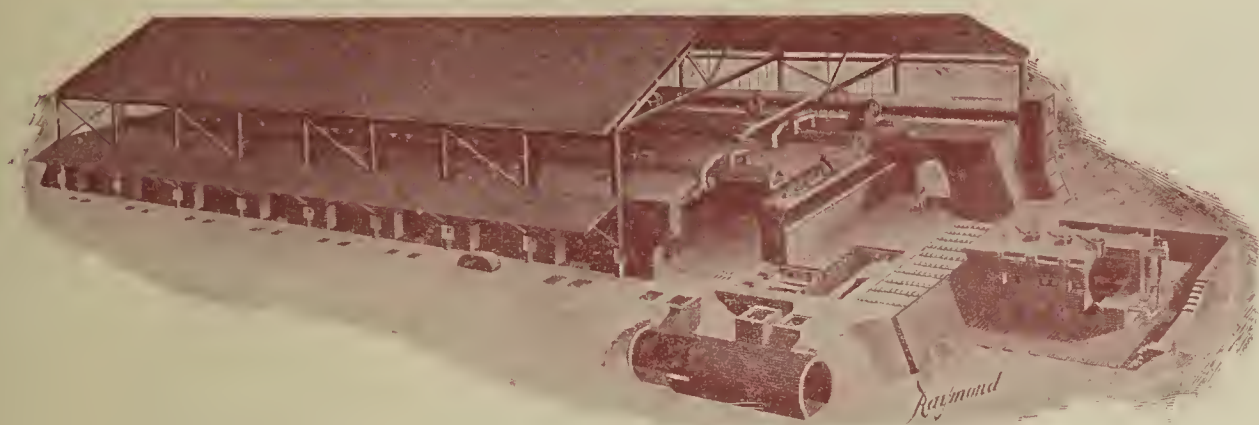
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It is built in two types—COMPARTMENT or TUNNEL, and is successfully burning all classes of clay and all the principal products.

Literature fully covering the Youngren Kiln will be mailed on receipt of your request.

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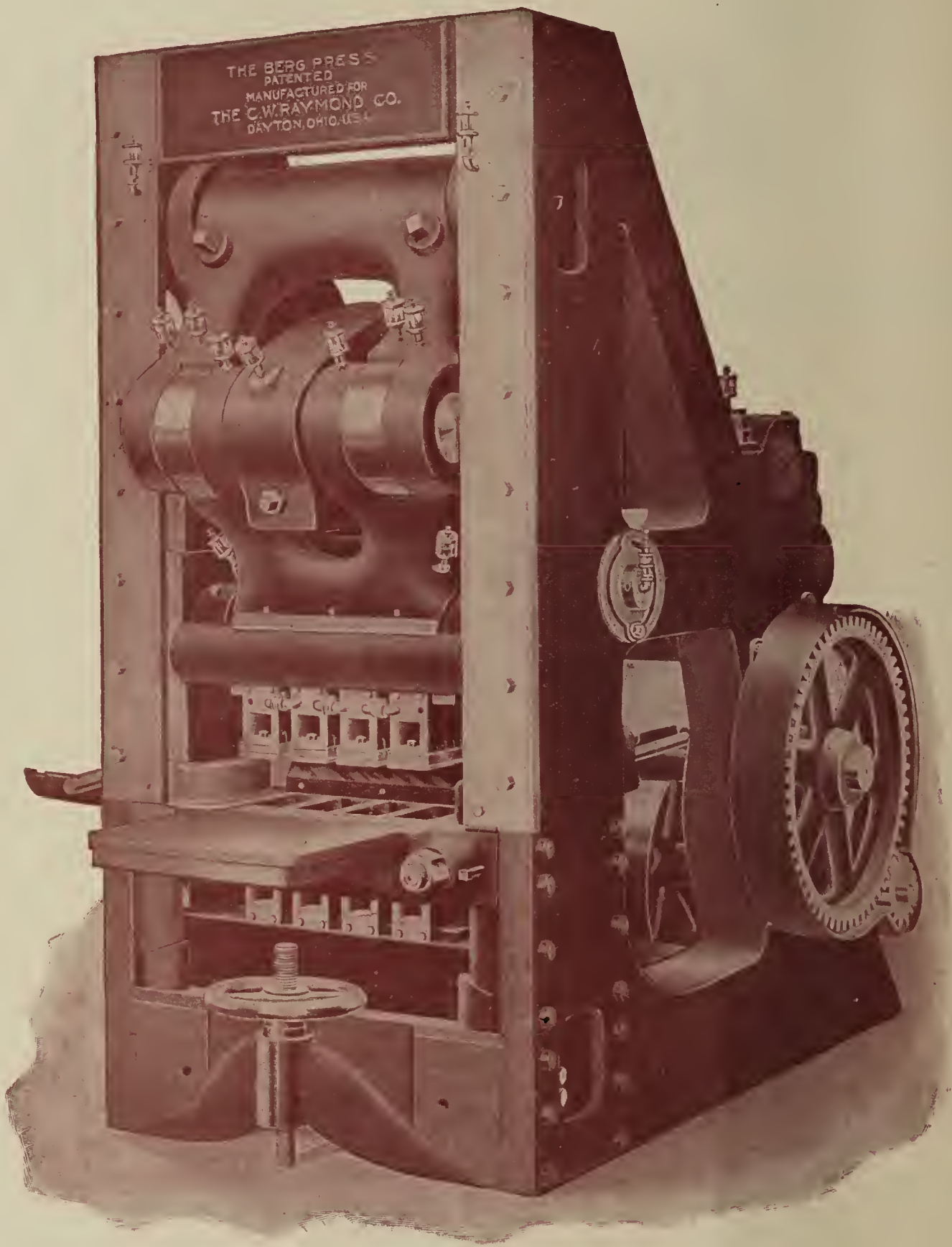
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The New Model Berg Press is the acme of dry press construction. Stronger than ever, yet simple in its massiveness, it stands farther in advance of all other machines of this type than ever before.

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Entirely self-contained and every part "Get-at-able."

A product of the best Engineering skill, it contains every desirable feature known to the modern clayworking machinery builder. Its capacity is 40,000 to 60,000 standard size brick per ten hours.

Our No. 2 Automatic Cutting Table is a step in advance of all other machines on the

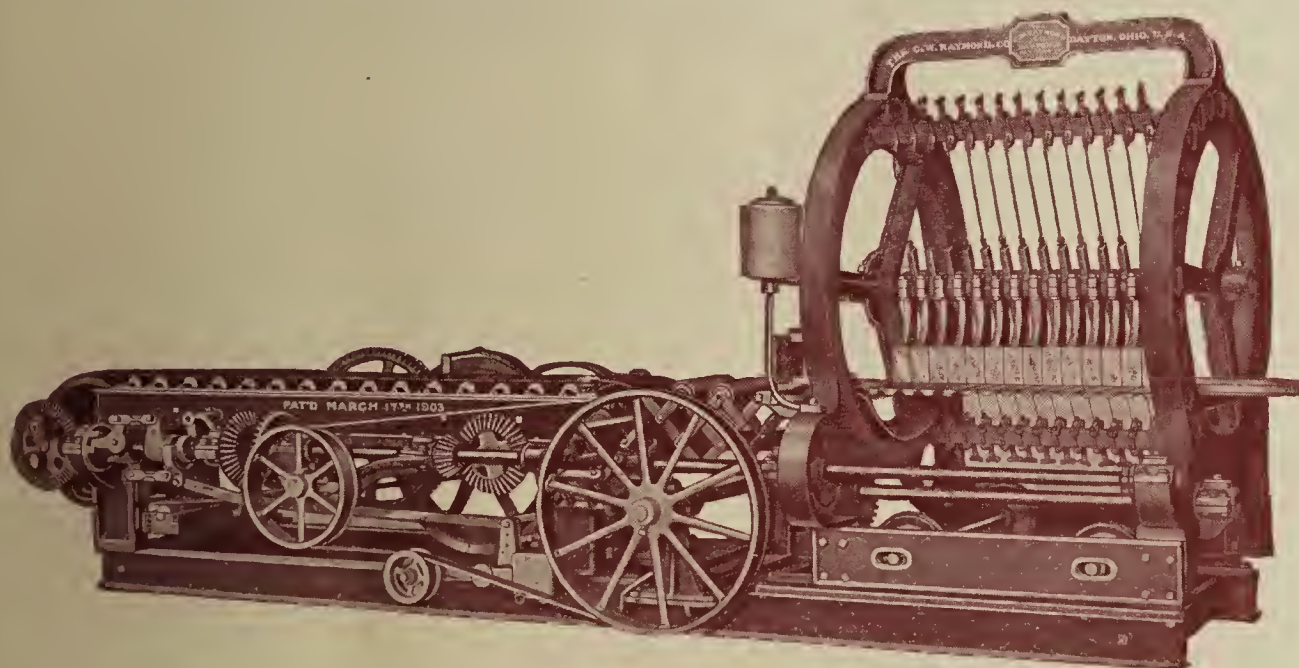
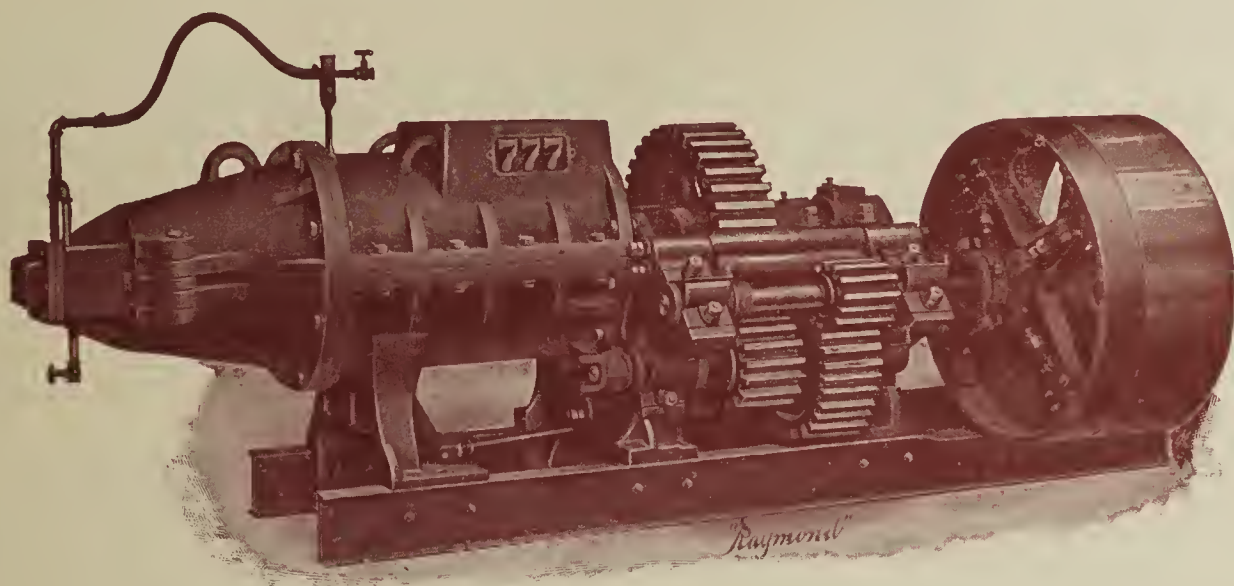
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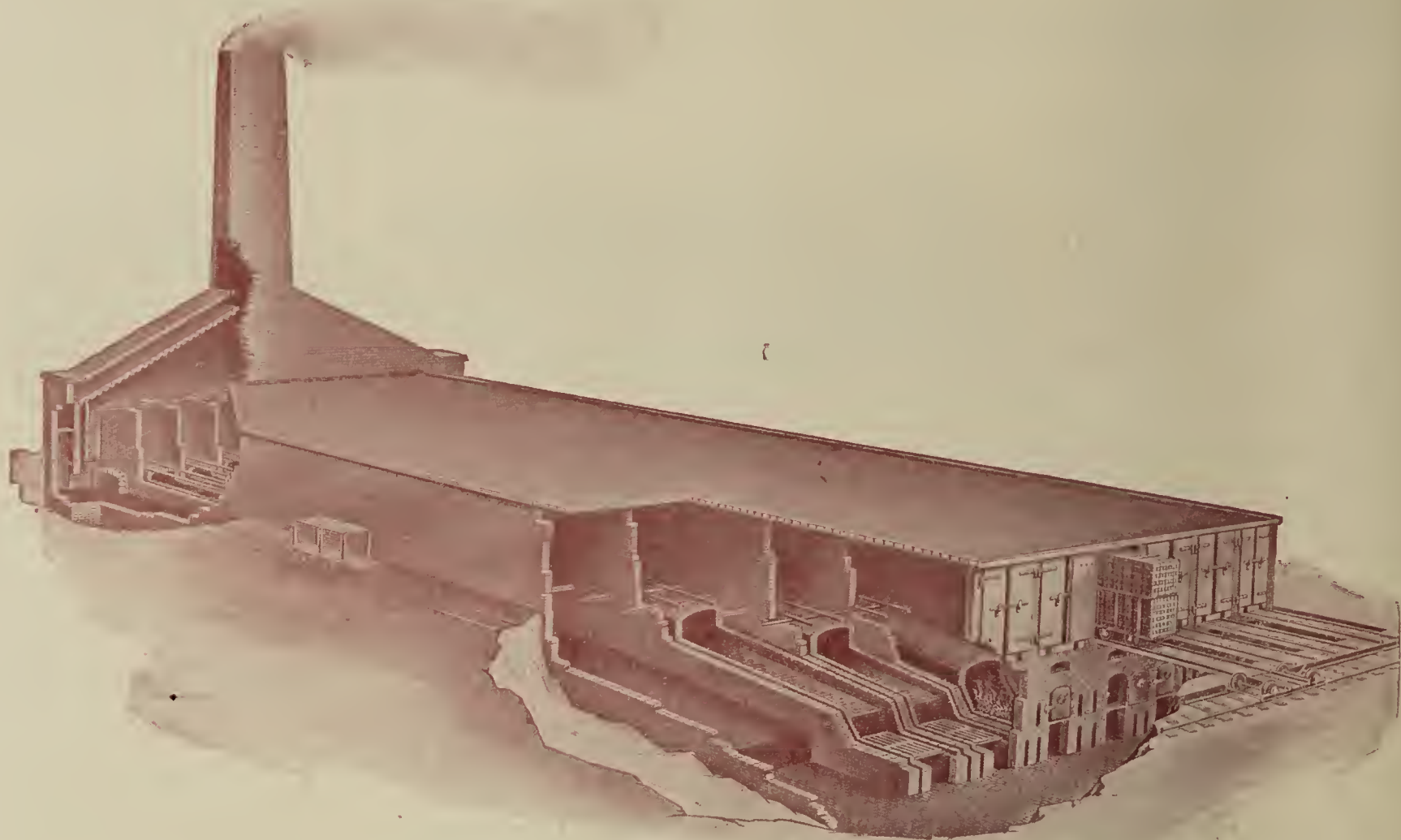
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The Raymond Systems of drying clay products have been a boon to the clayworker with drying troubles.

Our Raymond Radiated Heat Dryer is simplicity itself—no fan or engine troubles—temperature and air circulation in each tunnel under absolute and separate control. Ware only in contact with pure air. Cars never in contact with gases or acids. Fuel cost per ton of dried ware less than in any other dryer.

The tenderest clays can be dried without injury, and the same successful results are obtained with every description of clay ware.

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Worth its Weight in Gold to Every Factory Superintendent and Foreman.

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This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
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Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

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One Tool Does Not Interfere With the Free Use of
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A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
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THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

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The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

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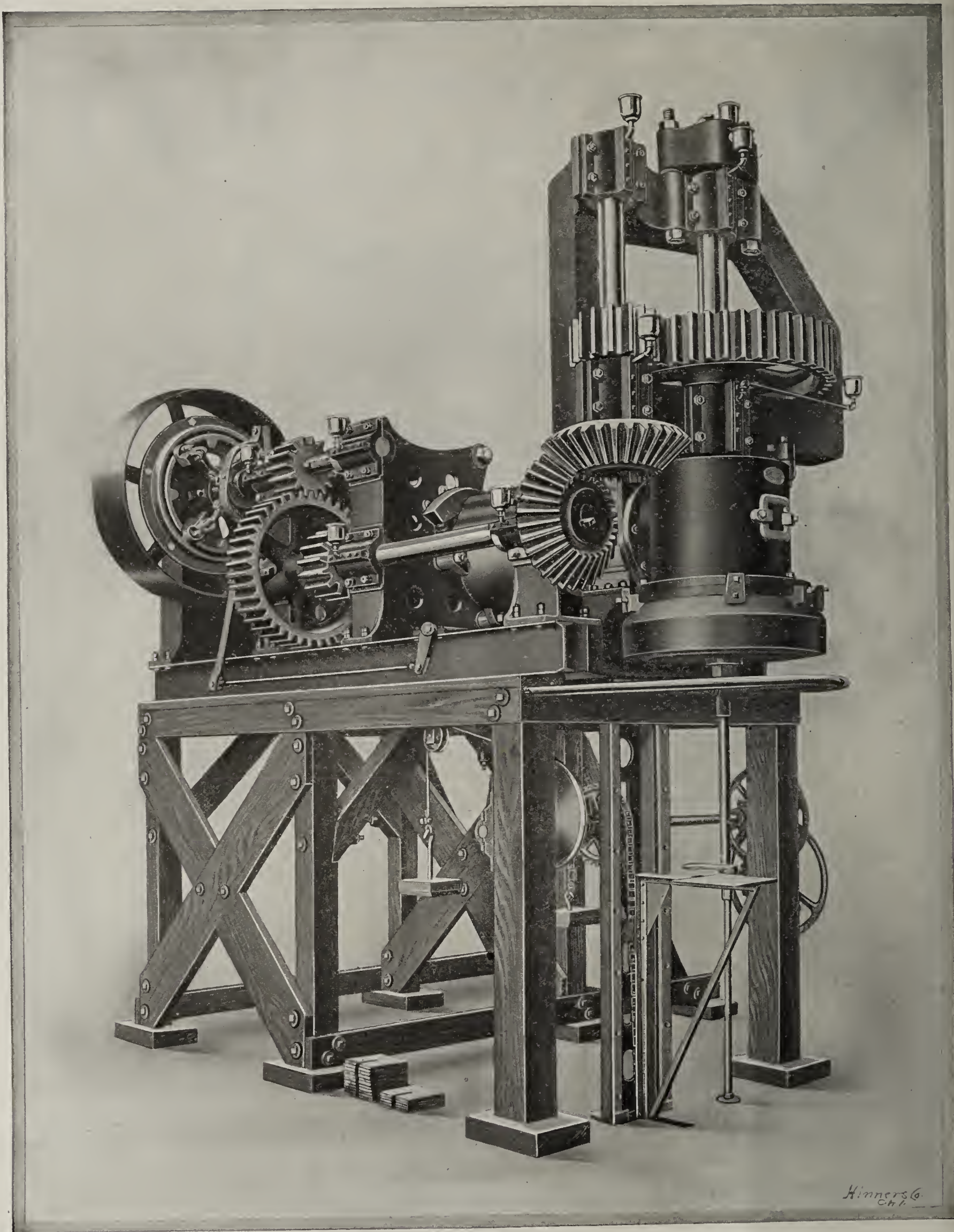
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LARGE TILE, TAKE A LOOK AT THIS AND FOR PARTICULARS WRITE

H. BREWER & CO. **BREWER** TECUMSEH, MICH.

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For ten years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



A Typical Thew Shovel

ONE MAN OUTPUTS

Our 13 Ton Shovel with $\frac{5}{8}$ yard dipper will handle any ordinary clay for outputs up to 100 M brick.

Our 20 Ton Shovel with $\frac{7}{8}$ yard dipper will handle any ordinary clay for outputs up to 150 M brick.

Our 30 Ton Shovel with 1 yard or $1\frac{1}{4}$ yard dipper will handle any clay for outputs up to 200 M brick.

Our 40 Ton Shovel with $1\frac{1}{4}$ yard or $1\frac{1}{2}$ yard dipper will handle any clay for outputs up to 250 M brick.

Any of the above machines will handle double the output specified with a full working crew of engineer, fireman and two laborers on the ground.

WE BUILD

SPECIAL SHOVELS FOR SHALE

Our 35 Ton Shovel with $\frac{3}{4}$ yard dipper is suitable for all ordinary shales up to 125 M brick per day.

Our 50 Ton Shovel with $1\frac{1}{4}$ yard dipper will handle any shale you may encounter.

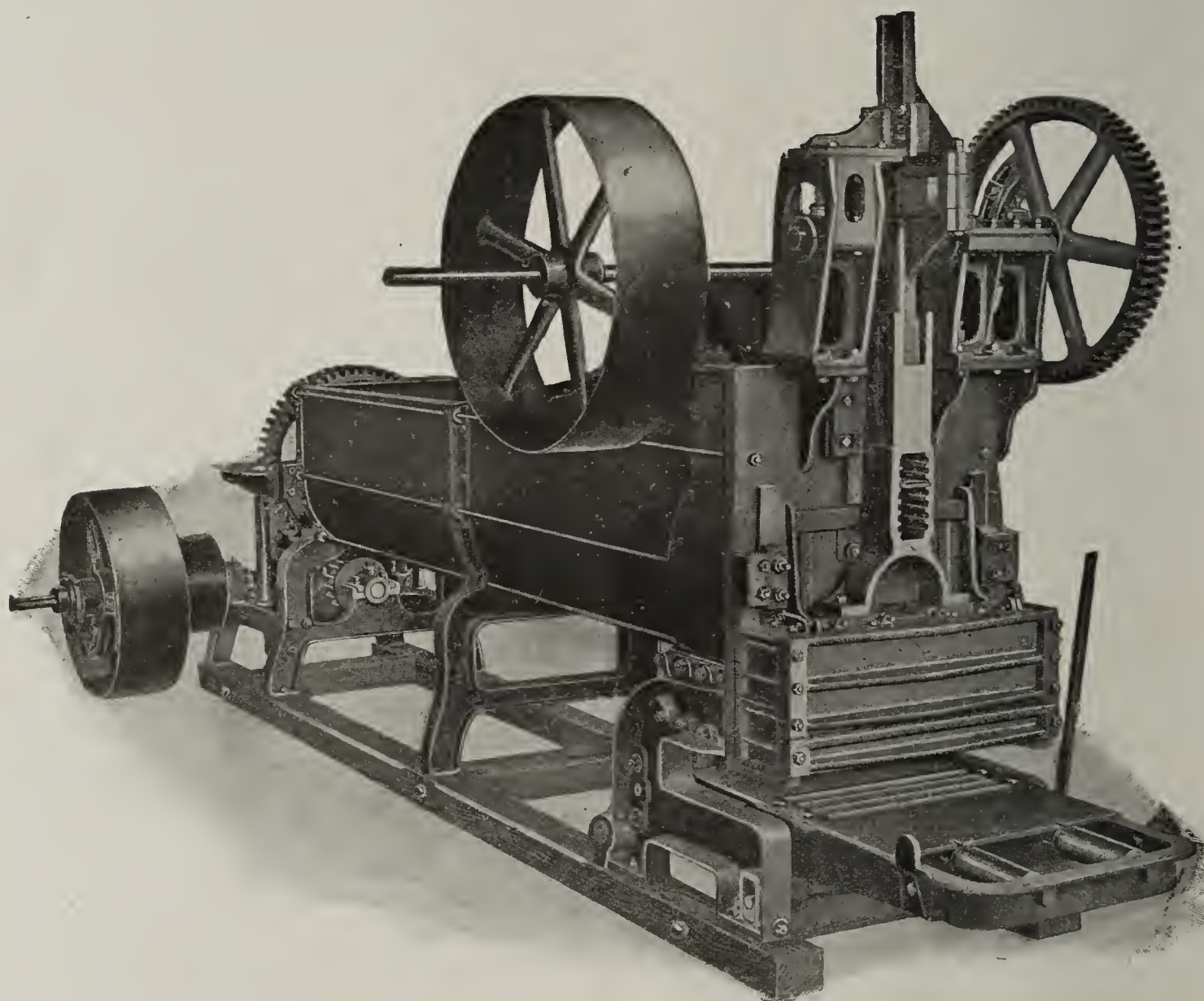
We can give you high lift booms if desired.

We equip with electric motors if you wish.

Write for information.

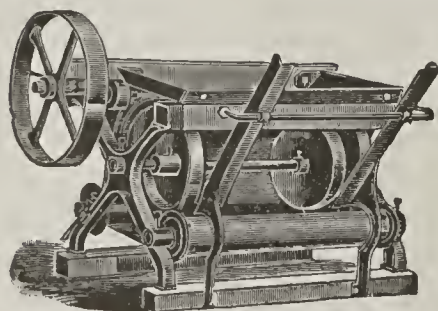
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We manufacture the most complete line of SAND MOLD machinery, and are prepared to erect modern and up-to-date plants of any desired capacity, guaranteeing results.

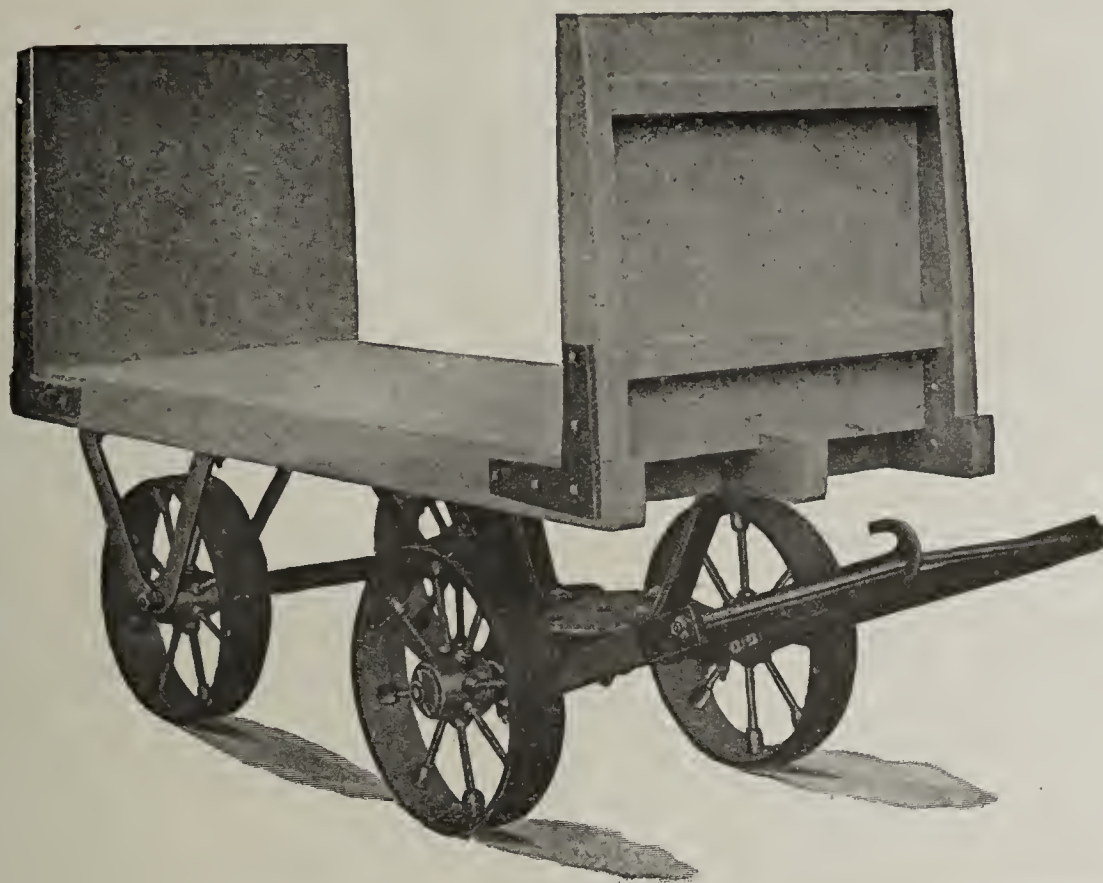
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Many yards are
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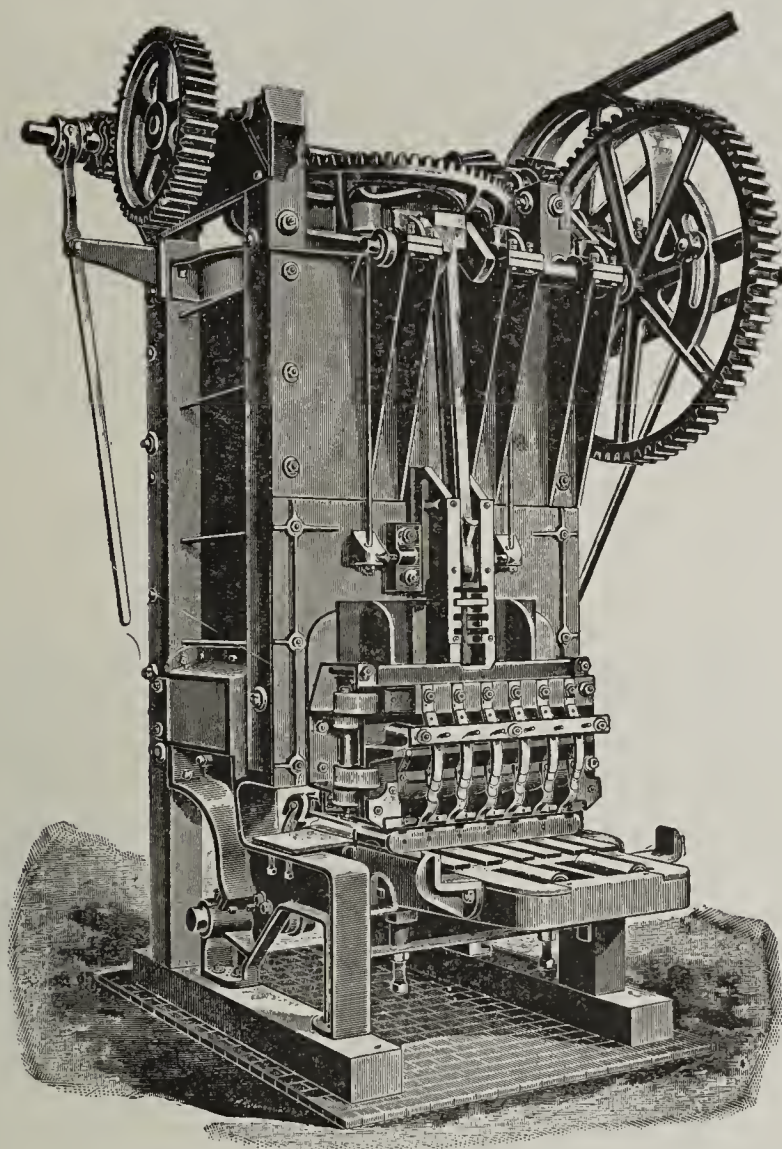
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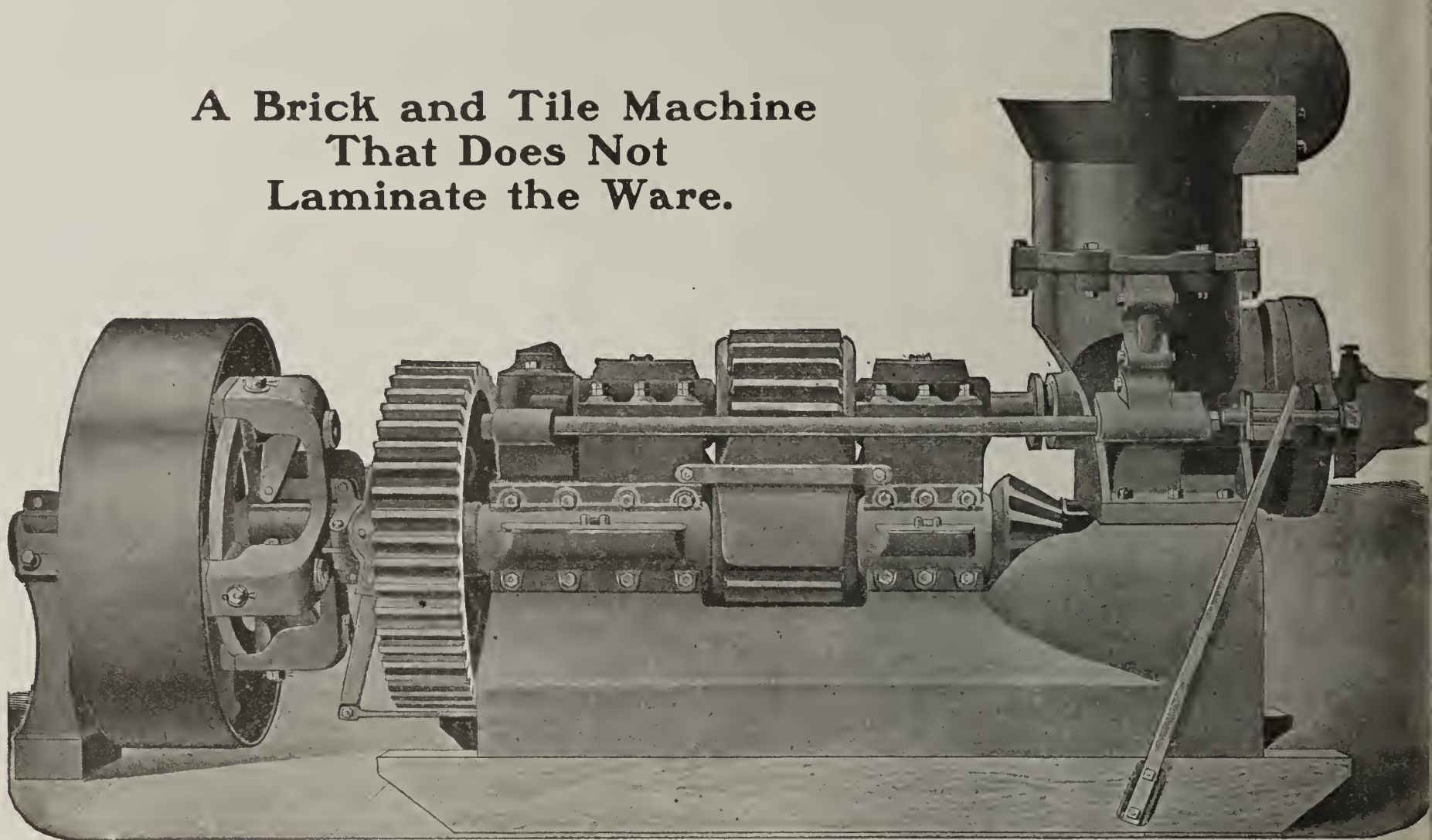
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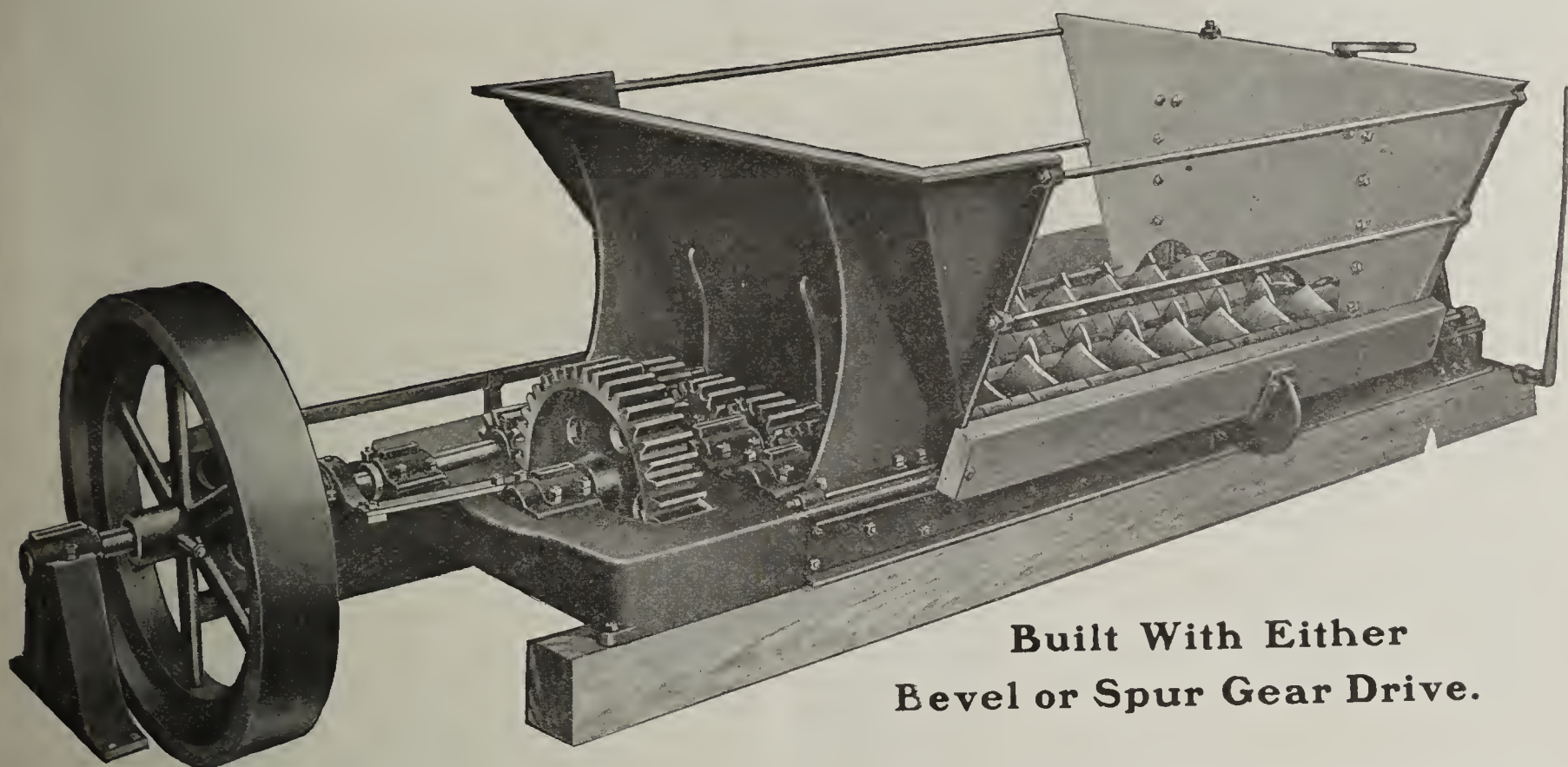
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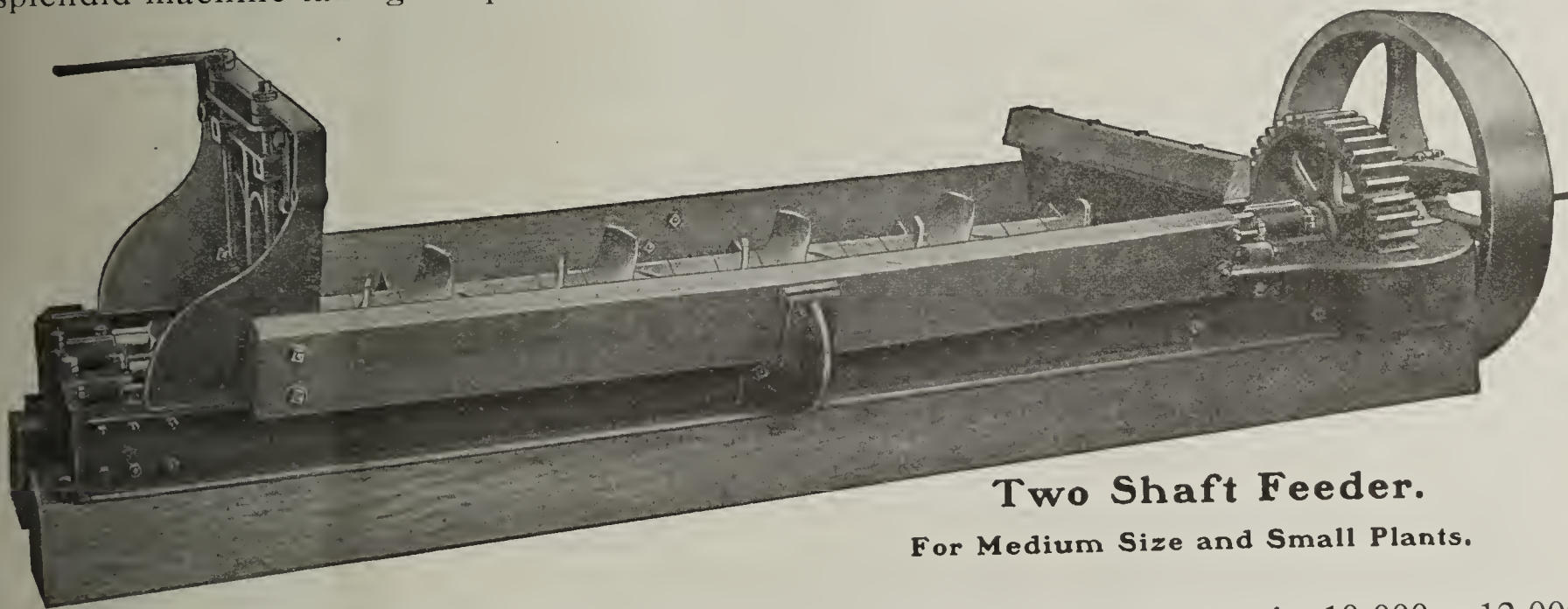
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**Built With Either
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The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



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For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 10,000 to 12,000 four-inch tile per day, or 15,000 to 18,000 brick, and will pug the clay up in fine shape.

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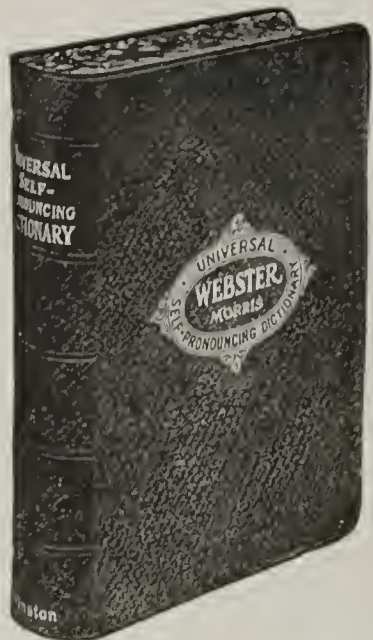
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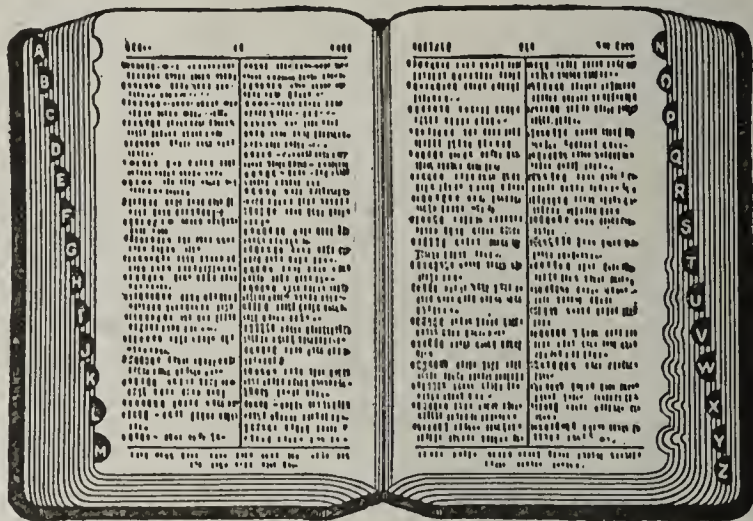
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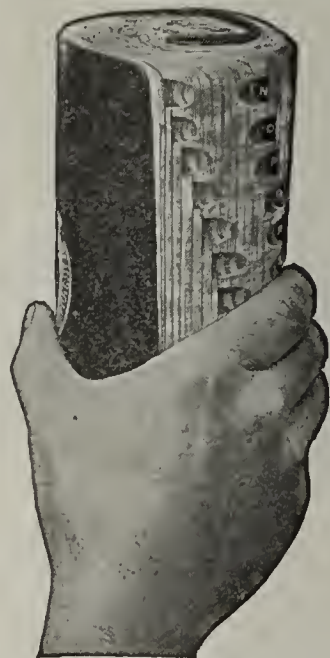
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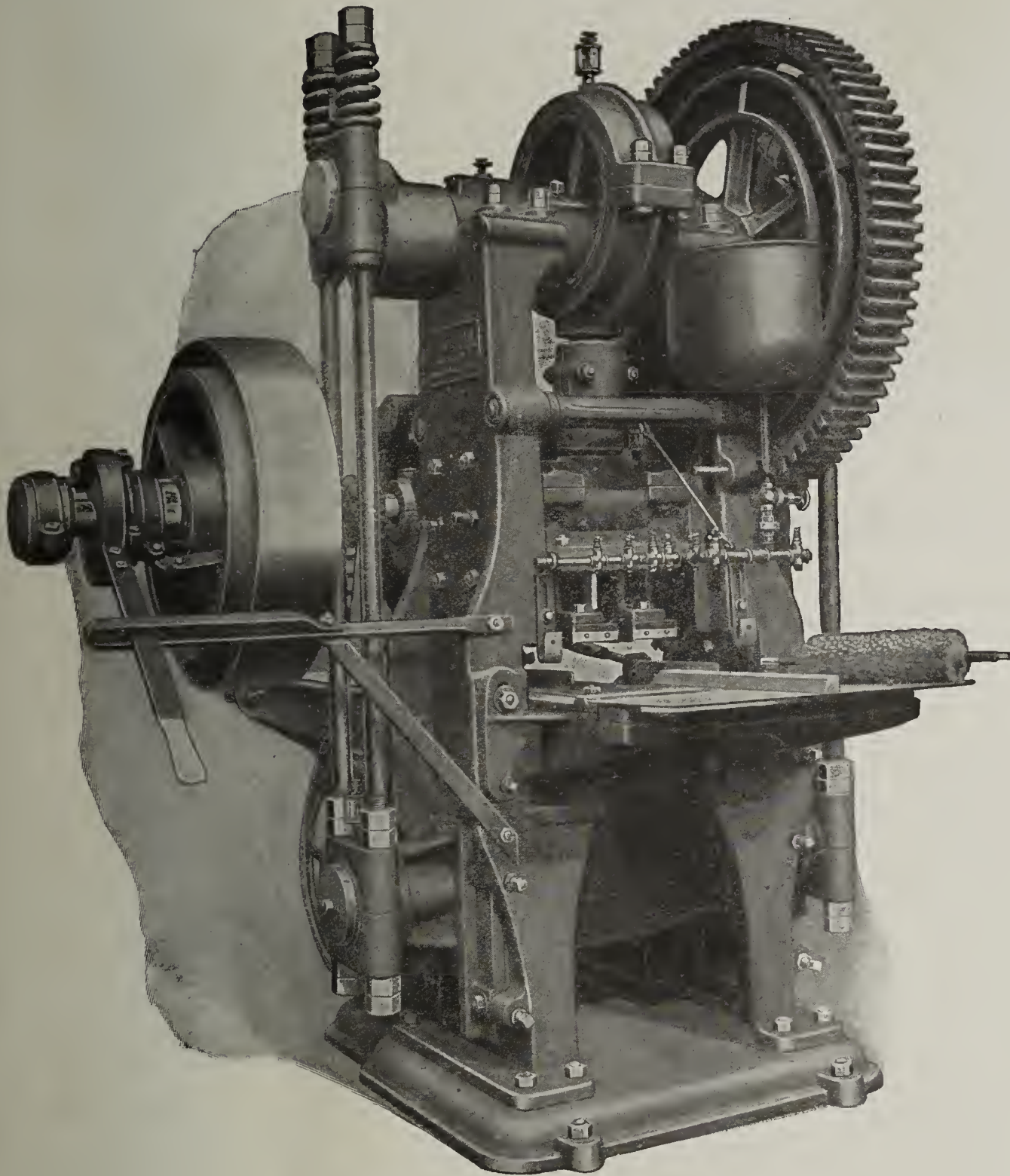
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Remit by check or in any way most convenient to yourself.

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Has a die of extra depth and brick are moving downward in the die while pressure is applied. Result—Smoother brick.



Capacity 20,000 to 25,000 brick in 10 hours.

Generally conceded by clayworkers to be the best repress built.

Continuous motion.

No links or toggles.

Wearing parts out of the dirt.

AUGER MACHINES, CUTTING TABLES, PUG MILLS,
- DRY PANS, SCREENS, ETC.

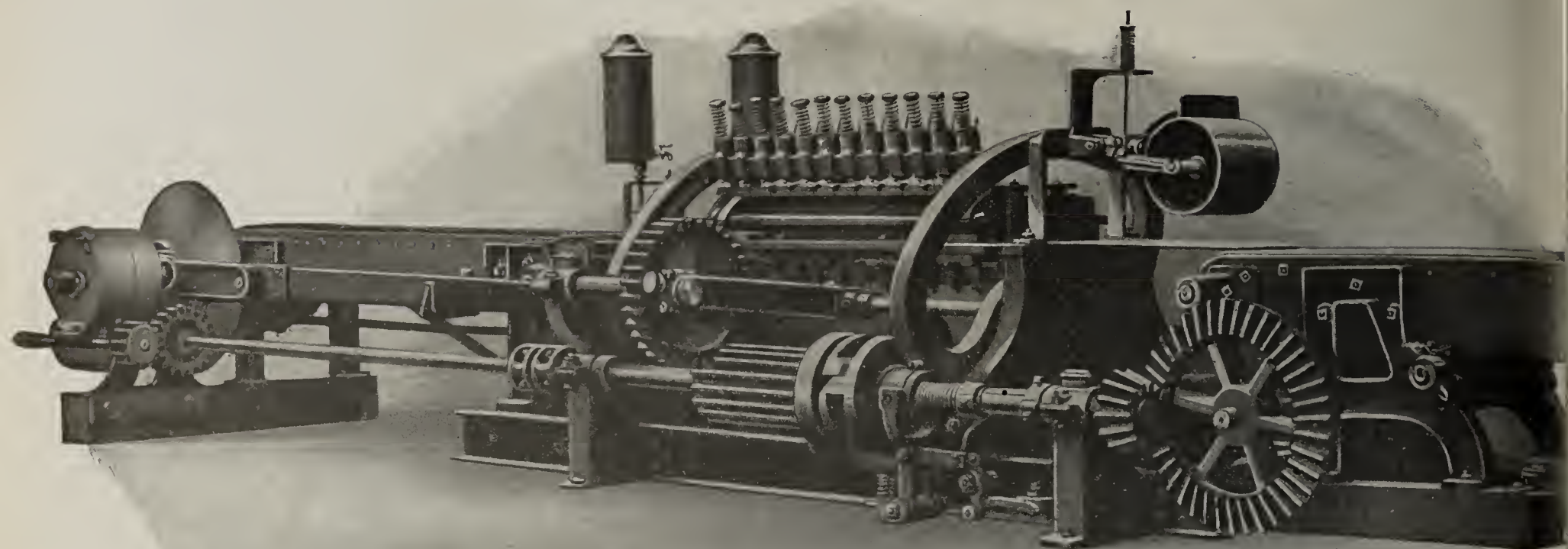
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CANTON, OHIO

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Size 50 Reciprocating Automatic Cutter

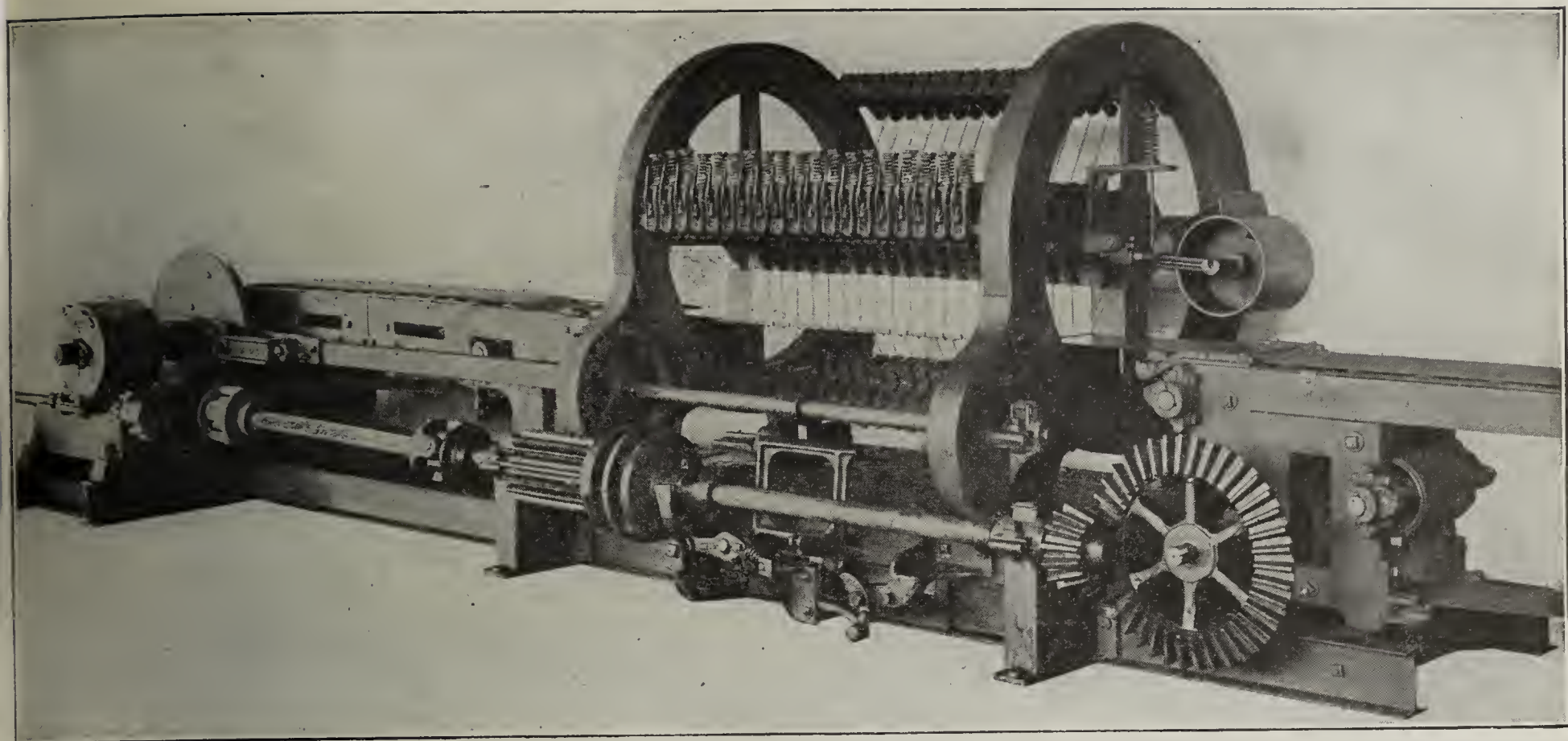
This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

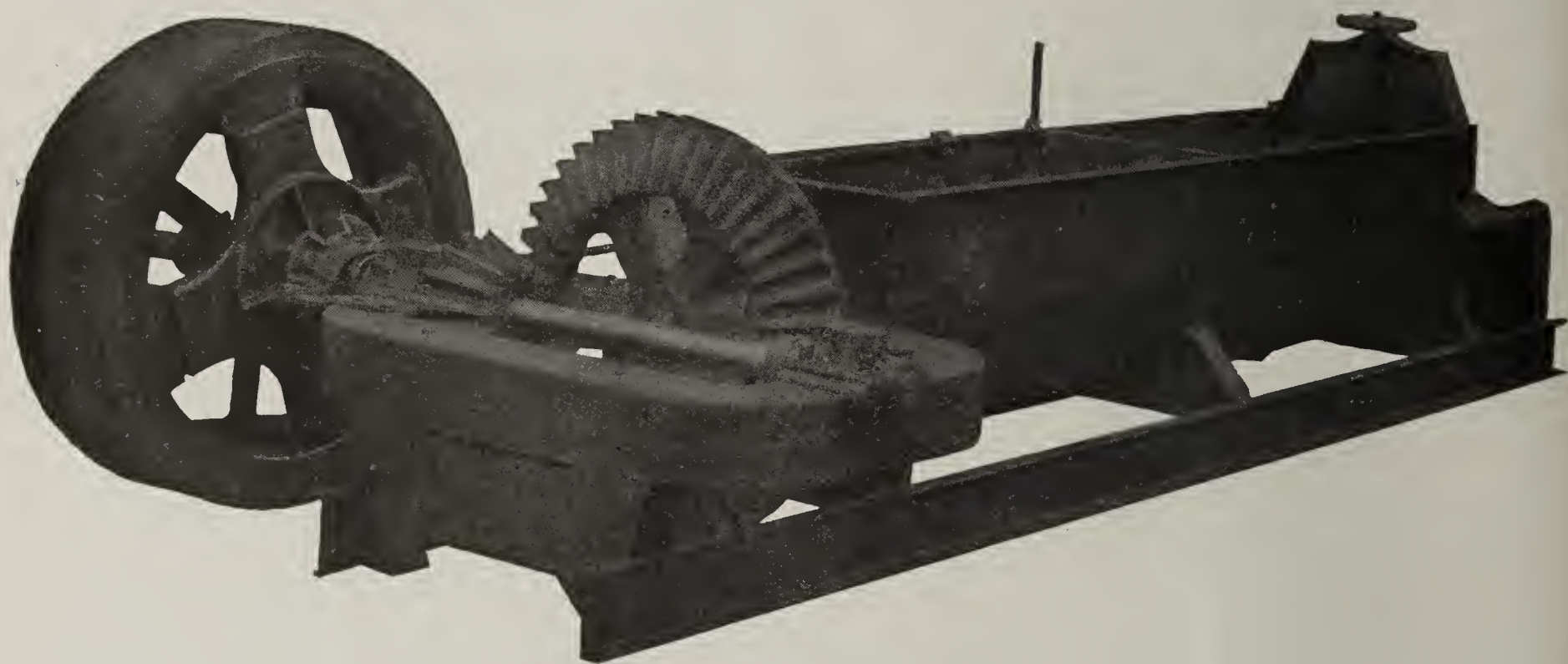
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Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

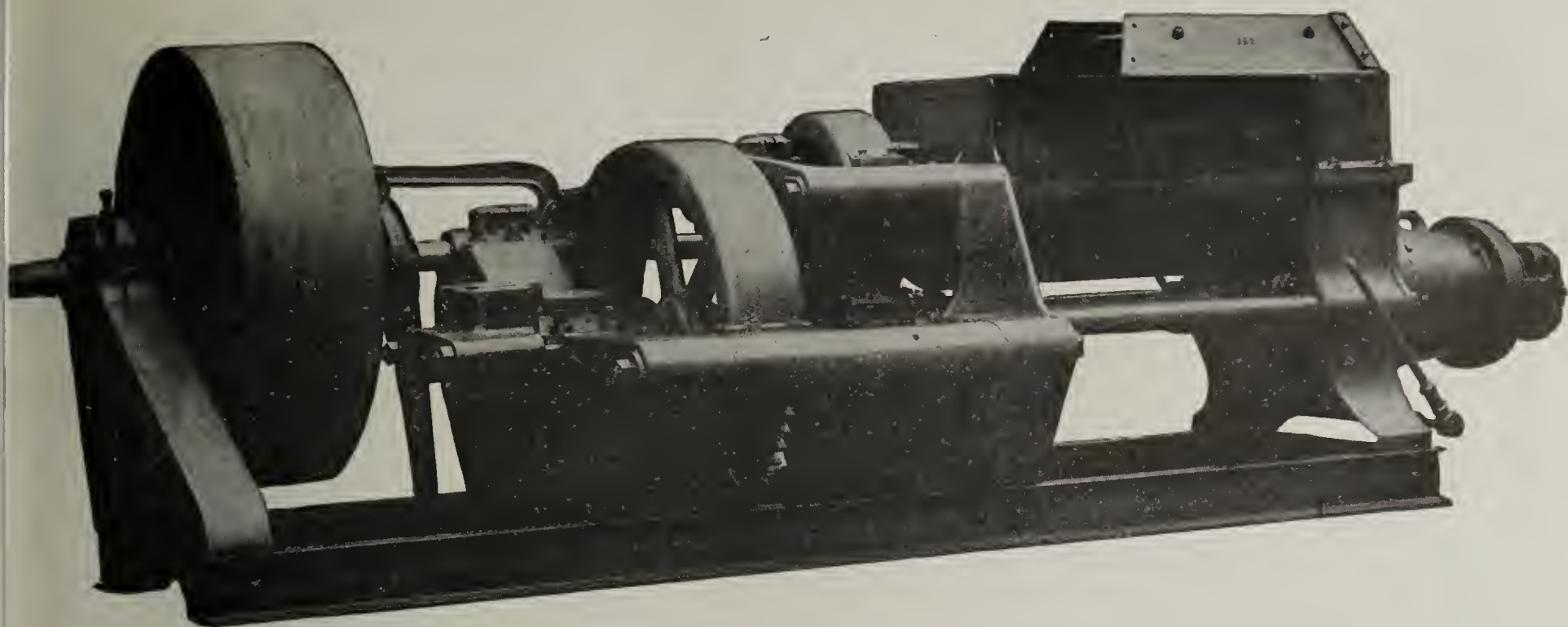


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

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This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

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YOU WOULDN'T SPEND \$2000 on an AUTOMOBILE

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plant.

Secure the judgment of these acknowl-
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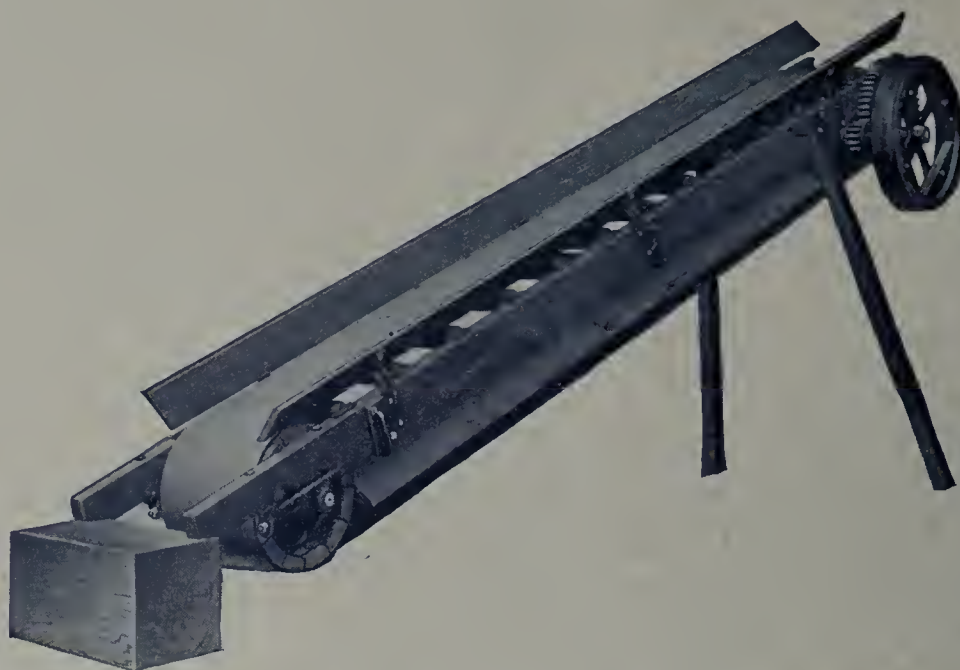
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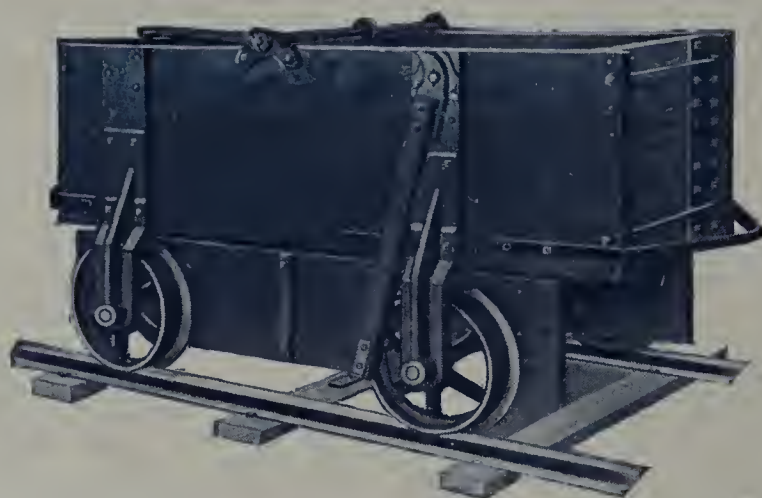
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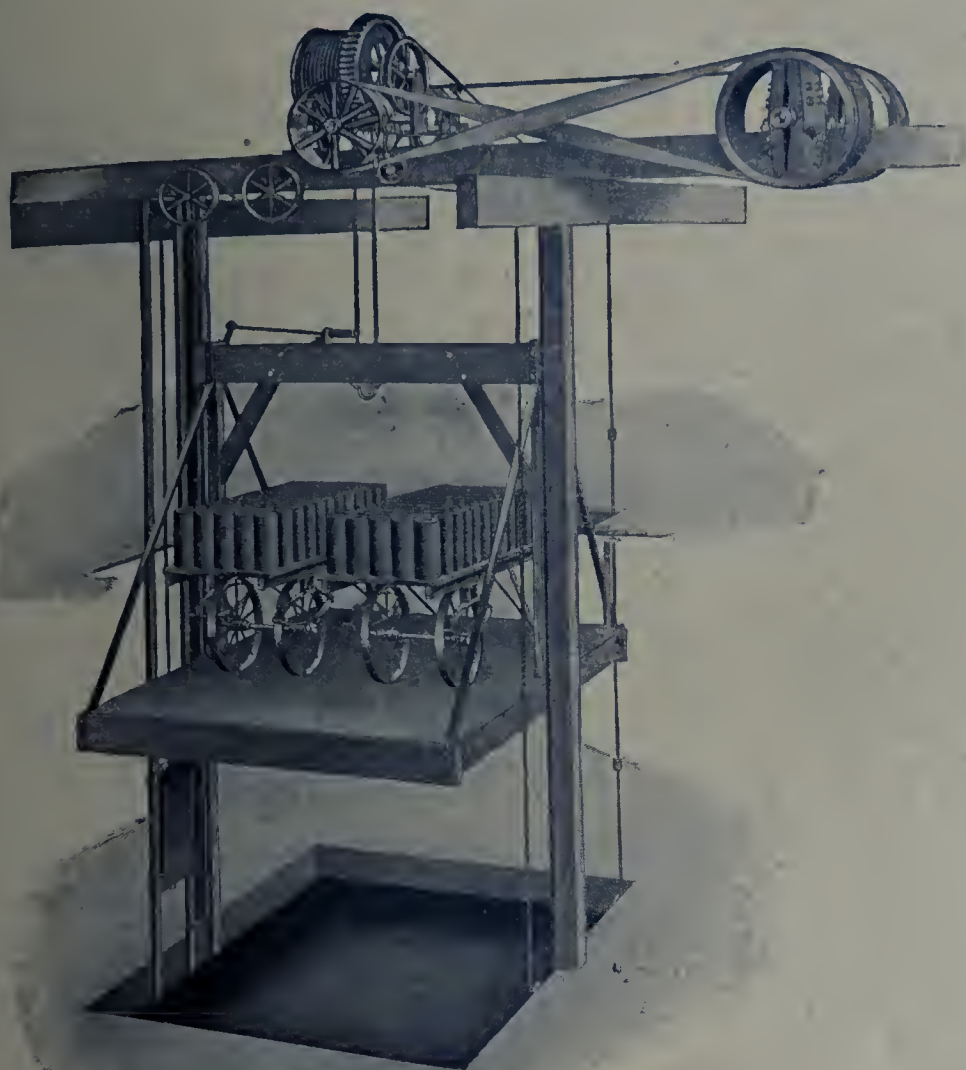


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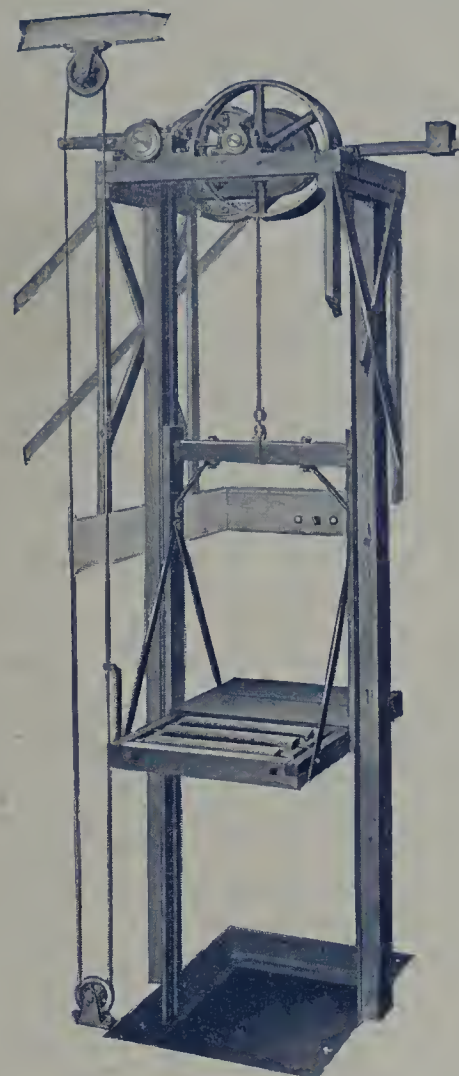
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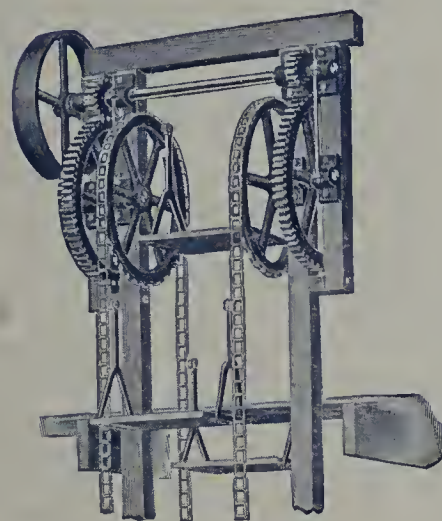
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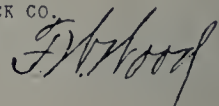
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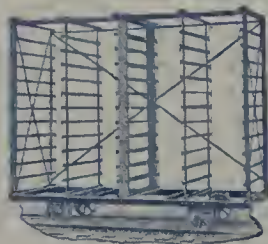
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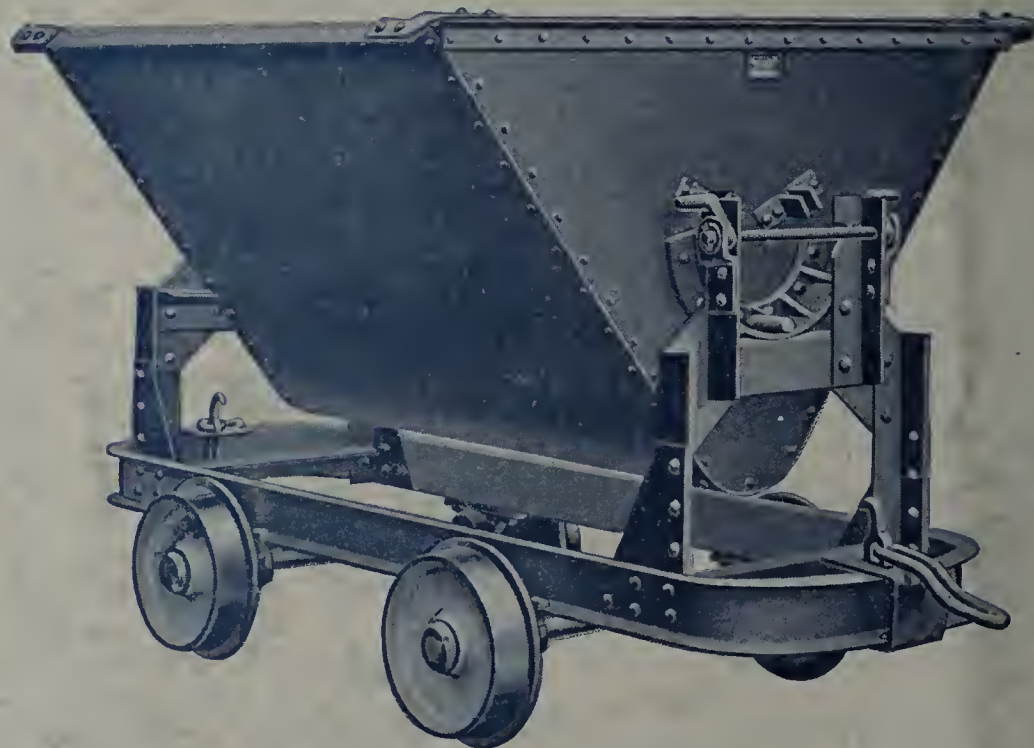
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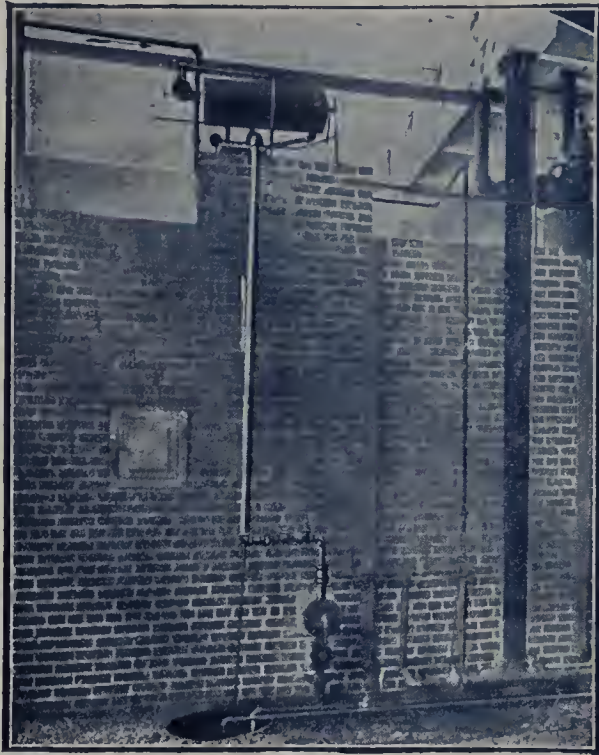
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Will keep steam drying surfaces free of condensation and hotter because of high heating surface efficiency.

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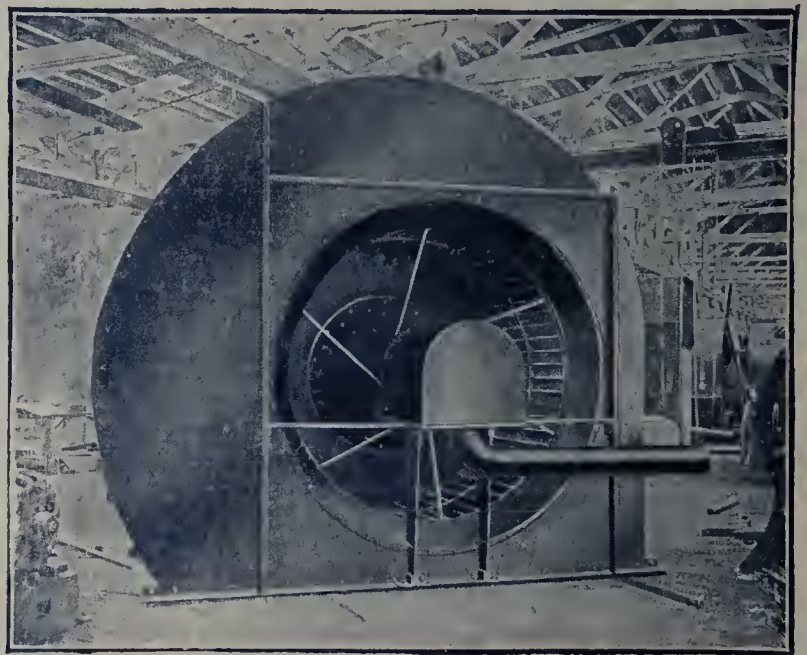
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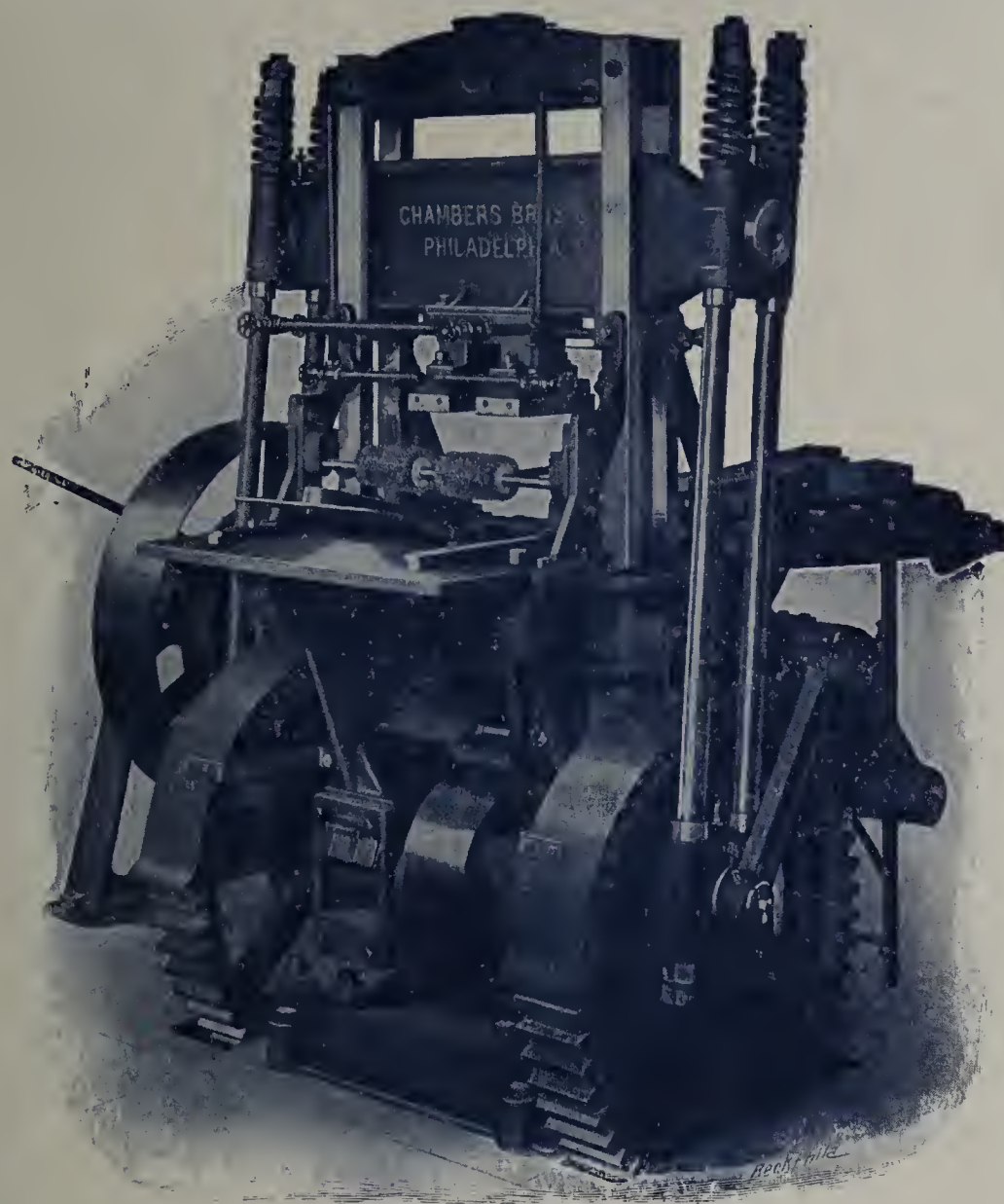


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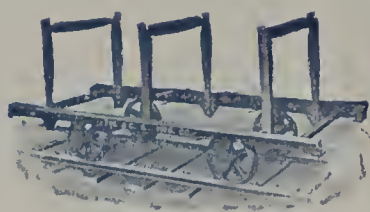
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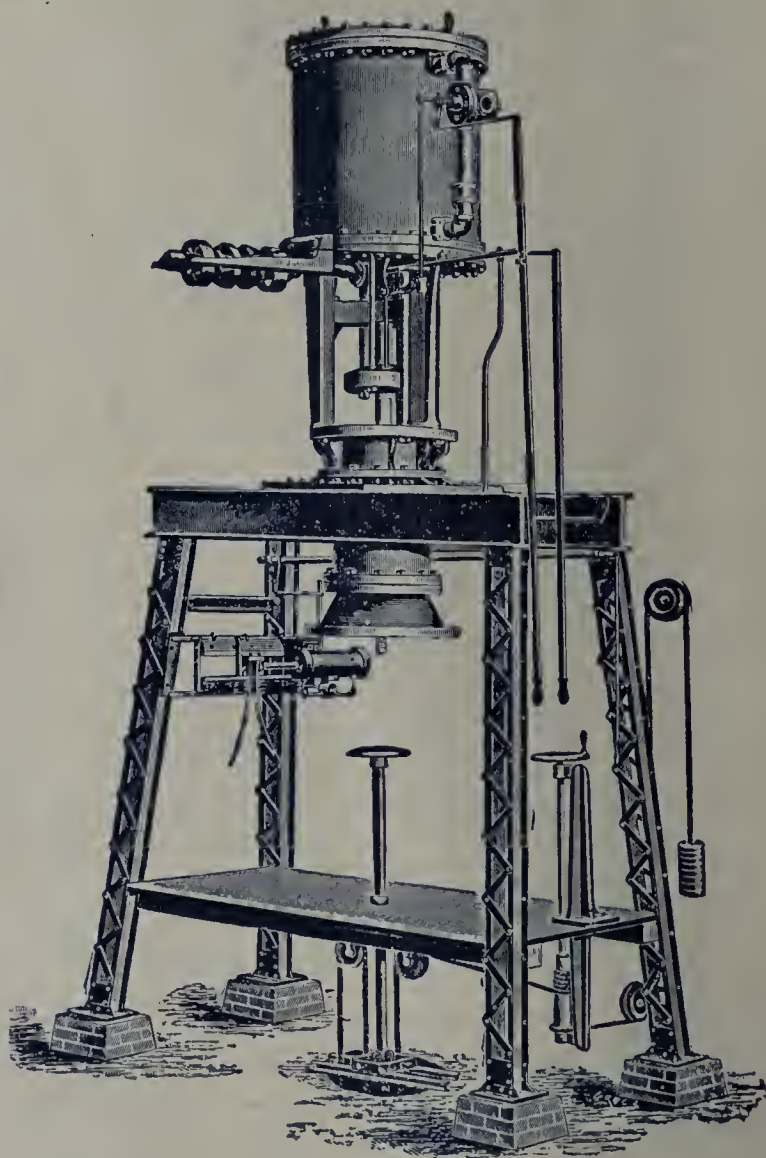
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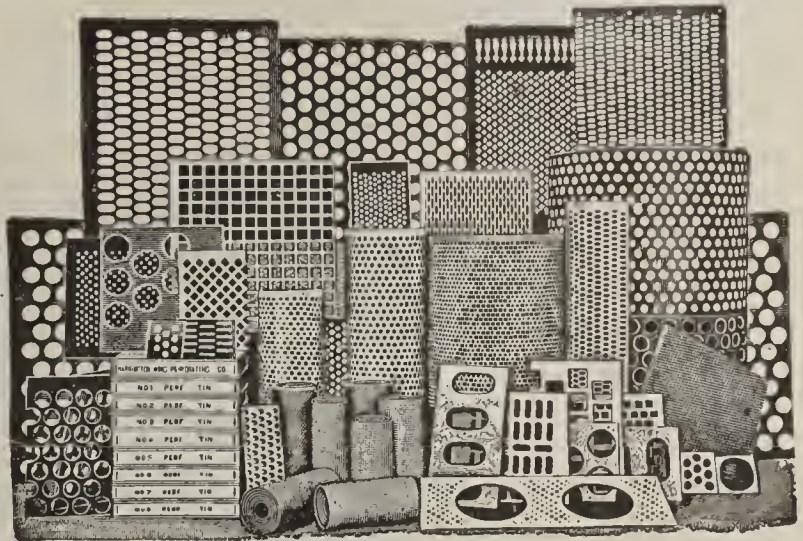
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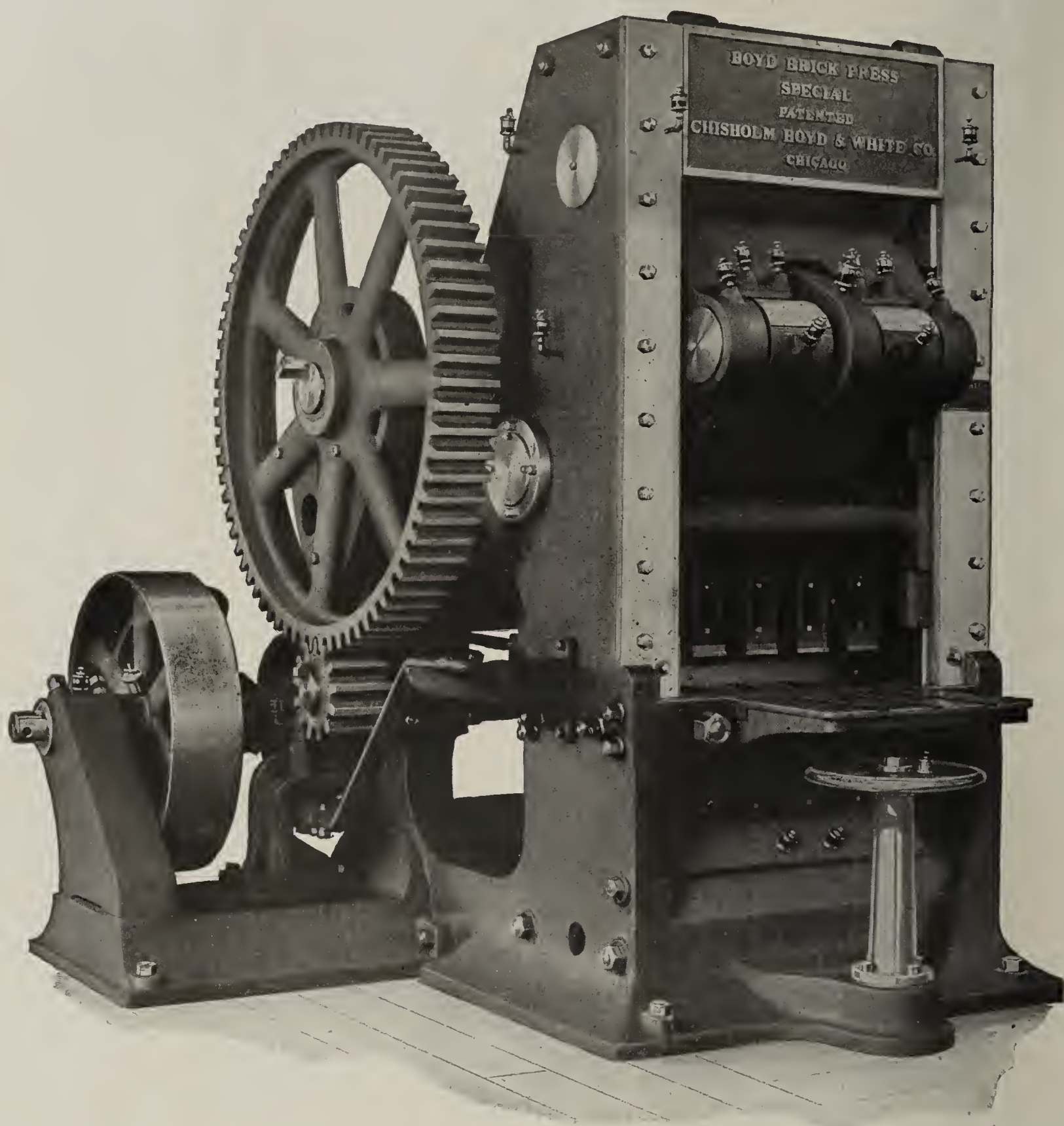
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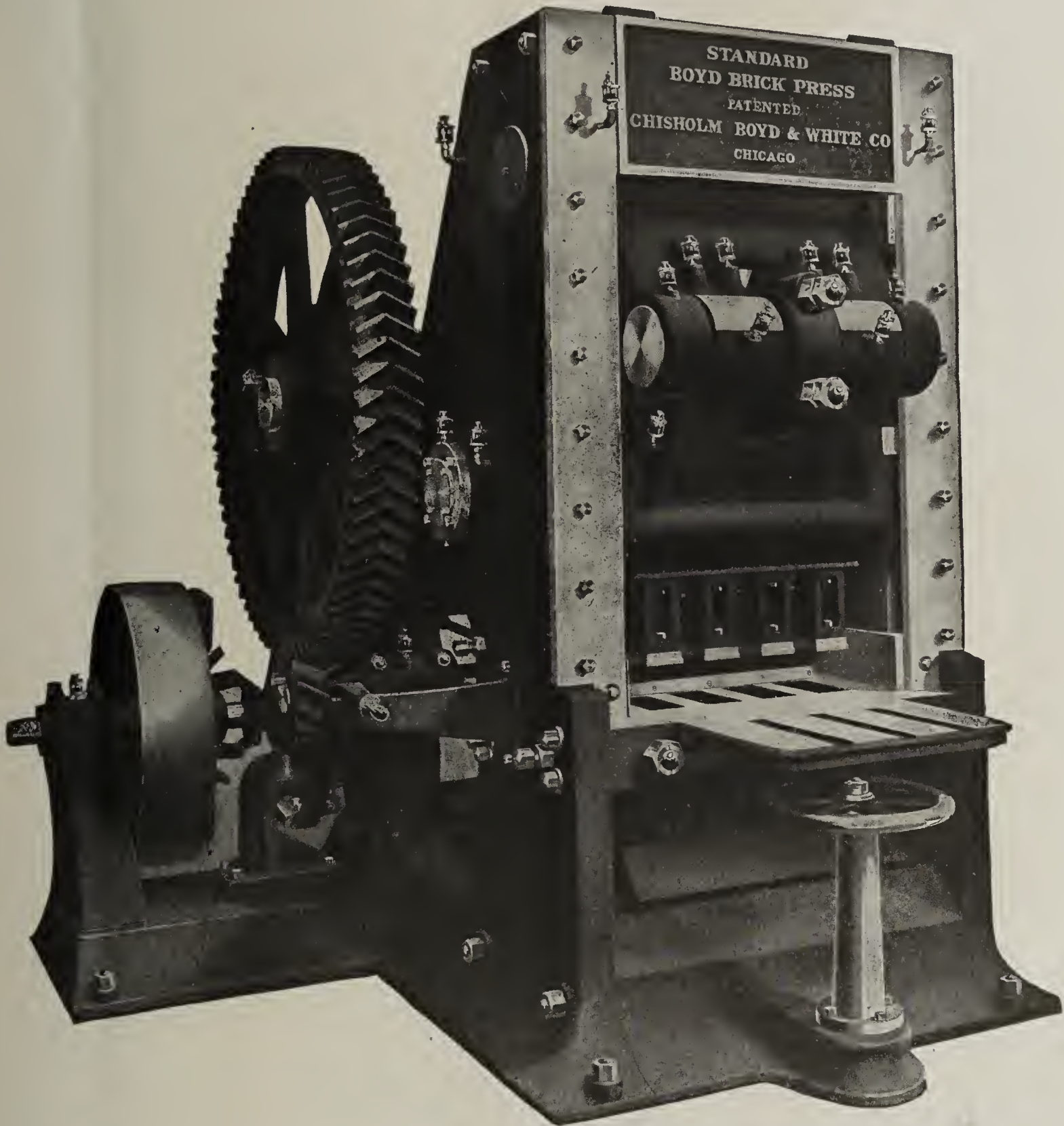
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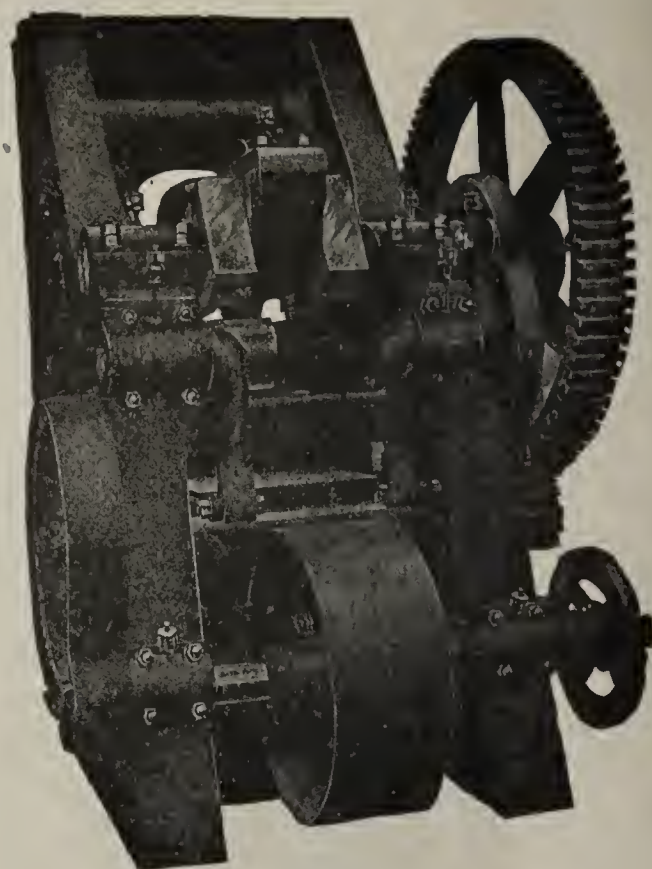
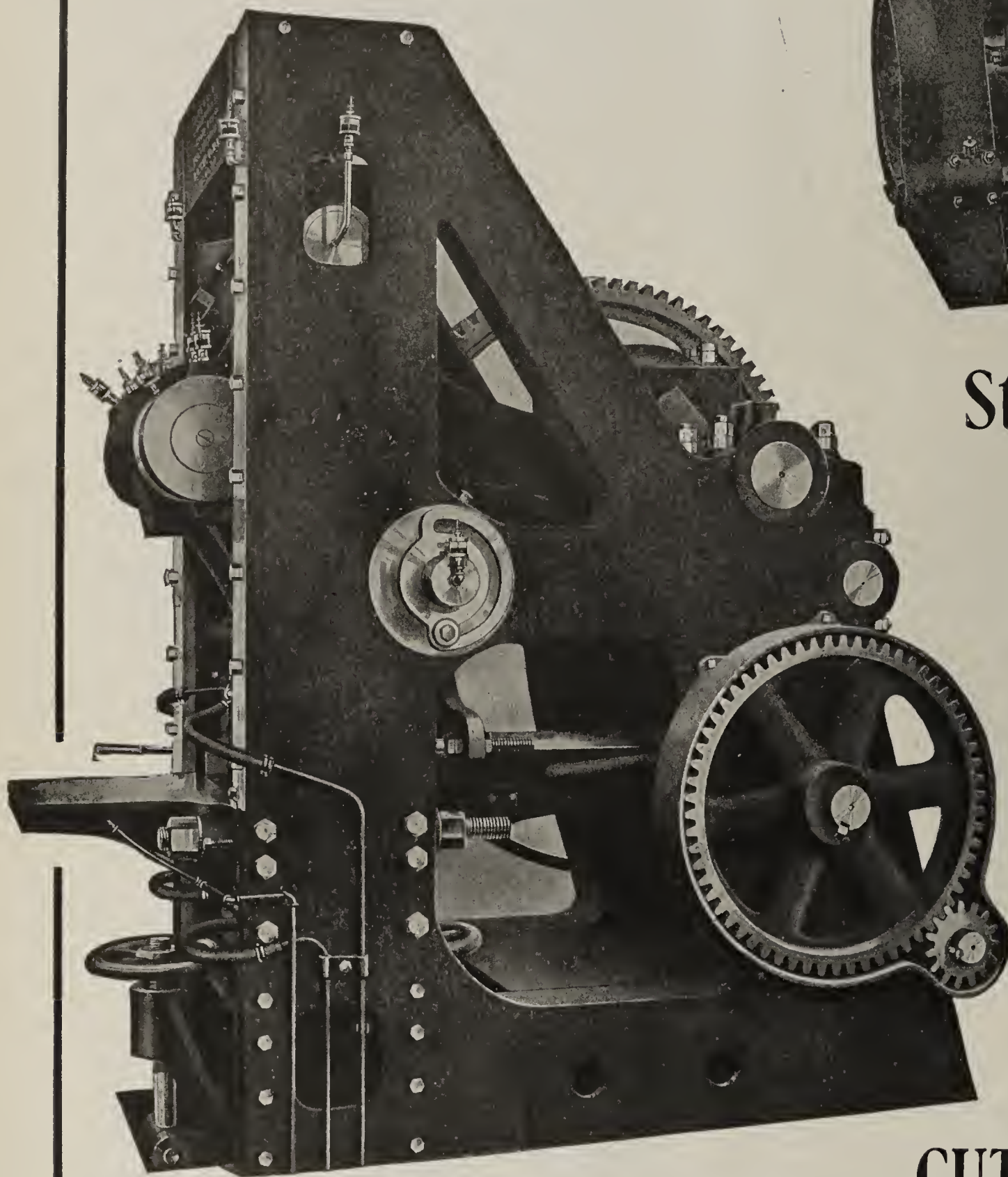
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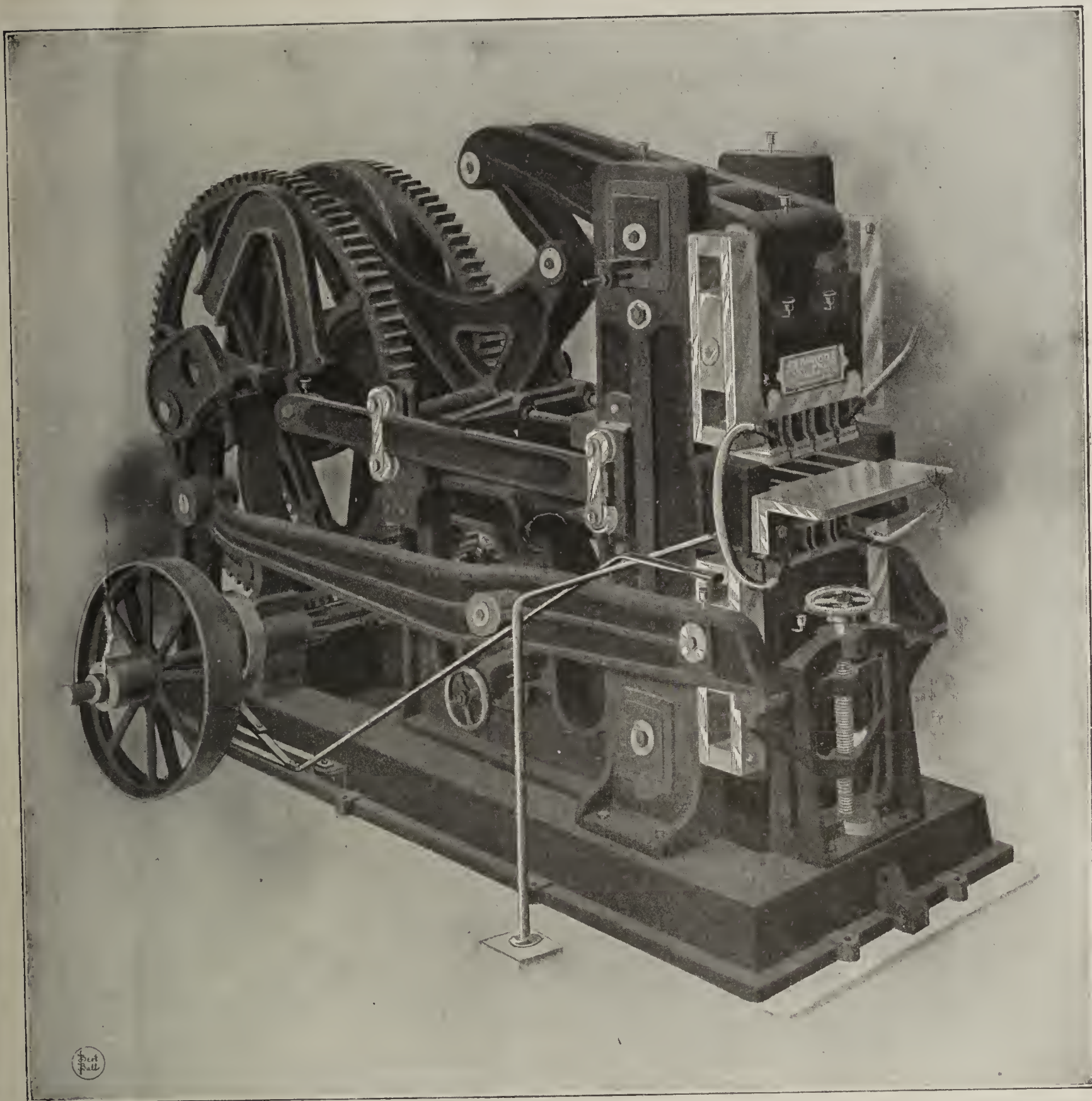
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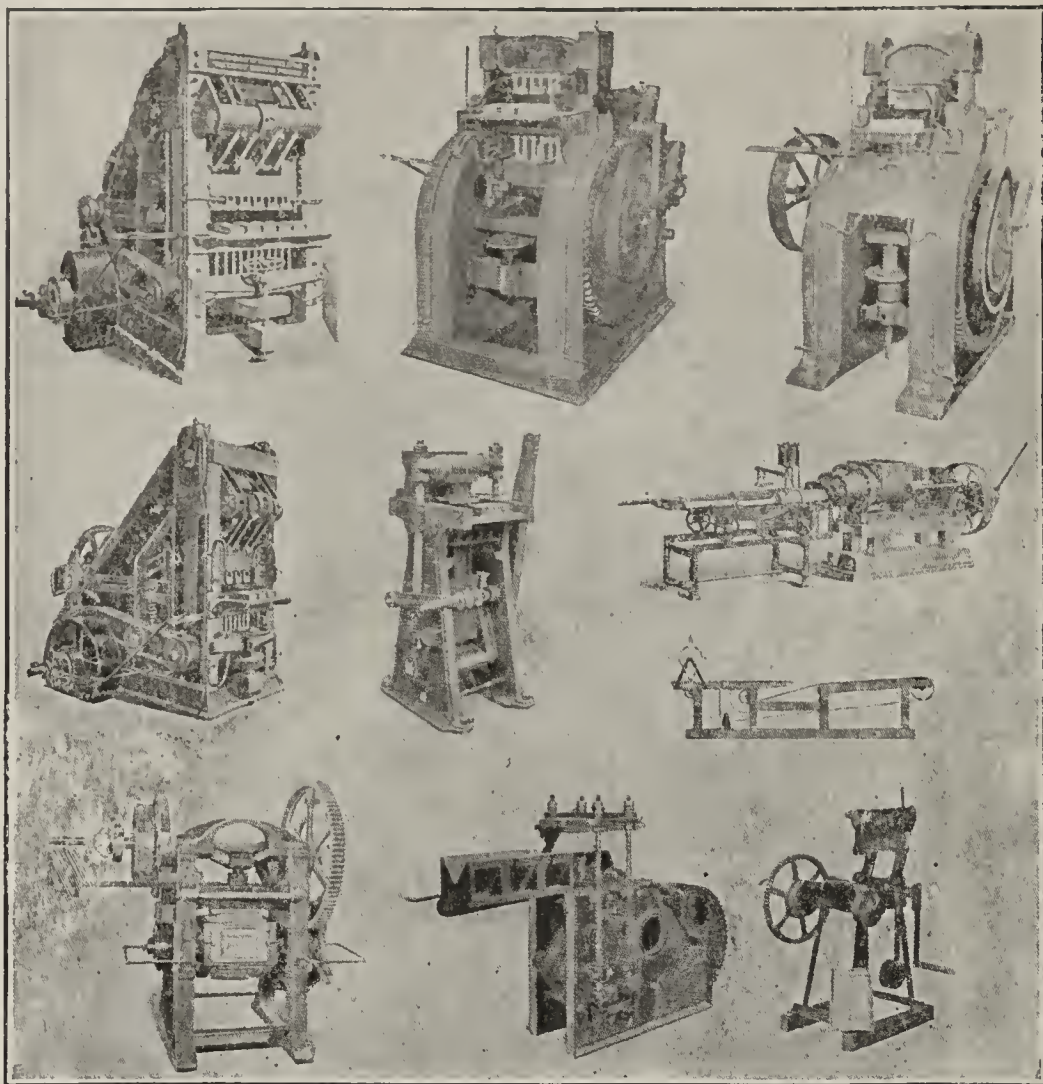
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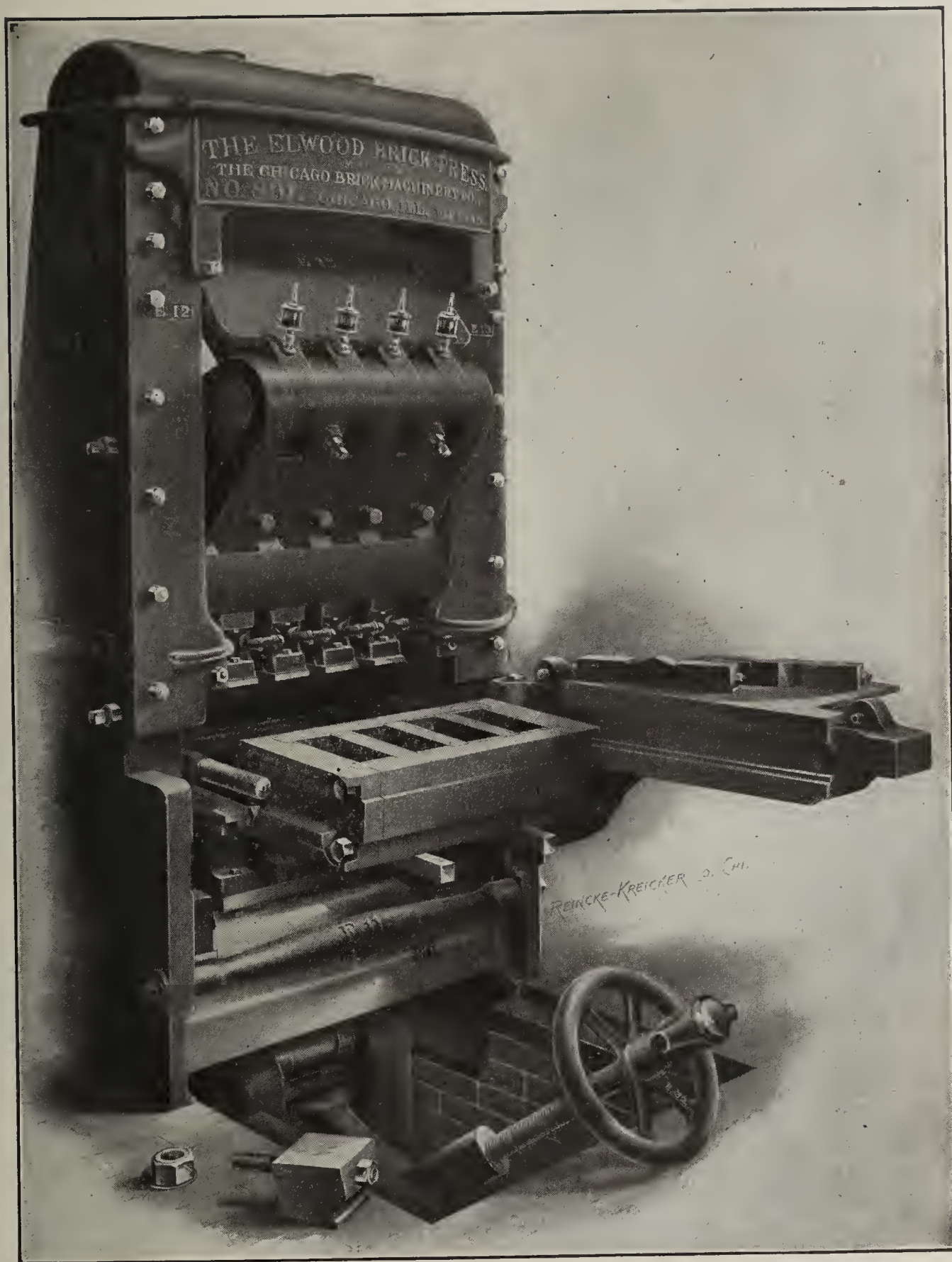
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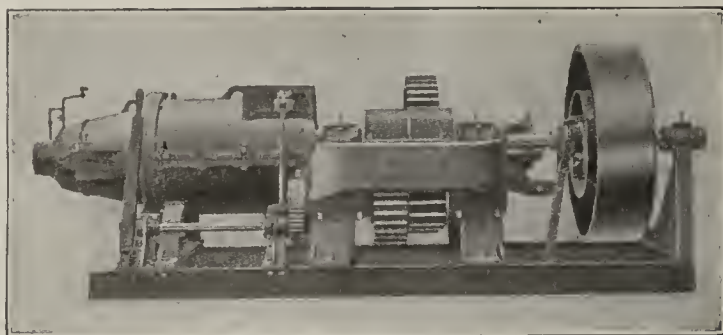
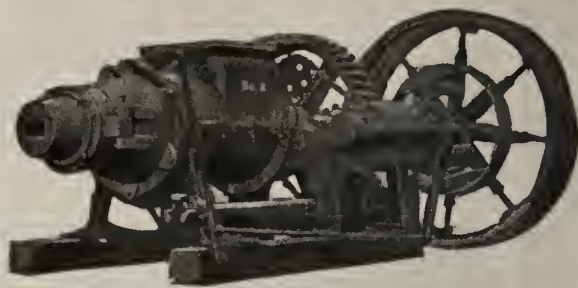
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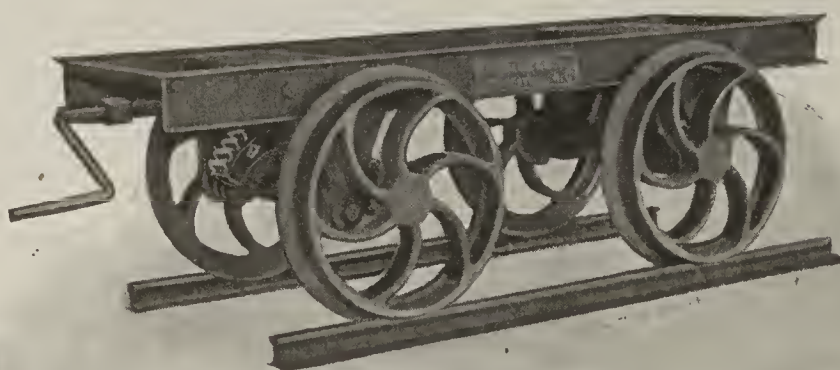
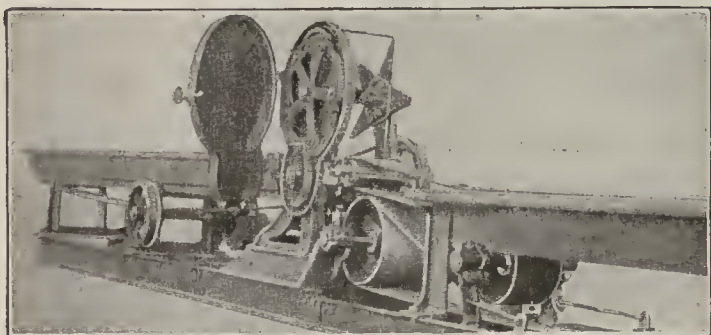
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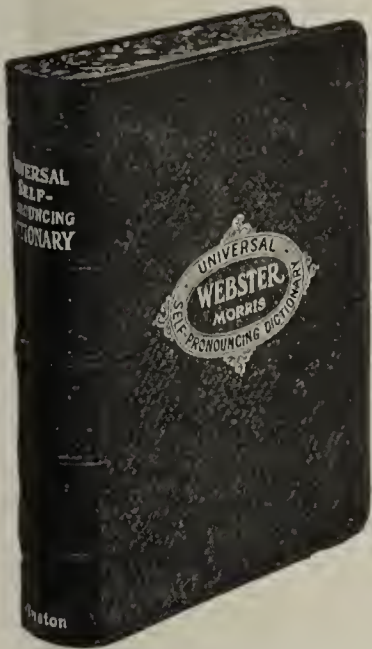
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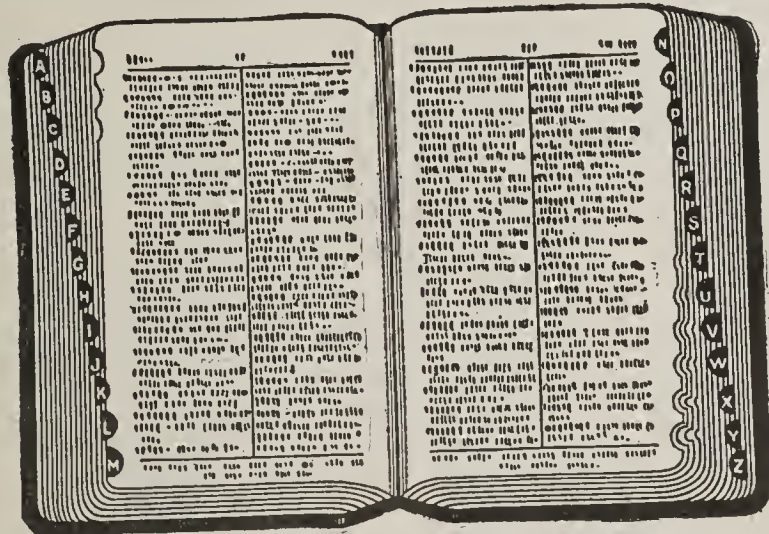
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Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

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Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

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Steam Drier**

Benefits YOUR Bank Account More Than It Does Ours

WHEN you install The Standard Drier, *your* profit is greater than ours. Also, it is greater than if you installed any other drying equipment.

Prove this—by comparing The Standard, feature by feature, with any or all other brick driers on the market. Such a comparison will show you that

The Standard Drier Leads

- | | |
|--|--|
| —in up-to-dateness and simplicity of construction; | —in ease and economy of operation; |
| —in the elimination of fire danger; | —in low cost of maintenance; |
| —in quality of equipment; | —in quantity and quality of production; |
| —in freedom from breakdowns and tie-ups; | —in success with all varieties of clays. |

For proof, ask the users of The Standard and users of other brick driers. Our catalog contains a list of users who will be pleased to give you unprejudiced information. Write for the catalog today.

The Standard Dry Kiln Co., 1547 McCarty Street, Indianapolis, Ind.

Written for THE CLAY-WORKER.

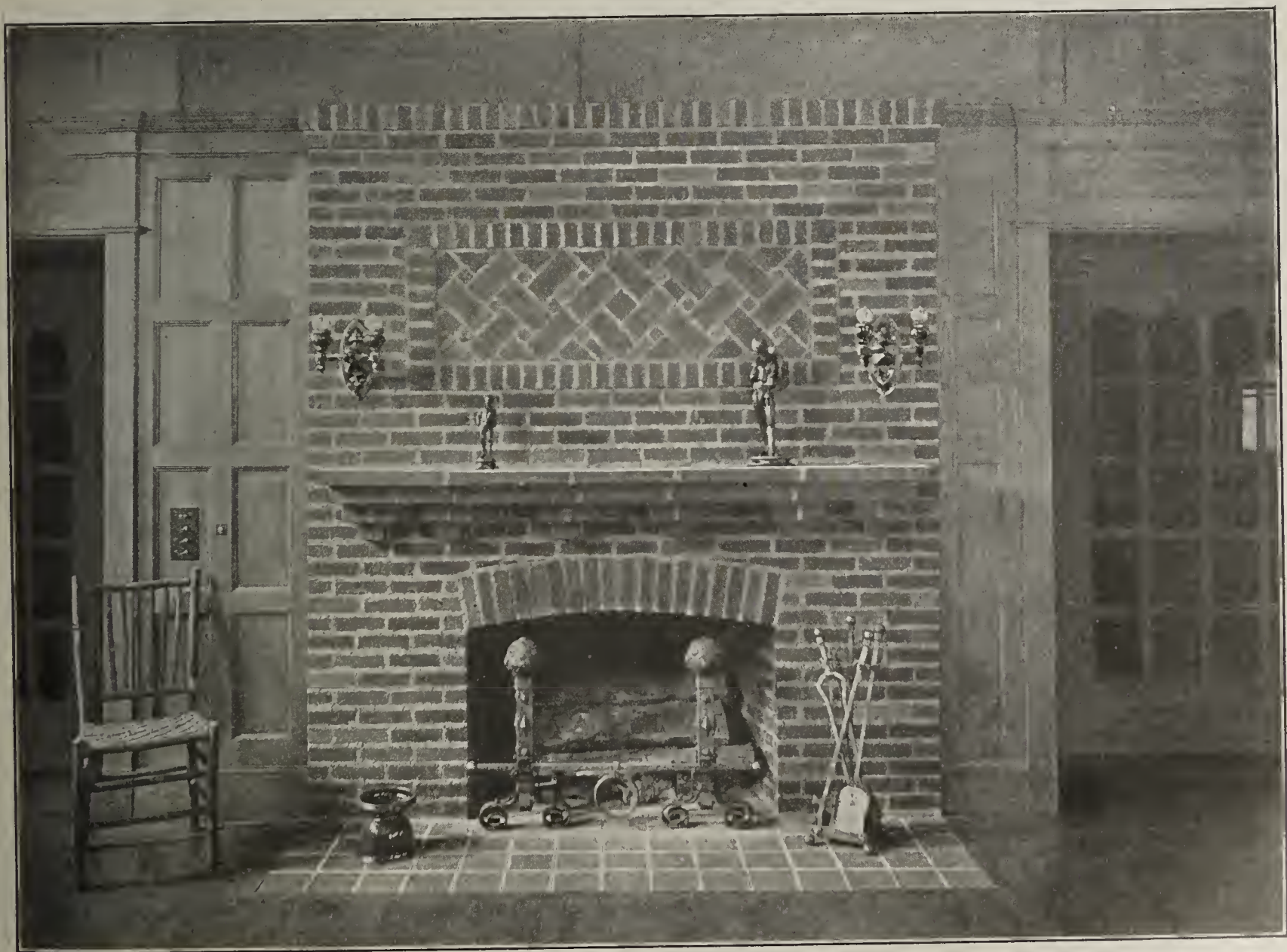
BRICK AS A DECORATIVE FACTOR IN FIREPLACE BUILDING.

HOME BUILDERS are beginning to appreciate more and more the decorative effect of attractive fireplaces. They have already realized that the material par excellence from which fireplaces may be built is brick and tile. No other lends itself so readily to artistic treatment as varicolored brick and either glazed or dull finished tile.

In no other place in the house can so complete a picture

be moulded as in an artistically designed and executed fireplace. Here the family assembles to "soak in" the good cheer which the blazing logs, coal or gas sends forth. Stone, wood, cement, all these crumble under fire and are forbidden in close proximity to the flames which lovingly caress the brick hearth or mantle, seemingly realizing that no danger will result to occupants of the dwelling.

Brick for fireplaces should be carefully selected with a view to harmonizing the surroundings. If there is a color scheme to be worked out they should correspond in tone with the main colors which are being used. The design is one which must appeal to the person who is building the



—Courtesy Fiske & Co., Inc.

A Handsome Brick Fireplace Made of Tapestry Brick.

home, but there is such a multiplicity of designs that little difficulty need be experienced. For the most part it is better to have simple lines and plain materials, for a fireplace with a lot of gee gaws is only a dust catcher and does not appeal to those persons of artistic temperament who will have occasion to enjoy it.

Any kind of brick adapts itself to fireplace construction, except, of course, the common sand brick, which are not particularly attractive. Even pavers, if carefully selected and set up with the proper kind of a bond, and in sufficient quantities to give the desired massive effect, make a very pretty fireplace. Face brick, the rough finished brick so prized for their rare coloring, all adapt themselves readily to this purpose.

For that portion which is struck directly by the flames, either paving brick or fire brick should be used. Some persons imagine that cement is fireproof, but many persons who

houses and apartments are worthless imitations of better materials. They are subject to fire at any time, are constantly requiring new finish and are just as expensive as solid brick fireplaces of modest design can be secured for. If a home builder really expects to have a real fire in his fireplace let him dispense with all wood mantels or else get his house heavily insured.

Some of the big pottery houses throughout the country will prepare, upon special order, sets of illustrated tiles for use in fireplaces. Given the size of the proposed mantel these tiles are carefully designed, each one to form a section of a harmonious piece of scenery or allegorical lore, as the case may be. The designs are executed by artists and when completed and installed furnish the same charm to the room as a splendid oil painting might do if it were hung over the fireplace itself.

Design in fireplaces is a thing which must be governed



An Unusual and Attractive Fireplace.

—Courtesy Fiske & Co., Inc.

make a concrete fireplace without lining it with brick are soon brought to realize their mistake, for the concrete will fall out in large chunks, being worthless when subjected to steady flames for several hours at a time.

The hearth should be constructed of firebrick, where the coals rest directly on it, but in front brick set on edge, or interesting tile may be employed. Tile are invaluable for hearth building for they are strictly fireproof, can easily be kept clean and sanitary and present an interesting color contrast to other portions of the fireplace.

The big brick dealers throughout the country now carry special designs for fireplaces, which they will furnish free with the necessary orders for brick. Dealers who do not boost their business by dwelling upon the value of their material for fireplace building are losing a good chance to extend their trade. The wood mantels so much in use in cheap

by the conditions. In a small room, for instance, it might be unwise to build a heavy brick fireplace clear up to the ceiling, while in a great living room or dining room a small mantel, cut off at a height of five or six feet, might look altogether insignificant for its setting.

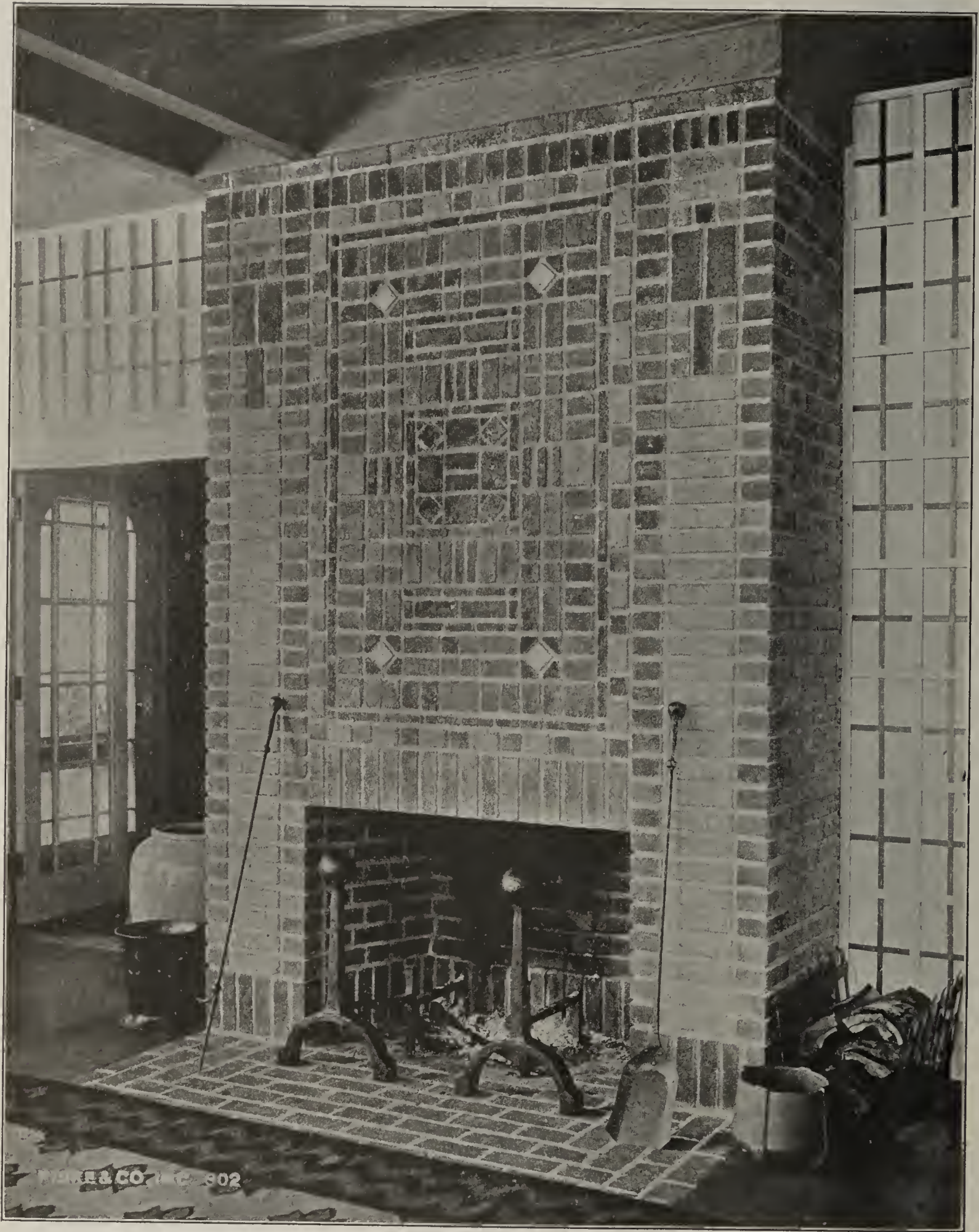
Brick dealers throughout the country might do much to stimulate an interest in the use of brick fireplaces by building a sample one in their display room, just as they display the different kinds of brick they sell. The prospective home builder, when coming to choose the brick for his house, would be attracted to the decorative possibilities of brick in a fireplace and might frequently be induced to leave another \$50 or \$75 for brick for a fireplace in his new home, instead of sending the money to a lumber mill for a wood mantel.

Builders are coming more and more to value the qualities



—Courtesy Fiske & Co., Inc.

A Brick Fireplace With Untold Wealth of Pleasing Colors.



—Courtesy Fiske & Co., Inc.

A Cleverly Designed "Tapestry" Brick Fireplace.

of the fireproof house. Here is a chance to do a little valuable missionary work, in inducing prospective home builders to use brick more extensively in their forthcoming projects.

Written for THE CLAY-WORKER.

SELLING METHODS.

That it is just as important to have modern methods for marketing a product as up-to-date appliances for manufac-

ture sold on a commission basis of \$5.00 a car. This, perhaps, does not represent the selling cost of lumber, but it gives some idea of the nominal cost at which lumber is marketed. There follows, too, that the industry that markets its product successfully and economically may be worthy of study. That is, its marketing methods may be worthy of study by others, even though they are in different lines.

One thing the lumber people have always done that others might well take an object lesson from is that they have always advertised liberally and extensively in the trade papers.



—Courtesy Fiske & Co., Inc.

An Interesting Fireplace Made of "Pony" Tapestry Brick, Measuring Six Inches Long by One Inch Thick.

turing it is pretty generally recognized in the commercial world now. There is always, though, a difference of opinion as to what constitutes modern selling methods, and there remains, also, in this day, many who say by their actions that they are still lingering under the impression that their product will sell itself.

Among the people who have the reputation for selling their product at the lowest cost for equal quantity and value are the lumber people. They have even gotten the business down to the point where lots of yellow pine yard stock is

Up until the last year or two practically all of their advertising was in the lumber papers and even today the great bulk of it is there. There are quite a number of lumber papers and all of them are pretty well supported, and there seems to be no question but what this advertising in the trade papers covering the lumber industry has done a world of good. That is a point worth remembering and thinking over.

In their selling methods they use circular letters, personal letters, printed circulars, and stock sheets and employ trav-

traveling salesmen on salary, sell through commission men, and seek the market through wholesalers.

There is really two general divisions of their selling methods. One is to market direct, using the mail and traveling salesmen, and the other is for a manufacturer to market through wholesalers. Some are satisfied with each method and others express dissatisfaction on each side, but we may assume from the results all around that both methods, if properly followed, are successful.

In both methods, advertising and circularizing is today being followed up by personal salesmanship by putting bright salesmen on the road and keeping them hustling. It is the man on the job right when something is wanted that has the preference always, and it doesn't matter whether it is lumber, brick, or what the offering, if there is a man there in person at the right time he has long odds in favor of landing

the business. Traveling salesmen are some times expensive luxuries, but they are getting this on a rational basis now by keeping close account of the salesmen and putting them on a salary and a commission on their sales above the amount necessary to make their salary and expense account.

There are two good things about this system. One is that the sales department has to keep a record of each salesman's work, therefore, is in position to tell at the end of any month whether a salesman is making good or not. The other is that it insures a worthy salesman getting returns in proportion to the amount of productive work done.

It looks like that for selling methods some of the brick people of the country may well make a study of what the lumber people have been doing and see if with modifications some of them may not be made to serve the brick industry advantageously.

THE EFFECT OF PRELIMINARY HEATING TREATMENT UPON THE DRYING OF CLAYS.

By A. V. BLEININGER.

Reprint from Bulletin of the Bureau of Standards Vol. 7, No. 2.

III. Difficultly Drying Clays—Continued.

CLAYS are subject to two kinds of difficulties in drying which are opposite in character. They may give trouble, due either to an excess of plastic material or to a deficiency of it. In the first case the system of capillaries is so extremely fine that the flow of water through it is very slow and becomes the more restricted as shrinking progresses. Owing to the fact that such clays show a very large contraction in volume, the capillary channels necessarily become smaller and smaller on drying, thus causing the difficulty of expelling the water to increase.

(a) Causes of Cracking.—The result is inevitably that the rate of surface evaporation is greater than the flow of water toward the surface, a condition which gives rise to strains and more or less marked ruptures.

In the second case the amount of clay bonding matter is so low that the body does not possess the tensile strength needed to withstand the strain caused by the closing up of the particles near the evaporating surface. The result of this condition is that the clay gives way and cracks.

In order to overcome these two classes of difficulties, some remedial measures are available. These are for the excessively plastic clays dilution by means of nonplastic materials like sand or ground, calcined clay (grog), or drying of the ware under carefully regulated conditions with special reference to the maintenance of a high humidity in the drying until the clay has become uniformly heated throughout, or by using the preliminary heating treatment which is the subject of this work.

As regards weak clays, lacking in plastic clay matter, the means open for overcoming the difficulty consist in developing the available plasticity to its maximum by means of storing in the wet condition, by grinding and thorough pugging, by the use of slightly acid tempering water (in some cases), and finally by the incorporation of a more plastic material, which offers the most positive solution of the case.

(b) Effect of Nonplastic Materials.—The addition of granular, nonplastic material to an excessively plastic clay is made for the purpose of improving the working quality by reducing its "stickiness," decreasing the drying shrinkage, and with it the tendency to warp and crack in drying, and of lowering the kiln loss due to strains caused in drying and the impermeability of the dense clay to air needed for the oxidation of the organic matter present in all argillaceous materials. Nonplastic matter, intimately blended with the clay, thus exerts a decided influence upon the working qualities of the latter,

affecting the penetration of water into the pore system, the shrinkage in drying and burning, as well as the porosity in the dried and burnt condition. Its effects, hence, are far reaching, since they are intimately connected with the final use of the product, its resistance to weathering agencies, abrasion, etc.

When any granular, nonplastic material of uniform size is incorporated in a strongly plastic clay several effects may be observed. The volume shrinkage, providing the same percentage by volume of water is maintained, may be found to increase up to a certain content of the nonplastic constituent, but beyond this point it will decrease. The density of the clay mass may thus be said to increase to a maximum. After passing it the shrinkage decreases while the porosity rises. This effect is brought out more or less clearly according to the granulometric composition of the nonplastic material added and the initial content of such material in the clay.

It is evident that on introducing small amounts of a nonplastic material into a plastic clay the spongelike matrix envelops the hard grains and the total pore space per unit volume, assuming that the sand, or whatever material may be added is free from pores, has been decreased. If the total water content be kept constant, some of the pore water therefore becomes shrinkage water, with the result that the contraction in drying is increased. From this it follows that since the pore water, and hence the pore space, has been decreased in volume the density of the mass must have increased. Upon continuing the addition of nonplastic material the point is reached when contact is established between the incorporated grains, and therefore some of the shrinkage water again becomes pore water. Shrinkage therefore decreases from this point on and the porosity increases.

If in the case of a difficultly drying, exceedingly plastic clay it is decided to add sand for the purpose of making it easier to dry, this addition should be carried beyond the point of maximum density, so that a larger pore space, and hence an increased evaporation and outlet area is produced.

In tracing the effect of nonplastic matter the assumption has been made above that the water content be kept constant. If this condition is not fulfilled but the attempt is made to maintain constant consistency, the above facts still hold, although the effects are not so marked. In determining the drying shrinkage of five low grade, plastic clays with varying percentages of a very uniform sand (20-30 mesh), and at the same time aiming to keep the consistency constant, it was possible in each case to fix clearly the point of maximum density.

The size of grain of the nonplastic material is necessarily an important factor in the resulting density and the system of

pore spaces. Fine-grained sand, for instance, at the point of maximum density will result in a more porous structure than coarser grained at the same point. With equal water content a fine nonplastic will bring about a stiffer consistency than coarser-grained material. As regards a mixture of grains of various sizes, the same statements hold that have been made with reference to the natural granular constituents of clays.

IV. Preheating.

(a) The Clays Used in the Experiments.—Since this bulletin deals solely with the study of the preheating treatment of clays and its effect upon clays, a detailed consideration of other methods bringing about similar results can not be undertaken at this time.

For the purpose of the investigation 14 clays were selected, covering a wide range of chemical and mineralogical compositions. Their character is indicated by the following descriptive remarks:

No. 1. An exceedingly plastic clay, very similar in behavior to bentonite, from Fort Pierre, N. Dak. It is impossible to dry this material without cracking. Its fineness of grain is remarkable. Apparently it contains some calcium carbonate in a state of extremely fine subdivision.

No. 2. St. Louis fire clay, Highland Fire Clay Company, St. Louis, Mo. A high-grade fire clay, but lacking in plasticity, owing to insufficient reduction of clay grains. Grinding at once improves the plastic quality simply by disintegrating the coarser, wax-like clay particles.

No. 3. Tennessee ball clay No. 3 (Potter's Supply Company), from Whitlock, Tenn. A clay of great plasticity and bonding power. It dries without difficulty excepting when fabricated into large pieces, when care must be taken to prevent cracking by maintaining a high humidity during the initial stages and by keeping the drying temperature down as low as possible.

No. 4. Prall sagger clay, Woodbridge, N. J., a decidedly plastic material of excellent bonding power and of safe drying behavior. It contains coarser grains of quartz.

No. 5. Pike's No. 20 ball clay, a high-grade English plastic material which when used alone has a decided tendency to warp and which when made up into large pieces must be dried with great care to prevent cracking. Its bonding power, which makes it valuable, is very high and by some it is considered the strongest material of this kind on the market.

No. 6. Texas kaolin, "Lone Star" brand, from Edwards County, Texas. A fire clay consisting of clay grains and extremely fine clay matter. Grinding increases the plasticity of this clay immensely and in this way it is capable of great improvement by the reduction of the comparatively coarse clay grains. It does not seem to give trouble in drying.

No. 7. An extremely fine-grained glacial clay from Albert Lea, Minn., of considerable plasticity, but troublesome to dry.

No. 8. Joint clay, from Urbana, Ill. A plastic glacial clay, difficult to dry, due not so much to great fineness of grain as to "joint" structure which is indicated by the fact that bricks made from it on drying split vertically into more or less irregular cubes.

No. 9. Albany slip clay, a fine-grained glacial clay from northern New York, low in bonding power, but showing sufficient plasticity.

No. 10. English China clay, J. Poole No. 1, considered a high grade of kaolin, not commonly imported, of excellent plasticity and yet producing a fine white color.

No. 11. Joint clay, Peoria, Ill., a typical fine-grained glacial clay, giving some trouble in drying.

No. 12. A typical alluvial clay from Groveport, Ohio, of decided plasticity, somewhat troublesome to work and dry. Probably quite high in ferric oxide, since on burning a fine red color is developed.

No. 13. A No. 2 fire clay, highly impregnated with ferric oxide, from Athens, Ohio, very plastic, with some tendency to crack in drying though excellently suited for admixture with shale owing to its ease of slaking down on contact with water.

No. 14. A glacial, calcareous clay from Heron Lake, Minn.,

possessing good plasticity and working properties though somewhat too fine grained for drying when made into larger pieces.

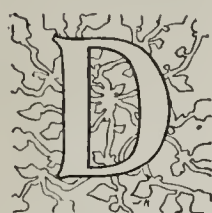
In the effort to correlate the drying shrinkage with the fineness of grain and the general plastic behavior of these different clays the following determinations were made:

1. Drying shrinkage in the normal condition.
2. Fineness of grain by means of the mechanical analysis.
3. Resistance offered by mixtures of clay and water to the passage of a paddle in the Stormer viscosimeter.

(To be continued.)

BUTTONHOLE TALKS.

Floral Offerings—A Suggestion.



DON'T KEEP ALL your flowers for funerals, Gates! Scatter them among the live ones! Dead eyes are glassy and unobserving and beyond being brightened and gladdened; but living eyes, even though tired and dim, can be made to shine, can be made glad, can be brightened. Sad eyes can be made joyous while they have life in them, but when sealed by death, they are unobservant and unchangeable.

"Yesterday I attended a funeral, where the coffin stood in the middle of the parlor, covered by masses of flowers, triumphs of floral art. Fresh and bright they covered the casket, hiding it completely. The eyes of the mourners saw them, but the glassy closed eyes in the casket did not. Her tired and worn hands were crossed on her breast. Hands calloused and stained and worn. Beautiful hands, not with the beauty of the manicure's art, but beautiful with the true beauty of ministration. Hour after hour, day after day, week after week, month after month, and year after year, those hands had been unremitting in doing for and caring for those she loved. Not grudgingly but gladly. Doing because she loved to do. Her ministration was joyous. It was a tribute of love and in no wise a slavish task.

"And now the end had come. She had gone from that ministration of loved ones at the home circle, gone out into the great unknown, into that land of mystery—gone to her reward. For such a life as hers merits and demands a reward, and we know that it must have it. Her work was done, and we all knew it was well done. As we gathered there in that silent room, we all knew that we had not appreciated the ministration. We all of us there knew that she had ever been so ready and so willing that we had taken it as a matter of course. It had never occurred to our careless minds that she, occupied in the ministering to our wants, drudging in her work, could care for little attention, for commendation, for appreciation. That a little bunch of fresh flowers would gladden her and bring a bright spot into her monotonous life, we had not till now realized. But now we realized that had we but scattered half the flowers we put on her coffin through the long, hot, busy days of her tiresome life, we would have brightened those eyes and cheered her life as nothing else could. Hard work and self denial are all right, but appreciation is of utmost importance. The knowledge that what you are doing is appreciated, is the greatest of rewards, and this reward, this that would have meant more than aught else to her, has been to a great extent missing from her life. She was not seeking it. She did not wait for it. She was doing her duty as she could best see what was her duty and just kept at it, kept on doing and asking nothing. But if she could only have had more of the visible signs of appreciation how it would have brightened and cheered her life. If the flowers had only been scattered along her life they would have meant so much to her. True she has had the flowers at last, but they have come to her too late to do her good. They could have done her such a wealth of good if they had been differently distributed, but they have been kept too late and all bunched where her glassy eyes cannot see them and where her worn hands cannot fondle them.

"Don't keep all your flowers for funerals, Gates, scatter them among the living."

GATES.

Written for THE CLAY-WORKER.

MEXICO'S LARGEST BRICK PLANT.

BY W. D. HORNADAY.

IT IS ONLY of comparatively recent years that the brick-making industry in Mexico has assumed much importance. The old type of building construction required the use of adobe blocks chiefly and there was little demand for brick. It remained for an enterprising American, Col. J. A. Robertson, formerly of St. Louis, Mo., to take the initiative in the matter of introducing brick for building, street paving, sewer construction and other purposes in Mexico. There are now several other brickmaking plants in Mexico, but that of the Monterey Brick Manufacturing Company, which was established by Colonel Robertson, and is still owned by him, remains the largest and most modern in the republic.

About twenty years ago a large deposit of first-class clay was discovered at the foot of the Saddle Mountain, southeast of Monterey, and on the banks of the Saddle River. Such clay had only been used by poor natives in making earthenware, which turned out as good as the famous Guadalajara ware.

A small hand-made brick plant was put up, which run but a short time with no success. Colonel Robertson, who then had recently arrived in this country and was constructing a railroad from Monterey to Tampico and bringing to Mexico several new foreign enterprises and doing a lot of improvements



Power House and Grinding Building.

and big things in Monterey, purchased the small brick plant and clay fields. He installed modern machinery, built large kilns, houses for laborers and placed the property in first-class working condition. He constructed a narrow gauge railroad to handle the output and fuel shipments on an economical basis. Ever since its establishment the plant has been running without any considerable interruptions and has grown to be one of the most important concerns of its kind in the country. Its actual capacity is 80,000 brick per day.

Bricks are made by the stiff-mud process and also by the dry-pressed process. The stiff-mud brick is perfectly suitable for heavy work, hydraulic construction, flooring, street paving, roofing, etc.

These brick only absorb three per cent. moisture; they are very heavy and solid. The following classes of this material are made: Regular end-cut brick measuring $2\frac{1}{4} \times 4\frac{1}{4} \times 8\frac{1}{4}$ inches; end-cut repressed brick for facing and also for paving, $7\frac{1}{2} \times 9\frac{1}{4} \times 1\frac{1}{2}$ inches, $7\frac{1}{2} \times 8\frac{1}{4} \times 1$ inches, $7\frac{1}{2} \times 8\frac{1}{4} \times 2\frac{1}{2}$ inches, $9 \times 4 \times 12$ inches. Flooring tiling, $\frac{3}{4} \times 4\frac{1}{4} \times 8\frac{1}{4}$ inches, and $1 \times 4\frac{1}{4} \times 8\frac{1}{4}$ inches roofing tiling; wedge-shape brick of two sizes, and hollow blocks, $4\frac{1}{4} \times 8\frac{1}{4} \times 12$ inches. It is being contemplated to also make drain tile. A No. 8 Raymond auger machine is in operation, its capacity being 40,000 brick a day. This machine is outfitted with everything it requires.

A Ross-Keller triple pressure, six-mould dry-press ma-

chine with 40,000 brick capacity is in operation, manufacturing regular dry-pressed $2\frac{1}{4} \times 4\frac{1}{4} \times 8\frac{1}{4}$ -inch brick, wedge-shape brick, and six different designs of moulding brick for ornamental work. This machine gives the brick a pressure of 3,000 pounds per square inch. These bricks' tensile strength is ten thousand pounds per brick, which is said to be the highest strain of any brick manufactured in Mexico. Millions and millions of brick have been turned out from this machine, and it is still in nice working condition. This department is also outfitted with everything necessary. The motive power is furnished by a 175 horse-power tubular boiler and a 125 Corliss engine, which develops enough power to run all the machinery simultaneously.

Other features of the plant are six lumber-made dry sheds



Tramway Leading to the Clay Pits.

for the stiff-mud products, with a total capacity of 750,000 brick and eight up-draft rectangular kilns, all built with brick, six of them with capacity for 300,000 brick each, the other two holding 400,000 each.

The laborers' quarters consist of one hundred brick and lumber rooms, which are given them free of rent. One hundred laborers are employed when working full capacity.

Commissary building consists of three rooms. The superintendent occupies a four-room brick residence.

The products of the plant are widely known all over Mexico, and have been used by the millions by all important industrial and mining concerns in the country. In the water and sewer works in the City of Mexico, Tampico, Monterey, San

Views of the Monterey (Mex.) Brick Co.'s Plant.



Buildings in Which Laborers Live.



A Glimpse of the Kilns.



Loading Brick for Shipment.

Antonio, Texas, and Havana, Cuba, more than fifty millions of brick were used.

There are some big industrial concerns in the country, such as the great Monterey brewery, where no other material than this brick has been used, this concern consuming over five million bricks alone. Other large concerns in Monterey like the smelters, glass factory, iron and steel works, nail works, foundries, etc., have used around seventy millions of the red brick. Small local concerns and persons have used large quantities of the material for building, etc., and the city, for street paving, has used over eighty millions.

Outside concerns and persons in different places in Mexico have used altogether more than one hundred millions of brick of this plant. Notwithstanding that enormous output the company has not used so far one-half the amount of clay which its fields contain.

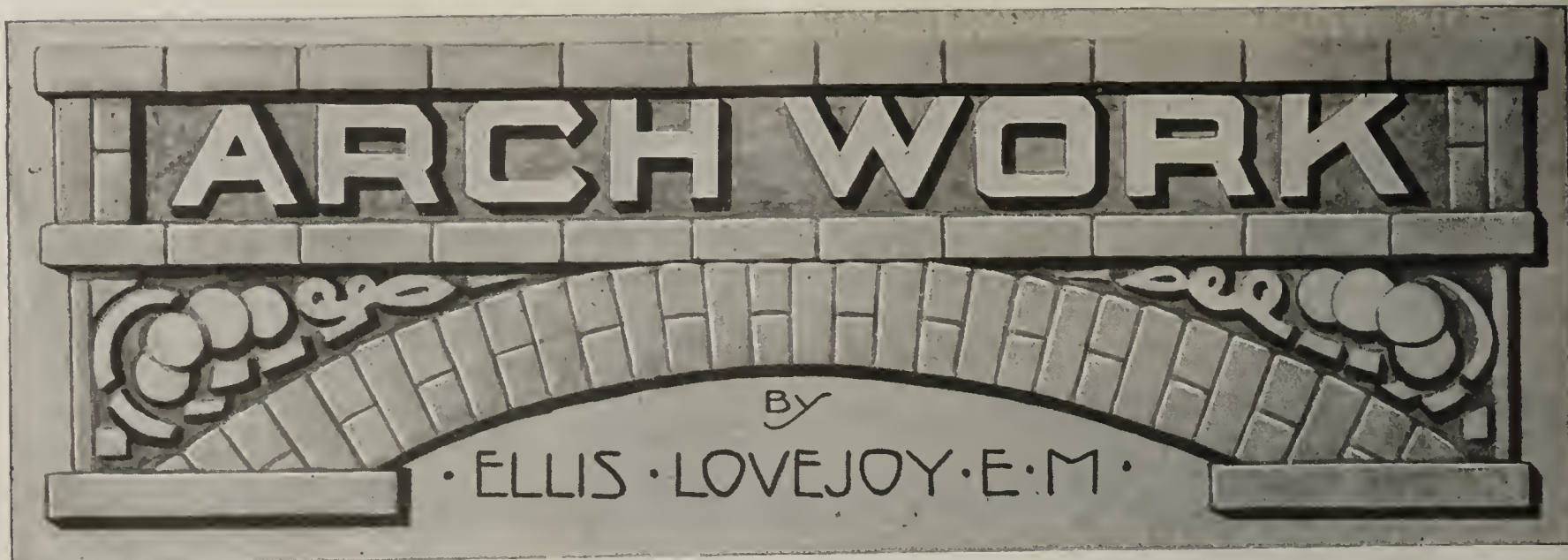
The bank of clay now being worked measures 24 feet in depth, and is good, pure material. It has been demonstrated that from this clay products of every description can be manufactured. Occasionally artistic ware which has a great demand in the United States is made by the company. Juvencio Guevara is manager of the company. He was brought up in the business and knows all of its details.

THE LIME INDUSTRY.

The lime industry, which is closely allied to the building brick business in the fact that it is the most extensively used material for mortar, has been showing remarkable development of late years. Not only has there been a steady increase in its use in building and structural work generally, but it has branched out in so many other lines that practically half of the production of lime today is used for other purposes than its use for building operations. A recent report from the United States Geological Survey says that few mineral products have so wide a variety of uses as lime. A little more than half of the lime manufactured is used as a structural material, and the remainder, amounting to one and one-fourth million tons, valued at five and one-quarter million dollars, is used for chemical purposes.

The total production of lime during the census year of 1909 was 3,472,852 tons valued at \$13,805,405. This is the highest figure on record and is twenty-five per cent above the production of 1908.

The average price per ton of lime at the producing point was \$3.98. These figures are for what is termed the lime industry proper, the article produced from lime stone. In addition to this there was a fair quantity of lime burned from oyster shells. The value of lime produced from oyster shells during the census year 1909 was \$78,409. Anyone interested in following the subject in further detail can secure a copy of the report on lime from the director of the United States Geological Survey.



A PROBLEM IN ARCH WORK.

FOURTH PAPER.

WE NOW COME to an arch which we are unable to give a name. The intrados is a circle, the top is flat, and the side or heel is the segment of a very large circle. It invariably is used in connection with depressed wall courses and the depressed courses run through the face of the arch. Sketch No. 11.

The difficulty is that the architect will show all wall joints running through the arch, but they cannot be made so using standard sized bricks for the arch.

Where the bricks are cut from green bricks or blocks as in stiff mud, we are not limited to standard sizes, but since each brick would be different as in a jack arch, the brick-maker should have the price of jack arches for the work, to which the contractor objects.

We would use standard sizes by increasing the mortar joints but this would not be satisfactory to anyone.

The reason why the joints can not be continued through the face of the arch is shown in the enlarged detail of sketch No. 11. The wall bricks being cut at a different angle than the arch brick naturally present a longer head to the mortar joint forming the heel than do the arch bricks which are more nearly perpendicular to the tangent of the curve.

In cutting such arches from standard bricks, it has been our custom to make the depressed courses continuous, which we do by dividing the difference and by increasing the mortar joint, which would not be noticeable in the depression.

In the first block, where the difference is very slight, we can either select enough bricks for the outer courses, or gain the difference in the mortar joints. In the upper sections, where the difference is greater, we fill in the arch irrespective of the wall joints as shown in the sketch.

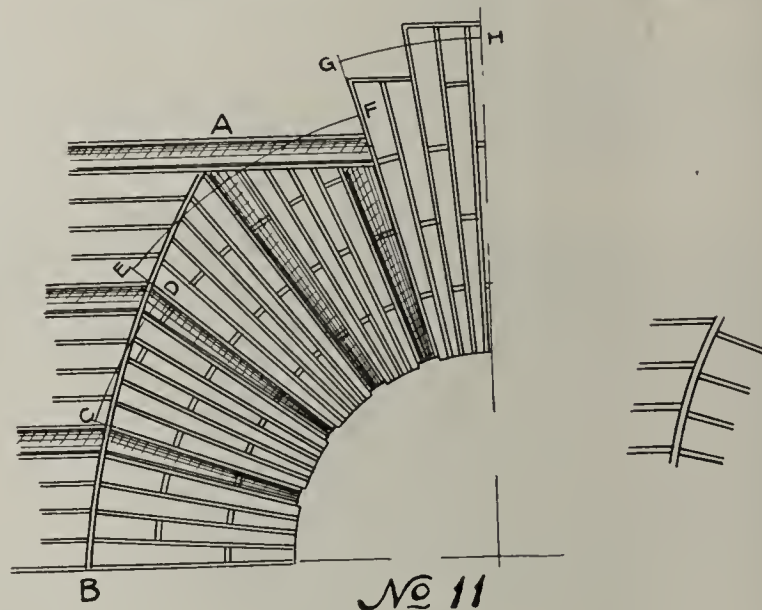
The curved heel being a very long radius can best be drawn as was drawn the curve for the chamber in the jack arches. We have even drawn it by using straight lines in each section, but changing the direction at each depressed course.

In laying out such an arch the top of it must come even with the wall courses, and the first step will be to space off the height of the wall courses as shown in the heel.

The effort should be made to get as many bricks alike in order to grind or cut them to the same pattern, whether we get the price of circular or jack arches for them, and to do this it is necessary to strike circles C-D, E-F and G-H, upon which to lay off the radial joints of the arch bricks. Thus the greater part of the bricks in the arch will be ground for circular arches, and only a portion of them need be cut for the heel and for the top and key.

Ornamental bricks in jambs or architraves of circular arches give no trouble, but occasionally an architect will show and specify such ornamentals for segment and flat arches.

The segment arch can be worked out by making a broken joint at the heel as shown in sketch No. 12, but the jack arch can not be cut from standard shapes, and the only way it can be made is to mould the arch in terra cotta and cut



it up into brick sizes, or by moulding a lot of special sizes of the ornamental shape so that the jamb of the arch could be cut from them at the different angles. One would say at first thought, as architects have said in their drawings, that there is no reason why a moulding can not be carried across the head of an arch using standard sized bricks for the purpose, but if one will remember that standards are tilted at various angles to form a jack arch and the top and bottom of the bricks are cut to fit these angles, and then will stand up a lot of ornamentals one against the other but tilted at an angle representing an arch, he will readily see that the lines of the ornamental part of the bricks do not follow the lines of the arch as the architect has shown them.

A simple round cornered jamb can be made by grinding the nose of the jambs in the arch, but the arch can not be cut from standard sizes of ornamentals.

Gothic arches introduce no new problems except that the radial centers are not on the center line of the arch. Each side of the arch may be considered as a segment arch of which the center line is the base line of the Gothic arch. The radial centers will be on this base line and can be easily found if not given by the architect. Opening, height of opening, width of face, and depth of reveal are all the data we need to lay out the arch.

The center line or key of the arch is necessarily a mortar joint, unless stone or some special shape is used, and the

bricks on either side are simply cut as were cut the bricks for the piers of the triple arch.

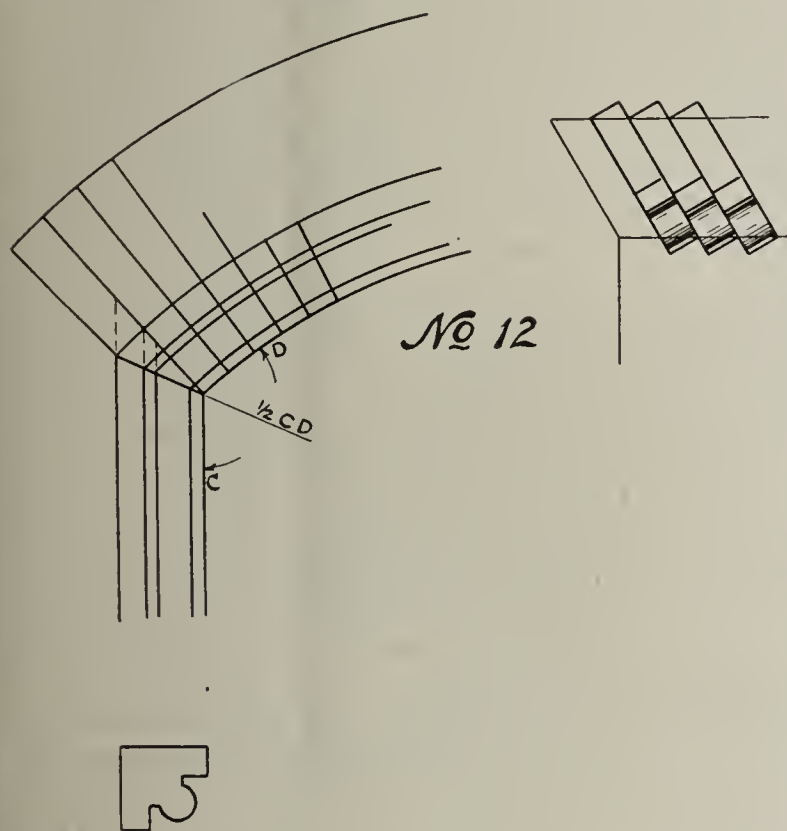
The elliptical arch is our latest problem, and it is an arch frequently used by architects.

The data needed is the width of opening and the rise together with the face width and reveal.

There are several methods of drawing the elliptical arch but the one that most closely approximates the true ellipse is one using five centers for the complete arch (half ellipse) or three for the portion necessary for our work.

A perfect ellipse is not practical. The only way it can be made is to step off the bricks on the outer curve, then at each point draw a tangent and to the tangent erect a perpendicular which becomes the radial joint, but while it will work out nicely for the outer curve, it is not tangent to the inner curve at the point where the two intersect. On the inner curve the bricks would lip badly and would have to be ground to follow the curve, and even then the pitch of the radial joints vertical to the outer curve and at an angle to the inner curve gives the structure a lopsided appearance. Only once in our experience were we ever called upon for a perfect ellipse in brick work and that was enough.

The elliptical arch using five centers is laid off as follows:



Lay off the base line and rise, B-O and O-H, and complete the rectangle HFBO. Draw the diagonal B-H. From F as a center, and with F-B as a radius, strike the segment B-L and find the center (S) of the chord. From F draw a line through S and extend it until it cuts the center line at C. This gives us two centers, E and C.

Lay off O-P equal to O-H and find the center, N, of the line B-P. From N strike the circle BGP. Lay off O-R equal to H-G and B-M equal to O-G. From E as a center and E-M as a radius, strike the segment M-D and from C as a center with radius C-R strike the segment R-D. The intersection of the two segments, D, is the third center.

From C draw a line through D, extended, and from D draw a line through E, extended. These lines cut off the portions of the ellipse to be drawn from the several centers. For example, the part of the ellipse below the line DEI will be from the center E; that part between I and J will be from the center D, and from J to G and as far beyond will be from the center C.

The centers for the right half of the ellipse can readily be located from the position of those on the left without repeating the construction lines and similarly the centers for a complete ellipse can be located.

From these several centers we strike the inner and outer lines of the arch just as in any segment arches and step off

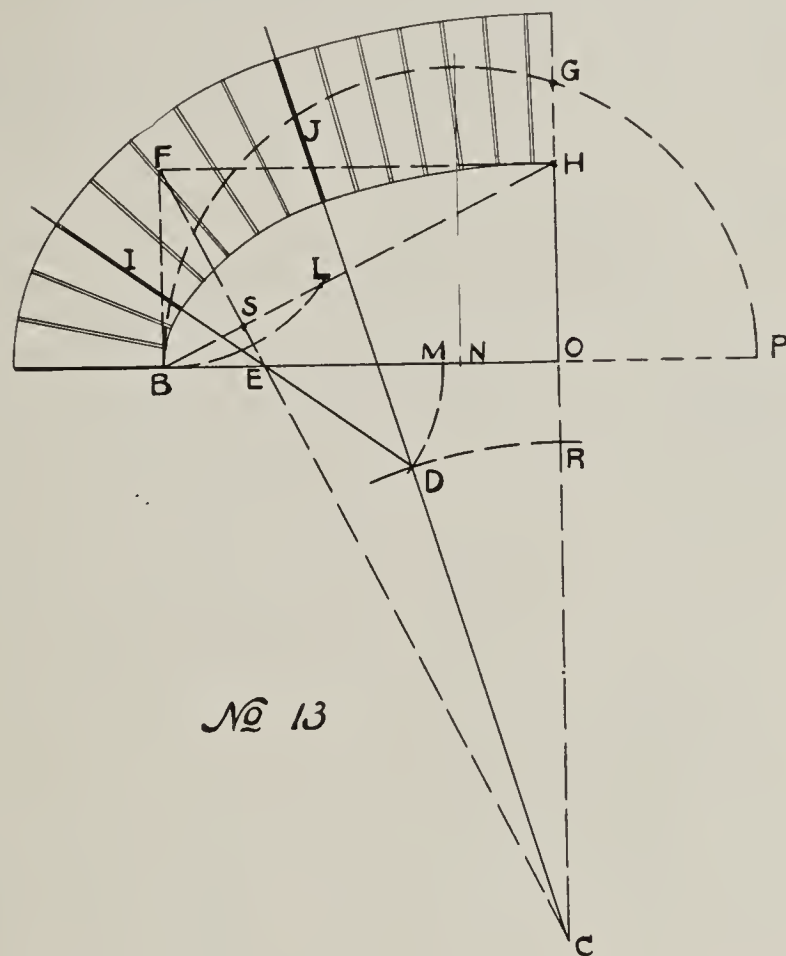
the bricks on the outer curve for each section independently. In the first section the radial joints will be drawn to E as a center; in the second section to D and in the third section to C.

It is always best to have the mortar joints come at the intersection between the several sections, but when this makes too much difference in the size of the bricks from one section to the next, it is necessary to use a key at the points I and J, and, of course, a key must always be used at G.

The keys at I and J will have one side to the center E and the other side to the center D, and the objection to their use is that a special pattern must be made for such key bricks, or starters, as they are called.

Further explanation of the ellipse is unnecessary since it introduces no features which we have not already explained in the circle and segment arches.

We occasionally are required to put an arch in a circular bay or tower. Theoretically such an arch is not practical from bricks because the surfaces of the bricks being plane surfaces, they can not build up the surface of a cylinder, especially when placed at various angles as in an arch. The heel brick, being laid horizontally, should curve from end to



end to follow the curve of the bay and the key brick, being vertical, should curve from edge to edge. The interval between heel and key is changing from end to end curve to edge to edge, and such complicated shapes are beyond the pale of the brickmaker. Properly the arch should be modeled as a single piece and then can be cut up into brick sizes, but such work belongs to the maker of terra cotta.

However, we are sometimes called upon to do the work, and when the radius of the bay is large, such small unit surfaces as standard bricks do not differ widely from the curve of the bay in the extent of a single brick, and as each brick can be set at an angle to most nearly conform to the surface of the bay, we are warranted in accepting the work.

Laying out such arches introduces two new points.

We must lay out the arch in larger dimensions than those given and the bricks must be wedged in two directions since the back of the reveal will be on a smaller circle than the face.

The dimensions will invariably be given the actual width of the opening, which will be less than the surface line of the arch, and we must lay out the arch sufficiently larger so that when the arch is picked up as a whole and bent to follow the curve of the bay, it will just span the opening.

We draw a base line and a center line and lay off the

width of the opening on the base line, then, using the radius of the bay, strike a circle from end to end of the width of the opening on the base line. This curve will be the actual length of the face of the arch to span the opening.

Step this off with the dividers set at any convenient unit and thus determine the actual width which we must use in laying off the arch.

With this new width of the opening, but with the other dimensions as given by the architect, we can now lay off flat and segment arches. Circle arches, however, will no longer be circles, but must be laid off as ellipses since the curvature of the bay does not affect the height of the arch—only the width.

The height of the circle becomes the rise of the ellipse and the new width becomes the base.

If the bays have a small radius, the soffit bricks must be ground thinner on the back else we will have a taper joint, but if the radius of the bay is large, the mortar joint will take care of the difference from front to back of the soffit.

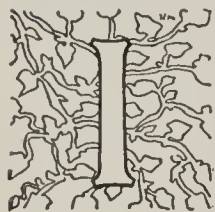
In such arches it is often desirable to use less than full length brick in order to reduce the variation from the true curve as much as possible. Even small units will show the plane surfaces in reflected light and we should reduce this effect as much as possible.

The mortar joints help us out of numerous minor difficulties in such arches, but they should not be overworked in our behalf.

(To be continued.)

Written for the Clayworker.

EXPANSION JOINTS IN KILNS.



IT IS CUSTOMARY in building kilns to provide expansion joints but there seems to be no rule in regard to them, and the results are badly cracked, bulged and leaky kilns.

It is common practice to put wide joints in the crown of rectangular kilns, but to make no provision for expansion in other parts of the kilns. It seems absurd to put such wide joints in the crown with no provision in the side walls as if the crown would slip back and forth on the side walls closing up the joints (often fourteen inches and more) when hot and recovering itself when cold, while the side wall remains stationary.

The crown does not creep on the side wall and there is no closing up of the joint at this point, and in order to close up the wide joint at the top of the crown, cracks develop in the sections to relieve the strain. The crown can not move as a whole, and if part of it moves there must be some rupture, and one needs only to examine a few kilns with wide expansion joints in the crown to be convinced of this.

A kiln adjusts itself during the first burn and usually develops cracks which are natural expansion joints and which should teach us that the wide joints we put in the crown are unnecessary—in fact, they are detrimental to the life of the kiln. The reason our kilns bulge so badly is that we go over the kilns and fill up the expansion cracks with mud—"daubing"—which acts as a wedge to widen the crack during the next burn.

There is no reason why we can not build the side walls with tongued and grooved expansion joint—a mere crack is all that is needed—and protect the crack with pilasters which can be daubed without filling the crack.

The expansion of brick work is given from .000003 to .000005 of the length per degree F.

A sixteen-foot section of a rectangular kiln crown heated at 2,000° F. on the basis of the smaller figure given above will expand a little over one inch or one-half inch each way, while on the basis of the larger figure the expansion will be about two inches in total.

Even though we allow the maximum expansion, the width

of an expansion joint should not exceed two inches. The side walls are subjected to the same heat as the crown and in an eighty-foot kiln the maximum expansion would be about ten inches.

This must come during the first burn and we must say that we have never seen a kiln bulge to this extent under one burn. In order to get such expansion two conditions are necessary. The bricks lining the kiln must have been burned at a temperature as high as that to which they are subjected in use to get all the shrinkage out, and they must be laid up brick to brick—without any mortar.

We do not have these conditions. Many fire bricks are not burned at a very high temperature and while they will expand under heat up to this temperature, at higher temperatures they will shrink, and this shrinkage, together with the slagging action of the ash from the furnaces, will make the bricks smaller than when originally laid. This shrinkage is frequently so great that the bricks will loosen and fall out in a poorly constructed kiln. The fire bricks and largely the backing up bricks are laid up in clay mortar which shrinks under the burning. In this way each brick provides itself with expansion space, and we need in addition very little space.

It has been our custom to make the expansion joints in a rectangular crown about one-half inch with perhaps one inch at the ends of the kiln.

Expansion joints in the kiln bottom are often more important than in the crown. Flues may be laid continuously from end to end or side to side of the kiln or from wall to wall of a round kiln, and frequently these are laid dry so that there is no mortar cushion to take care of the expansion.

We have seen round kilns bulged out all around the hub, increasing the diameter several inches through the accumulative action of the expansion of the bottom. After each burn the dust and sand would sift into any joint spaces, thus acting as wedges to force out the wall of the kiln.

A kiln so forced has the brick work loosened and there is a great deal of air leakage just in the part of the kiln where we do not need any excess air and where we have the most trouble in getting the heat required to burn the ware.

There should be no excuse for the troubles from the expansion of the kiln bottoms. We can easily provide expansion fillings between the bottom and the kiln walls, and all flues can be built with lap joints at frequent intervals which will dissipate any expansion tendency before the wall of the kilns is reached.

Above the floor of a round kiln we can hold the kiln walls with bands. We build the kilns inside the bands without making any provision for expansion, and notwithstanding the fact that the circle of the kiln is over one hundred, yet we seldom have any trouble with the bands bursting.

The shrinkage of the bricks in the kiln lining, of the mortar joints, and the compression of the mortar joints in the backing up and line bricks allows sufficient room for the expansion.

If the kilns are not banded, the walls of the kiln will be forced out, as can be seen on any yard, but there will be very little of this if the kiln is properly constructed and suitably banded. We can hold a kiln wall against the expansion tendency, but this would be impossible were the mass of masonry perfectly solid and had no give and take within the walls themselves.

CAREY P. ELLIS.

Yes, there has been some damage to crops. There always is. Even the oldest resident can hardly name the year that somewhere, some time during the growing season, damage was not done to the crops. But this year, as in most other years, the crops are coming out all right after all, and there will be more than ever before. Whether the things that are growing will be cheaper to the consumer or not is another question.

HOW TO INCREASE THE SALE OF BRICK.

BY W. E. DUNWODY, MACON, GA.

A paper read before the Georgia Hardware Convention, Macon, Ga., May 23.]

Mr. President and Gentlemen:

Naturally, my discussion will be more from the standpoint of a brickmaker and the sale of brick, than any attempt to discuss salesmanship in general.

First, in order to increase the sale of brick, one should have thorough knowledge of brick, in order to present them favorably to customers, and should constantly keep brick as a building material in the minds of the people as the best building material.

Brick is the aristocrat of building material. It has a long pedigree which goes back to a day more than three thousand years before Christ, when the Assyrians reared their terraced temples and palaces in western Asia.

In Ur of the Chaldees, whence Abraham went into the land of Canaan, in Nineveh, in Babylon, the important buildings were made of brick.

Brick may reach a venerable old age, but it never reaches the state of decrepitude. Brick comes from the bosom of Mother Earth in the form of plastic clay; it is hardened by the most powerful agency in the world—fire, and is proof against further fire. It defies the wind and rain. It is as enduring as the earth itself.

Then let us consider why anyone should use brick. There are many reasons, but I will mention only a few. First, they are durable, being better than iron, as they do not rust. Brick buildings practically need no repairs. Brick are manufactured almost everywhere and can be bought at reasonable prices. They do not rot. By their use, the best buildings can be constructed at a very moderate cost. They do not twist, shrink, or crack. They will not disintegrate or crumble. Brick lend themselves to artistic designs of great variety. The brick building is fireproof.

With these vital points in favor of brick, it seems only natural that every one would use brick rather than lumber where it is possible to do so. Why is it, that this is not true?

Chiefly because they are not aware of the above reasons, and because the vast majority of people are under the impression that brick buildings cost so much more than frame buildings. In fact the general idea is, that the cost of brick buildings is almost prohibitive.

Perhaps it is natural that we, who were born and have grown up in the land of wooden houses, should take this type of granted.

But on account of the fact that lumber is daily becoming scarcer and more expensive, and the consequent comparative cost of a house of brick, and one of cement or wood, the Building Brick Association of America recently undertook to determine something definite regarding this matter, and I give the results of this investigation for your consideration.

For this purpose, a modern eight-room frame house of good design was chosen, and plans and specifications were prepared by a well-known and competent firm of architects. These plans and specifications were submitted to five well-known contractors, and each fully advised of the object of the investigation.

Each contractor was given the same information and instructions, and each took plenty of time to figure with care, with the following results:

Taking a weather-boarded house as a standard, they found that a house complete with the outside walls 10 inches thick of brick would cost an advance of 6.5 per cent. over the weatherboarded house; that a house with 12-inch brick walls would cost an advance of 10.7 per cent. over the weatherboarded house; that a house of stucco on hollow clay blocks

would cost 4.9 per cent. in advance of the weatherboarded house; that a house of stucco on frame would cost in advance of 2.5 per cent. over the weatherboarded house, and that a house with 4-inch brick veneer on hollow clay blocks would cost an advance of 7.7 per cent. over the weatherboarded house.

In these estimates face brick were figured to cost \$17.50 per thousand, and common brick \$9.00 per thousand, which cost in Macon \$14.00 and \$6.00, respectively.

By the above figures, you will note that there is only a very small difference between the different modes of construction in point of cost. I could give you fuller details of these estimates, but I do not want to tire you. If any one present desires further information, I will be glad to hear from you at any time.

Now I feel sure that you are surprised at the above figures. If you are not, you are the first one to whom these figures have been submitted, who were not surprised. These figures, however, are absolutely correct, and the contractor bids with their offer to build this identical house at the figures named can be had. Notwithstanding these facts and figures, thousands of wooden houses are being erected every year. Why?

Because the public does not know the truth.

On the basis of statistics compiled by the United States Geological Survey for the year 1907 (the latest available figures) the number of wooden houses constructed in the United States in the year 1910 was over 69,000. These houses, if constructed with only the outer walls of brick, would have required the vast quantity of one billion and thirty-five million face brick, and two billion and seventy million common brick. From these figures you will get an idea of the great possibilities for the sale of brick, and we will see that the best way to promote the sale of brick is to educate the people.

How are we to educate the people?

By intelligently and carefully prepared advertising matter, which will present facts in favor of brick.

We are sometimes asked "Does advertising pay." In fact we sometimes ask ourselves the question.

Let us see purchasers actually influenced by advertising?

Name for me fifteen that you purchase sometime regularly, and I will show you that not less than ten of these articles are widely and constantly advertised. How about that hat, those shoes, those collars, shirts and underwear, that suit of clothes?

What is your favorite brand of cigars, soap, baking powder, coffee?

Do you buy known or unknown hardware? Are you influenced to a certain, in fact to a large extent, by the effect of someone's advertising?

Gentlemen, take an inventory of all the purchases you make and tell me how few of them include absolutely unheard of unknown articles.

The man who whispers down a well,

About the goods he has to sell,

Won't reap the shining, golden dollars,

Like him who climbs a tree and "hollers."

There is nothing new in this, perhaps, but few there be that give attention to it.

Do you realize, gentlemen, that this question of the sale of brick is not only one of vast importance to the manufacturer of brick, and the hardware merchant who handles brick, for reason that brick buildings can be made fireproof, and are always nearer fireproof than frame buildings.

Do you know that our fires destroy annually nearly, if not quite as many buildings as we erect? In America, the fire loss during the year 1907 was \$2.51 per capita. In Europe in the same year, the loss was only 33 cents per capita, nearly eight times as much in America as it was in Europe. In America we use 500 feet of lumber per capita, and Europeans use only 60 feet per capita. Europe uses brick.

The United States government, in the Department of

Geological Survey, has the figures which show the losses by fire, including the cost of fire protection, and the cost of insurance (after the amounts paid back for fire loss have been subtracted.) Mr. Herbert M. Wilson, chief engineer of the technological branch of this department, shows that our expense for fire loss on the above basis in 1907 was more than \$456,485,000, that tax upon the people exceeding the total value of gold, silver, copper and petroleum production in the United States for that year. Such, gentlemen, are some of the facts which are of interest in regard to brick which can be used as strong talking points in the sale of brick.

The subject is a very comprehensive one, and a great deal more time could be used in its discussion, but I think that I have said enough.

Only one more word, let me say to those of you who handle brick: The best way to sell brick is to always carry a stock of them. You can't sell what you haven't got.

I think that I can sum up the entire paper in one word, Advertising.

Written for THE CLAY-WORKER.

ENGLAND ADOPTING AMERICAN METHODS—BREAKING A BUILDING RECORD IN LONDON.



IMPRESSION that Britishers are slow in erecting their public buildings has received a somewhat startling setback in a remarkable building record just accomplished in London. To use an expressive Americanism, the people in the world's metropolis are "going some."

Thanks to the up-to-date American construction methods, the directors of the Savoy Hotel, in London, have, in a few weeks, carried out with the most complete success an undertaking which the versatile veteran London writer, George R. Sims, claims "gives them the undoubted right to register themselves in the golden book of progress as the Aladdin & Co., Ltd., of the twentieth century."

The remarkable building feat which has been accomplished by the directors, the architects, Messrs. Colcutt & Hamp; the contractors, Messrs. Leshe & Co., and the vast army of workers who labored incessantly day and night to complete in the shortest time on record an undertaking which seemed absolutely impossible, is a tale to be told. It is a stirring story not only of the dawn of a new era in the building art and industry, but it is a stirring story of British enterprise carried to a successful issue by the capital, brains, will and work of "the tight little isle."

The directors of the Savoy had determined that the whole river front of the hotel should be extended several feet and that two new stories should be added, that the areas of all the rooms overlooking the River Thames should be largely increased and the window openings arranged so as to offer the most extensive river view possible. It was a work of enormous magnitude and there were serious difficulties to be faced in carrying out a daring scheme, which involved an outlay of over half a million dollars. The building material, the extensive and elaborate fittings, every item in the vast scheme of alteration and extension involved in the great river front improvement, were prepared and completed before a single blow of the hammer fell upon the building itself. All the workshops were periodically inspected and as the important materials were furnished they were deposited in a large vacant space in Kingsway and kept under lock and key. Every portion of the material that would have to be fitted was conspicuously numbered and made ready to put in its place. And thus on August 1, when the great work commenced, everything was in readiness.

It was then that the vast frame of scaffolding that, with its army of workers, was one of the sights of London last fall,

was fixed in the shortest time on record. The scaffolding, 130 feet high, with a frontage of 400 feet, was erected in a quarter of the usual time by the "Scaffixer Tie" and directly it was fixed every platform was loaded with men and material by two large electric elevators and four hoists and two elevators in the hotel. These elevators and hoists during the days and nights that they were ceaselessly in use traveled 17,000 miles.

In constructing the gantry over 5,000 cubic feet of timber and 15 tons of steel were used. The scaffolding consisted of 95,000 feet run of poles, 50,000 feet run of scaffold board, 6,000 feet run of 3x9-inch planks and 10,000 chain ties. In the new building over 8,000 tons of ironwork were fitted by Messrs. Handysides in 20 days; 256,000 stock bricks, 45,000 white glazed bricks, three-quarters of a mile of stoneware flue and 300 tons of Portland cement were used.

In the vast scheme of sanitary plumbing and hot and cold water supply carried out by Messrs. Doulton under the superintendence of the London Sanitary Protective Association, before the commencement of the building operations all the leaden piping was planned, prepared and bent, ready for actual and instant fixing, so that when the work inside the hotel commenced no noise might interfere with the comfort of visitors.

Over three miles of lead and iron piping were fixed in connection with the plumbing and hot and cold water supply, and in order that there should be no delay in fitting full size dummy bath rooms—the number of baths in the hotel number 257—were constructed at the works showing the position of the steel joists and the various projections in the rooms. Never before was a plumbing system in England of that magnitude carried out under such novel circumstances. The steel work required in the erection of the front of the building and the new stories were unusually complicated, for, unlike American cities, very few public buildings are square on plan, owing to streets being in diverse directions and a general absence of square blocks, which predominate in America. In order to surmount the Savoy difficulties large lattice girders five feet deep were introduced to span the distance between the outside walls of the building, and they were so arranged to clear all projections through which they were threaded. These girders, weighing over 13,000 pounds each, had to be erected at a height of 100 feet. To appreciate the enormity of the task of completing this work in 20 days, the time allowed, it should be borne in mind that the steel work had to be sent onto the platforms in 4,713 separate pieces and 300 rivets and 4,160 bolts placed in the connections.

To avoid delay when every moment was of value, if the time limit was not to be exceeded, the whole of the work was temporarily "assembled" at the contractor's shop with a most comprehensive system of marking which insured every piece being identified and placed in the same position it had occupied when temporarily erected. The facade on the river front is 200 feet long by 80 feet high, and this in Carrara ware has been executed by Messrs. Doulton, of Lambeth Pottery, London, in three weeks. No such front has ever been erected in such a short time in England, or perhaps in the world, the stupendous work being accomplished in eight weeks.

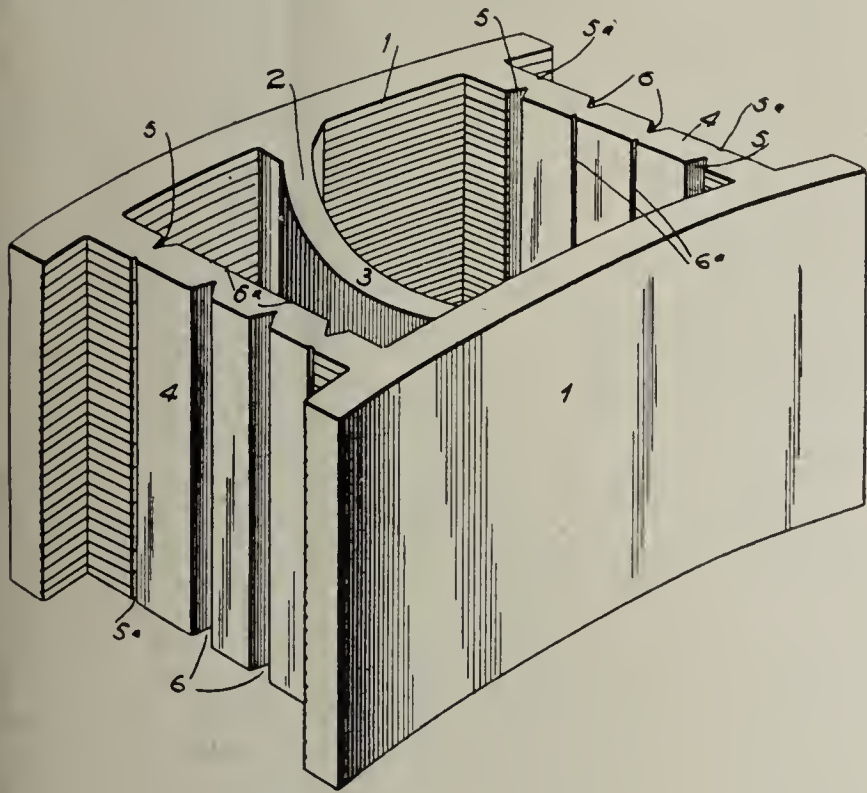
H. W. J.

The Cracking of Bricks.—When the brick are cracked in the kiln there can be several causes for the same. Cooling cracks are caused by cooling too rapidly and opening up the chambers too fast. Cracks are also caused by damp flues and uneven setting of the bottom courses. It can be stated that the majority of the troubles of cracking are due to the water smoking, which has been carried on too rapidly. In order to overcome this trouble the fire should not be carried too far ahead of the drying chambers, and while it may in some cases retard the setting and handling of the kiln, it will pay in the better brick which will come from the kiln.—Deut. Topf. Z. Z. No. 101, 1910.

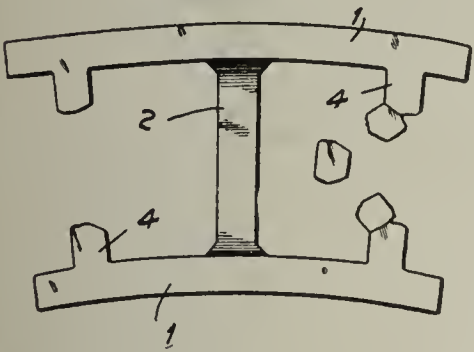
RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Interlocking Brick: Philip Yengst, of New York, N. Y. 989,467. Patented April 11, 1911.—This improved interlocking brick is especially designed for use in lining boiler furnaces and the like, and is arranged to insure a firm interlocking of successive courses as well as interlocking of the individual bricks in the same course. To this end each brick is provided on each face with symmetrically disposed grooves and ribs B,



989,677.



Tile With Two Main Walls Connected by Temporary Ribs.

B', C, C', respectively, adapted to fit together. The bricks also form offset shoulders on their sides as indicated at E.

Machine for Cleaning and Sorting Clay or the Like: Michael Bohn, of Nagyikikinda, Austria-Hungary. 988,968. Patented April 11, 1911.—According to this invention the substances separated from the clay during the screening process are forced through a return pipe indicated at 5, which pipe extends over the hopper of the mill and is provided with perforations (6), through which the fine material may pass and thus be again delivered to the cleaner. Water may be supplied by means of a pump (4) if desired.

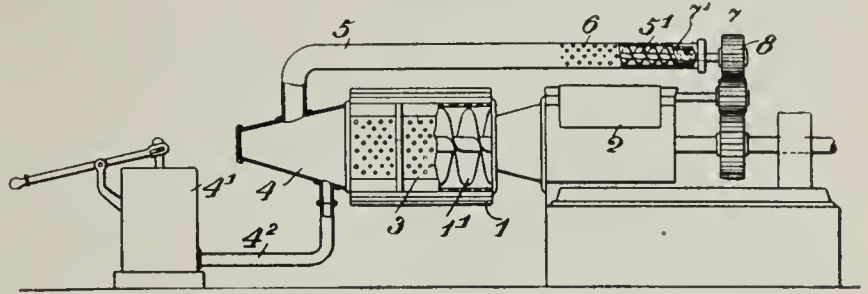
Tile: Ernest F. Wiederholdt, of St. Louis, Missouri, assignor to Wiederholdt Construction Company, of St. Louis, Missouri, a corporation of Missouri. 989,677. Patented April 18, 1911.—This improved tile is particularly adapted for use in the building of walls, chimneys and the like, and the object

of the invention is to provide a tile having two main walls connected by temporary ribs, such ribs serving to hold the walls in proper position during the drying and burning operation, but which web may be readily broken out as indicated in Figure 2 of the illustration when the tile is ready to be used. After such webs are broken out the remaining flanges (4) serve to firmly anchor the concrete or other plastic filling.

NEW YORK FIREPROOFING.

THE FIREPROOFING situation in New York City seems in a fair way to be settled satisfactorily to all interested. A recent announcement is that the National Fireproofing Company, manufacturers of hollow tile fireproofing block, and Roebling Construction Company, specialists in concrete fireproofing, have practically agreed upon a basis sat-

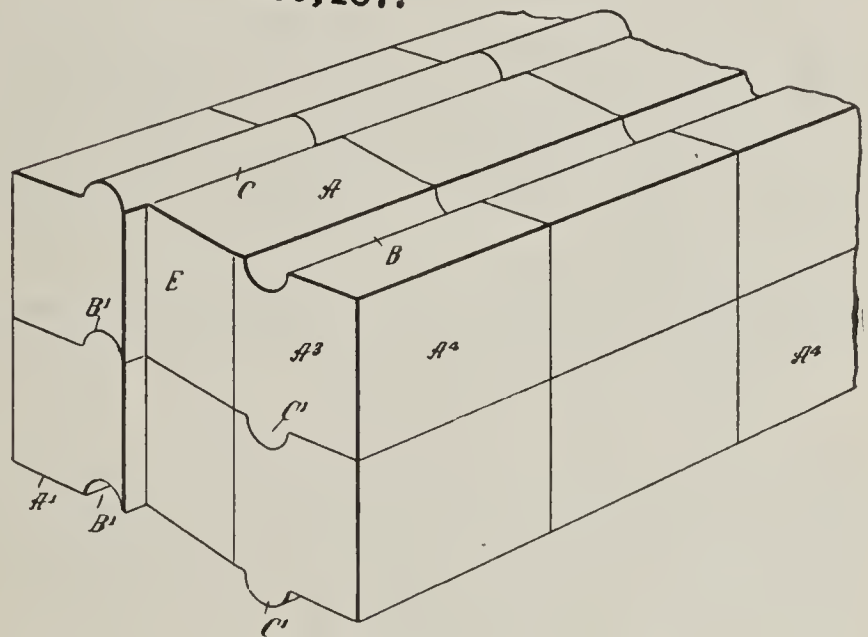
988,968.



Cleaning and Sorting Clay Machine.

isfactory to both. The concrete interests in the original dispute were backed by the big cement companies and the fireproofing company relied upon its selling arguments for its position. Both concrete and fireproofing people had a prominent representative in Tammany Hall, and the feud between

989,467.



An Improved Interlocking Brick.

the two naturally extended to these representatives, and it became more and more difficult to reach an amicable understanding.

A committee of revision was appointed to go over the ground. After a year of careful study this committee reported back to the Aldermen, and there the difficulties began. While it was proposed to shut out the concrete industry entirely in favor of the use of hollow tile fireproofing in the construction of New York buildings, there was a protest from the cement manufacturers that compelled those in power to hesitate. When these manufacturers saw that they might be shut out from the great New York market, they began to bestir themselves, and the result was that the new building code was held up indefinitely. The act which gave the hollow tile people practical control of the New York market

finally reached the Mayor's office, where it was vetoed. Since then nothing has been done.

The fire in Newark which cost the lives of scores of people and the one in Washington Place, New York, which was even more disastrous, forced action upon New York's building code. Prominent men have been at work with the committee representing the Building Employers' Association and another representing the New York Chapter of the American Institute of Architects to take up the consideration of this phase of fire protection. The character of the men on the committee and the interests they represent necessarily give much weight to its deliberation and conclusions. It is probably true that this committee will be the one that will finally determine what New York's new building code shall be.

The feature of it which will most interest manufacturers of burnt clay is that in which it is likely the market will be decided between cement and clay products. The brick manufacturers will undoubtedly feel that the best interests of the city will be served by shutting out cement and concrete entirely and fireproofing only with burnt clay. But owing to the powerful interests connected with the cement industry, it has been impossible to do that, and clay fireproofing must take its chance with cement. It may be that the old saying applies here, "that a half loaf is better than no bread."

The understanding which has been reached between the two principal interests means this: If an attempt is made now or in the near future to revise New York's building code the bitter rivalry which defeated it at the first attempt will be conspicuous by its absence. Brick men may feel sure that whatever results in the future their interests will be fully protected.

It will be found, no doubt, as soon as any attempt at revision is made that the building interests will rush to file plans so as to get in before the more stringent regulations are adopted. This will help the brick men at the time it occurs, and by the time the other people are ready to go to work the new code will be in effect long enough so its provisions will not frighten any one.

READY-MADE FARMS.

One reason the Canadian Northwest grows so fast, in part at the expense of the United States, is that its government and railroads conspire to make the settler prosperous.

Their latest wrinkle is "the ready-made farm." A tract of land is set aside for settlement and experts put it in shape for the newcomer to step into a finished and "going" place. The "ready-made poultry farm" is in particularly strong demand.

It is singularly true that the United States is about the only country in the world that does nothing to help its people "back to the soil" except to tell them they ought to go there.

IN OKLAHOMA.

Two clippings from the Oklahoma Farm Journal show peculiar local phases of the drainage and water problem. The use of wells or sink holes as outlets for drainage of cultivated lands will solve the problem in many places if the outlet is properly constructed and protected.

Draining a Depression.

Oklahoma Farm Journal:

I have a small tract of land that has no outlet and can't be tiled on account of being so far from any low drainage, so I tried to drain by sinking a well to the sand bed 20 feet deep, but this clogs up too easily. Now, I have since been told that if I was to put a well down deep enough that it would strike a strong vein of water or a running underground stream, that would drain this tract. What has been your experience along this line, and with what results? Would be pleased to hear from any other subscriber who has had any experience along this line.

J. P. W.

Garfield County, Cen. Oklahoma.

If the shallow well which you sink 20 feet deep to the sand clogs up easily, what is there to prevent the deep well from clogging up? You will not strike any running underground streams. You may strike a bed of gravel full of water which is moving slowly. About the most practical method is for you to make a sink hole down in the sand and keep it boxed up and cleared out between rains.—J. F.



IRRIGATED LANDS IN THE RIO GRANDE VALLEY SAVED BY DRAINAGE.

The problems of drainage that are coming before the drainage engineer and tilemaker are varied and sometimes vexatious.

Primarily the work consisted of removing surplus water from farms and cultivated fields or lands that individual farmers wished to cultivate.

An enlarged need of this is shown and met in the formation of drainage districts embracing several farms, townships and counties.

A peculiar case requiring drainage is shown in the government report on "The Drainage Situation in the Lower Rio Grande Valley, Texas," a report of which is given in Circular 103, Office of Experiment Stations of the United States Department of Agriculture, by L. L. Hidinger, Drainage engineer, and prepared under the direction of C. G. Elliott, Chief of Drainage Investigations. At the suggestion of W. D. Hornaday, of Austin, Texas, we make the following extracts, with comments:

"The Texas side of the irrigable section of the Rio Grande valley consists of about 450,000 acres of land, lying in the shape of a wedge, with one side formed by the Rio Grande and the apex near Samfordyce, in the western part of Hidalgo county. The largest part of the area is bottom land, but there is a considerable amount of land on what is known as the "second lift." The boundary of the second lift lands lies to the south of the Samfordyce branch of the St. Louis, Brownsville & Mexico railway, from Closner to a point between Donna and Mercedes, and at a distance varying from a few hundred feet to a mile from the railway. The elevation above the bottoms varies from 10 to 35 feet along the southern boundary and the slope is toward the northeast at a rate of about two feet to the mile. The slope of the bottoms is away from the river at about the same rate until the boundary of the second lift lands is encountered, when it slopes toward the east until near Mercedes, where the slope continues in a northeasterly direction to the Gulf of Mexico.

"The better drained parts of this valley are covered with a heavy growth of cactus and mesquite trees, and the low-lying, poorly drained areas are covered with huisache bushes and salt grass. There is also a scattering growth of bunch grass, which affords some pasture for stock. Until recent years this territory was used almost exclusively for range purposes and was very thinly populated. The only means of transportation was the Rio Grande railroad from Brownsville to Point Isabel on the Gulf of Mexico. This railroad has a narrow-gauge track that was constructed late in the seventies. Previous to that time all produce was shipped by boat down the Rio Grande to the gulf. In 1904, however, the St. Louis, Brownsville & Mexico railway was completed. The main line of this railway parallels the gulf coast from Houston to Brownsville, and a branch parallels the Rio Grande from Harlingen to Samfordyce. Since the completion of the railway the development of the country has been wonderful. There are now about thirty-five land and irrigation companies in the valley, representing an investment of several million dollars.

"The first irrigation scheme of any magnitude was put in operation about 1902, when the Brownsville Land and Irrigation Company started to grow rice. The yield of the first crop was excellent and a bright future was predicted for the rice industry, but the second crop was not so much of a success. In the growth of rice it is necessary to keep the ground covered with water several inches in depth, and in order that it might not seep away too fast the low-lying, heavy clay soils were chosen. These soils contain a large

mount of alkali, which was rapidly concentrated at the surface by this method of culture and it soon became evident that rice could not be profitably grown.

"A large percentage of the land upon which rice was grown contains so much alkali that crops cannot be profitably cultivated, and there are seeped and alkalied spots along nearly all of the oldest irrigation canals, especially where they were constructed across the light soils. Most of the canals have been carrying water but a year or two, and what water has seeped from them has gone to fill the lower sub-soils. But in some instances, where the depth to water was not too great, where an impervious stratum was encountered, or where the loss was excessive, seep spots have begun to appear along the newer canals. Where resacas (a "resaca" is an old abandoned river channel sometimes many miles in extent) have been used for storage purposes for several years, seepage almost invariably appears within the area of the more pervious soils. The amount of water lost from canals, the excessive use of irrigation water and the rainfall irrigation in this valley, all indicate that a considerable part of the soil in the irrigated district is being filled with water, and the appearance of deep spots clinches the arguments.

"The natural surface drainage of the delta is provided for to a limited extent by the Arroyo Colorado, a few resacas and depressions between the numerous resacas. The south side of the Arroyo Colorado has a low bank, and that stream naturally takes the surface drainage from a strip of land bounded on the south by the nearest resaca or the Rio Grande and on the north by the second lift lands. The drainage of the bottoms south of the Arroyo Colorado is inadequately provided for by broad, shallow depressions between the resacas. These depressions do not have a definite channel, but hold the water that settles into them until a large volume is collected, when part of it forces its way through the growth of mesquite and swamp grass to the gulf, and the remainder stands in the low places until evaporated.

"The resacas do not carry much drainage water, having high banks, from which the ground slopes toward the depressions that lie between the resacas, and have about the same elevations as the bottoms of these old water courses. The bed of the Rio Grande is higher than a large part of the delta lands, and the slope is of course away from it. During flood periods the water breaks over the banks of the Rio Grande between Samfordyce and Run, at a point southwest of Olmito and near Brownsville. The water that breaks over the banks above Run flows north until it reaches a chain of old resacas, ponds and lakes near the boundary of the second lift lands, then follows this until it reaches the upper end of the south fork of the Arroyo Colorado, known as Hooks Arroyo. If, however, the channel of this stream is not large enough to carry such water off, as is often the case, it moves northwestward, passing between Mercedes and Donna, until it reaches the north fork of the Arroyo Colorado, when part of the water passes through the fork around east of Mercedes and thence to the main arroyo, and the remainder continues northeastward toward the Gulf of Mexico, crossing the main line of the St. Louis, Brownsville & Mexico railway near Lyford. If the overflow is small the sheet of water is not very wide, but as the depth of overflow increases the territory covered increases rapidly until, during a large flood, practically all of the bottom lands except the highest resaca banks are flooded. There are two flood periods in this part of the valley—one usually during April or May, and the other in September. The greatest danger in this respect is the Rio San Juan, which empties into the Rio Grande near Rio Grande City, Texas. The flood of September, 1909, was caused by a torrential rainstorm near Monterey, Mexico, on the headwaters of the Rio San Juan. It is very evident that a levee along the Rio Grande is necessary to protect residents and property from a repetition of this flood. This will, of course, be a protection from flood water only, and the rainfall and waste irrigation water will have to be conducted into the Arroyo Colorado where possible and a system of drainage ditches provided between the resacas for the remainder.

"In 1905, or only three years after the establishment of irrigation of any magnitude, assistance was asked and preliminary examination made by Mr. C. G. Elliott looking to the

improvement of the irrigated alkali-infested lands by drainage. Several drainage systems for the reclamation of alkalied lands were designed and instructions given regarding the washing of the soil.

"A drainage district has been organized near Brownsville to construct outlet channels for the territory lying north and east of Brownsville and Olmito. Two large ditches are contemplated, one starting west of the Ohio & Texas Sugar Company's plantation, extending eastward across it and thence in a northeasterly direction to an arm of the Gulf of Mexico; the other starting near Olmito and passing to the northeast through Tule lake into an arm of the gulf.

"Some of the heavy clay subsoils are used in the manufacture of brick, and from all appearances will make reasonably good tile. Most of the brick made therefrom would not stand the standard test usually applied to building brick, but they appear to be satisfactory in this climate, and it is quite probable that the same will be true of tile. A tile factory is now being built at Brownsville, and in the near future its product will be available.

(To be continued.)

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE general situation throughout the Pacific northwest is very quiet, in fact, it is, as a rule, quieter than it has been for years. The early spring started out all right, but as the season advanced it became quieter and duller, and there is practically nothing doing. The only exception is Portland, which is keeping up its record. On account of the building strikes in Vancouver, B. C., everything has been closed down in the building line for over a month, and there is little hopes that it will be settled in the near future. The building in Seattle, Spokane and Tacoma is only slight, and not many big buildings are contemplated.

The Vancouver Sewer Pipe and Refractories Company, Ltd., of Vancouver, B. C., which was organized over a year ago, have now made final arrangement for the erection of their plant at Sumas Mountain. Walter C. Mitchell has been retained as superintendent of the new concern.

The Columbia Clay Company, of Vancouver, B. C., with their plant located at Anvil Island, is now installing a Fate Premier combination machine, Bensing cutter and other machinery to improve their output of brick. They have a very ready market in Vancouver. Mr. E. Cook is the managing director of this company.

Mr. S. Geijsbeek, of Portland, has been retained by the city of Seattle as clay expert in connection with the Cedar river watershed condemnation proceedings, which are now being tried before the Superior Court of King county.

In order to advance the building business in Spokane, the architects have proposed a conference of architects, builders, material men and workmen at which local building material prices will be investigated. If materials become lower it is the hope of the Spokane architects that they will be able to start quite a number of new buildings.

The Catching brick yard at Forest Grove, Oregon, has been bought by E. Gurney and Otis Riser, who have taken charge of the plant and will operate the same at once as a common brick proposition.

The Sandstone Brick and Sewer Pipe Company's plant at Calgary is now ready for operation. They will only burn the brick for the present in open kilns, and expect to build continuous kilns next year. S1WASH.

CERAMIC ENGINEERING.

The Richardson-Lovejoy Engineering Company, Schultz building, Columbus, Ohio, has just issued a new edition of "Ceramic Engineering." It is a booklet of sixty-four pages and has been entirely re-written and much new matter introduced. It is profusely illustrated with cuts of driers, kilns, furnaces, geological sections, etc. It is not a mere trade catalogue but instead contains discussions of the various features of clayworking, and every clayworker will find something of interest in it. Mailed free to any one interested.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

Question. We enclose you two analyses of our clay. What is your guess as to the best use this clay might be put, that is, what sort of brick would it make?

Answer. The first step would be to obtain the average percentage of the two analyses furnished, to-wit:

	No. 1.	No. 2.	Average.
Silica	65.14	62.20	63.67
Alumina	24.10	26.18	25.14
Oxide of iron	2.14	3.04	2.59
Lime	1.10	0.73	0.92
Magnesia	trace	trace	trace
	<u>92.48</u>	<u>92.15</u>	<u>92.32</u>

The fact that the total footings of the elementary constituents of the clay do not come close to 100 per cent. is sufficient evidence that the analyses are incomplete, but what it is that is lacking is a question of guesswork, something like your question: "What is your guess as to the best use this clay might be put, that is, what sort of a brick will it make?"

Even with a complete elementary analysis furnished it is not an easy proposition to make an approximately correct calculation as to what the presented clay will be good for in burnt clay ware. The physical condition of the component parts has a great deal to do with such a determination. As a preliminary step we may carry out the series of calculations, as shown and explained in the December, 1910, number of THE CLAY-WORKER, page 636. So for a kaolinite calculation, assuming that all the alumina is taken up in the kaolinite, in that no alkalies are given for a feldspar estimation, we would then have:

$$\begin{array}{r} 25.41 \text{ alumina} \times 1.1772 = 29.595 \text{ silica} \\ 25.14 \text{ alumina} \\ \hline 54.735 \text{ kaolinite} \end{array}$$

The water determination for this kaolinite is as follows:

$$\begin{array}{r} 25.14 \times 0.3544 = (\text{water}) \quad 8.90 \\ \text{Analysis furnished} \quad \dots \quad 92.32 \\ \hline 101.22 \end{array}$$

New total for analysis, which would be within allowable error, as brick clays are as a rule very variable in the same bed. With these new figures we have thus far accounted for 63.635 kaolinite, consisting of

$$\begin{array}{r} 25.14 \text{ all of the alumina} \\ 29.595 \text{ part of silica} \\ 8.90 \text{ all of water} \\ \hline 63.635 \end{array}$$

The silica content now stands:

$$\begin{array}{r} \text{Silica as per analysis} \dots \dots \dots 63.67 \\ \text{Taken out for kaolinite} \dots \dots \dots 29.595 \\ \hline \end{array}$$

$$\text{Remaining for disposition} \dots \dots \dots 34.075$$

We now figure on the iron and lime, taking up their quota of silica left over to form tri-silicates, and thus we have:

$$\begin{array}{r} 2.59 \text{ iron} \times 1.125 = 2.91375 \text{ silica taken up} \\ 0.92 \text{ lime} \times 3.214 = 2.95688 \text{ silica taken up} \\ \hline \end{array}$$

$$5.87063$$

$$\begin{array}{r} \text{Silica as before} \dots \dots \dots 34.075 \\ \text{Less (for iron and lime)} \dots \dots \dots 5.87063 \\ \hline \end{array}$$

$$\begin{array}{r} \text{Remainder as free silica, with no fluxes present} \\ \text{to act upon it} \dots \dots \dots 28.20437 \end{array}$$

As the results now stand we have:

Kaolinite (clay substance)	63.635	63.635
Tri-silicate of iron	5.50375	5.50375
Tri-silicate of lime	3.87688	3.87688
Free silica	28.20437	28.20437

$$\text{Totals} \dots \dots \dots 101.22000 \quad 101.22000$$

From this last data we would be able to find good result

conclusions if we knew the physical condition of these parts. For instance, we do not know whether the kaolinite is plastic or not. A ball clay or kaolin may analyze practically the same, yet one may be plastic and the other not. We do not know whether the silica is fine-grained or not. Silica may act as a flux at a high enough temperature if it is fine-grained enough, whereas the coarser silica will fuse only on the outside and thus not enter into total action. Yet it may be that the fused silica may bond enough to cement the coarser particles together. We also know that silica as a flux may drive out sulphur from sulphate of lime at a sufficiently high temperature.

The next part of the problem is: Is the iron and lime cited in the analysis in a free state or in combination? If they are free it will take a higher heat to produce fusion or fluxing effect than if they were in a combined state originally. Silicate of lime might be termed a specific flux for kaolinite and when burned under proper conditions reacts very strong. Iron and lime in a clay burnt under oxidizing conditions with a sulphur content fuel produces a red color, as the sulphate of lime would not enter into combination as such, and under reducing conditions for producing the often sought "sulphur yellow" color the iron and lime are not in the proper proportion, neither do the proper proportions exist as the iron should to the alumina.

It can readily be seen that with the limited information furnished it is practically impossible to furnish very accurate information, but we do know that the amount of detrimental fluxes is very small, so we could give the following opinion as a guess: If the clay is in the proper physical condition and the brick are burned hard enough under proper conditions the result will be a serviceable red brick, it being assumed that the clay needs a high temperature for burning owing to the presence of a low percentage of fluxes.

The high percentage of possibly free silica and low percentage of fluxes in all probability bar out the clay from being a good paving brick shale, but as it originally represents a high fire-standing body, it is within the range of possibility that with a proper mixture of other clays or fluxes a good paver may be produced. The percentage of fluxes present, evidenced by the analysis submitted, is too high to make a first-class fire brick out of the clay.

AND IT IS CLAIMED MACON IS A DRY TOWN.

During the wind and rain storm at Macon, Ga., recently, E. D. Arnett, an official of the Bibb Brick Company, awoke, and was surprised and startled to feel something tightly wound around his arm.

Jumping out of the bed, he turned on the electric light, and saw a green moccasin, more than three feet long, head uplifted and fangs protruding, looking him in the face. He grabbed his coat, and using it as a shield and a glove, managed to unwind the snake, which he flung away from him.

The snake landed in the middle of the bed, promptly coiled and showed no signs of departing. Mr. Arnett immediately forsook his apartments, and, despite the mosquitoes, spent the remainder of the night sleeping on the dining table downstairs. A hickory tree grows beside Mr. Arnett's bed room window, and it is supposed that the snake was driven from it into the room by the storm. His nerves are still shaky from his unusual experience.—Exchange.

TERRA COTTA BEST AND SAFEST.

Two amateur carpenters were talking about standing on a high scaffold and one said that he felt safer when he had his feet on "terra cotta."

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



THE Hackensack district the yards are all business, with an outlook for approximately 80,000,000 this season. Some have said that as many as 100,000,000 would be turned out and this may be true yet, but probably 80,000,000 will be nearer the mark. The yards are all full and most sheds have arches laid up and burning. Nearly all have sufficient

contracts to take the bulk of their product. Not much surplus is expected at the close of the season.

In the Raritan section the same encouraging conditions prevail. Many manufacturers have long-term contracts and many orders calling for deliveries in August and September are on file. Movement is moderately active and prices have remained reasonably steady around \$6.75. Fluctuations have not been as serious as they are sometimes and the market, as a whole, has felt the stimulus of the improved building

dwelling has stopped, only those with money to build expensive homes being financially able to comply with its provisions. The present administration is enforcing the code vigorously, and more than one fight with the inspectors has occurred. Expensive permits, and even more expensive inspections are provided for and the result is builders are loath to undertake any operations of moment. The builders hope to have the code revised before very long. BURTON.

AN IOWA TILE FACTORY.

The accompanying illustration shows the power plant and machine room of the tile factory of Charles W. Johnson, Center Point, Iowa.

It will be noticed that the power is furnished by a "four cross" compound engine, although the cross beam, or sweep, over the machine does not show under the shadow of the roof.

The machine is of the plunger type and the clay is prepared by pit soaking.



Making Drain Tile at C. W. Johnson's Tile Factory, Center Point, Iowa.

conditions which have prevailed over a considerable proportion of the New Jersey field.

The Raritan and Hackensack manufacturers all have an optimistic view of the market and are proceeding upon the assumption that the dullness has passed and the future will see rather better conditions than those just passed.

The board of education of Hackensack has let the contract for its new grammar school to the John T. Brady Company for approximately \$142,000. It will be of brick, three stories high, contain twenty-four class rooms and an assembly room capable of seating 1,200 people. Work will begin at once and the contracts call for its completion in eight months. The architect is W. L. Stoddart, of New York, a young man who has a brilliant future before him. It will be one of the handsomest schools in the State when finished.

Hackensack is struggling with a building code which has had the effect of injuring building. It has all the requirements contained in a code intended for a big city, and yet they are applied rigorously in a small town. So far this season the effect of the code has been disastrous. Building

Mr. Johnson is a farmer who makes tile during slack times and in favorable weather for his own use and sells his surplus to his neighbors. He only intends to make tile for a few seasons as a means of aiding the farm and rearing and educating his children.

With this method of combining tilemaking with farming, Mr. Johnson can, in a measure, lead the simple life free from the aggravations and irritations of the proprietors of more pretentious factories. He is not troubled with the problems of complex machinery for preparing and conveying his clay. Freight schedules, labor unions, advertising and competition do not disturb his sleep nor peace of mind. His investment is small, depreciation in value inconsiderable, while his per cent. of profit is far greater than the larger plants can ever show.

It is said that speculation is the cancer of modern times. This may be true if applied to the seeming incurableness of the fever for speculation. But cancer generally confines itself to injuring and killing off the people it inflicts, while the speculator injures and inflicts others besides himself.

Written for THE CLAY-WORKER.

AMONG ALABAMA CLAYWORKERS



THE NATIONAL Mosaic Flooring Company, of Mobile, Ala., which was established in Mobile several years ago by Cuban capitalists, who own several such plants in Cuba, was recently bought by Mobile capitalists, William F. Tebbets and F. Benemelis, and a branch office has been opened in Birmingham under the management of M. J. Brennan. A branch office will be opened, in the near future, in Atlanta. A large room on the ground floor of the Woodward building has been set aside for display purposes by Mr. Brennan. This display is singularly attractive, well laid out with an artistic finish to it, representing the many different designs and kinds of tile flooring. This office has just been established in Birmingham and yet the business has well started coming in, and Mr. Brennan states that the prospects are exceptionally bright. It is the intention of the National Mosaic Flooring Company to gradually establish branch offices over the entire country and in time make the products of the company assume the proportion of a national demand. Before coming with the National Company, Mr. Brennan was an insurrecto in Mexico under Madero, the insurrecto leader. Mr. Brennan was a staff captain and among other battles in which he was engaged, was that of the battle of Agua Prieta, which was fought just across the American border in front of Douglass, Arizona, over which this country was so stirred up.

F. E. Ladd, a member of the firm of Ladd-Birchy Company, of Fort Payne, Ala., was in Birmingham recently on a few days' visit and in talking of Alabama's great mineral deposits, said:

"It is not generally known that ganister, the mineral from which silicia brick is made, is found in only three states of the Union, Alabama, Wisconsin and Pennsylvania. This particular clay deposit is found in only two sections of this state, in the Birmingham district and in the neighborhood of Fort Payne, and is utilized in the making of silicia brick by only two firms in this state, the Harbison-Walker Refractories at Wylam, Ala., a suburb of Birmingham, and the Ladd-Birchy Company at Fort Payne."

A suit has been filed in the circuit court at Birmingham by F. E. Ladd and Charlie Birchy, doing business as the Ladd-Birchy Brick Company, of Fort Payne, Ala., against the Bradstreet Mercantile Agency, asking for \$30,000 damages, on the grounds that the defendant issued a libelous statement or report concerning the affairs of the plaintiff, which impaired their business standing and credit. This notice of suit has created a lot of interest here among business firms in general.

The plant of the Geiger Brick Manufacturing Company at Geiger, Ala., is now completed and the first brick has just been manufactured. This plant was built on the most modern and approved lines and brick will be burned under the latest improved methods. This plant is expected to become a factor in the manufacturing life of South Alabama, and reports are that later on either the plant will be enlarged or another one built, all according to the condition of business in the future. Mr. Ray Crow, formerly superintendent of the Alabama, Tennessee & Northern railroad, is promoting the enterprise, and this in itself is looked upon as a sign of great success of the new enterprise.

James S. Shannon of Birmingham (Woodward Building) contemplates installing a brick plant with capacity of 40,000 to 50,000 brick daily, and for this purpose he is desirous of corresponding with some person familiar with the practical details of the business to help him in the development of the project in an Alabama town having competitive freight rate to Birmingham, and where he owns an unlimited supply of fire clay and shale.

The Wilpicoba Clay Works, at Ragland, Ala., which was recently bought by J. H. Hall, of the Hall & Parker Contracting Company, of Macon, Ga., has changed its name to the

Ragland Brick Company. This plant has a daily capacity of 20,000 paving brick and 30,000 common clay brick, and is now being run under full capacity. In all, the plant is manufacturing paving blocks, repress builders, Orientals and common brick. J. H. Hall is president and A. B. Domingos, secretary and treasurer; with main offices at Macon, Ga. W. R. Golson is the superintendent of the plant at Ragland, succeeding C. H. Pitman.

Trade conditions at Birmingham are just about on a par with those of last month, neither dull nor brisk. However, it is generally considered by the clayworkers that the slight dullness is more of a calm before the storm than a regular, lasting status. Highest hopes are held for good business this fall, and even at an earlier period it is expected that things will take on a boom.

The new equipment recently purchased by the Jenkins Brick Company, of Montgomery, Ala., has been set up and is now in operation, increasing the capacity of the plant to 36,000,000 brick per annum, with this figure the Jenkins Brick Company becoming one of the largest in the Montgomery district. Incorporated with a paid-in capital of \$100,000 the Jenkins Brick Company has been uniformly successful and Mr. J. M. Jenkins, Jr., who is secretary of the concern, writes:

"Trade conditions seem to be improving and though larger industrial operations are just resuming normal volume, contracting and construction work is more active than at any time in the last two or three years, and our prospects for the summer are unusually good, while we expect to have every resource taxed by the demand for brick the coming fall.

"This condition applies to nearly every brickmaking plant in the state, too, I judge from what I have heard lately."

Associated with Mr. Jenkins are J. M. Jenkins, Sr., his father, who is president; W. L. Lancaster, vice-president, and B. L. Gaddis, treasurer, while the works of the company are located at Wetumpka, a short distance from Montgomery.

The Brick Selling Company of Birmingham, of which L. L. Stephenson is president; C. D. Patterson, secretary-treasurer and manager, and C. S. Lawson, auditor, has just secured two very large orders for Stephenson's Oriental brick, which is manufactured by the Stephenson plant at Lovick, Ala. The huge Young Men's Christian Association building, upon which work was just recently started, and the Young Women's Christian Association building, upon which work will start in the near future, are the two buildings due to be ornamented with the highly artistic Stephenson's Oriental brick. The Y. M. C. A. building will be ten stories high and entirely of brick, excepting the bottom front, while the Y. W. C. A. building will be four stories high and entirely of brick, with the exception of the bottom front, which, like that of the former, will be of stone. The handsome new home of the Elks in Atlanta, Ga., which is now nearing completion, used the Stephenson Oriental exclusively. Numerous buildings and residences over the entire South are utilizing it, in preference to all others, and the name "Stephenson's Oriental" is now a by-word among architects, contractors and builders throughout the Southland.

L. L. Stephenson, president of the Brick Selling Company, has moved with his family from Birmingham to his summer home at Lovick, Ala., near the Stephenson shale brick plant, owned by him.

At the last regular business meeting of the Builders' and Traders' Exchange of Birmingham, July 10, the constitution and by-laws of the organization were finally adopted. The constitution and by-laws under which the association has been working since its organization some time ago, were of a tentative nature only. On or about July 15, the association will hold a huge barbecue, which will be made an annual affair, at one of the local parks, and this promises to be one of the most successful and thoroughly enjoyable of the social events of the organization, of which a number have been held so far. The Builders' and Traders' Exchange is organized for the purpose of protecting and encouraging building industries, uplifting the building trades, and injecting harmony and business co-operation into the life of the trade. The officers of the association are as follows: John W. Sibley, president; Frank H. Conner, first vice-president; Allen J. Krebs, second vice-president; J. H. Eddy, treasurer, and G. T. Stafford, secretary.

A. L. A.

*THE OPERATION OF PRODUCER GAS FIRED COMPARTMENT KILNS.

By GEORGE C. F. VATER, DAYTON, OHIO.

(PART II.—Continued from June CLAY-WORKER.)

Preheating.

The object of the preheating stage is to utilize the heat contained in the waste gases resulting from the combustion to the farthest limit consistent with all the other requirements.

The practical limit with which the waste gases may be drawn off is about 250 degrees to 300 degrees F. when the water-smoking is done with hot air only. This limit again gives us a means to determine the necessary length of the preheating range, i. e., the number of compartments through which the waste gases have to be drawn before being taken over to the main draft flue. This number of compartments will vary, according to ware and conditions, between four and six.

The last compartment, i. e., the one which is directly connected to the main draft flue, should always be equipped with a draft gauge. Careful record of the draft should be kept so as to gradually establish for each chamber the draft with which the best conditions are created and the best results obtained from the burn. No accurate directions could be given as to the draft to be carried at this point, as this altogether depends on the requirements of the different materials. As a rule, however, it may be said that the strongest draft should be carried that can be used without injuring the quality of the ware. Always, however, the draft at this point must be regulated with reference to the requirements of the full fire compartment, as explained below.

The temperature obtainable in the compartment directly ahead of the one under finishing heat is about 300 degrees to 400 degrees F. below the finishing heat. This point also forms a valuable guide as to the conditions of the heat in the full fire chamber, as it simply means that, if such a temperature is reached in the preheating ware, the heat at the bottom of the finishing chamber is coming along well. In other words, a uniform burn is insured for the compartment just being finished. With proper damper regulation and attention to the gas such a state of affairs is readily obtained.

Full Fire.

The object of the full fire is to gradually bring the ware up to the temperature at which they develop their best properties in regard to hardness, absorption, color, etc., as may be the case.

As a rule the time devoted to this phase of the burn will be 24 hours, though with light (in weight) ware, as small drain tile, etc., it should economically be shortened to 18 to 20 hours. In rare cases and for specific reasons a longer time, or 36 to 48 hours, may be advisable. With chambers of small cross section the duration of the finishing heat, when ordinary brick-burning temperatures are involved, may easily be brought to 12 to 15 hours, even with solid ware.

Naturally, it will be understood that the longer the time spent on the finishing heat the higher will be the fuel consumption. The ware in the cooling range will be cooled down by the secondary air passing through it beyond a point at which it can heat this secondary air up to a desirable and economical temperature. And it will readily be seen that this condition will become worse with every additional hour. Thus just at the time when the highest heat shall be obtained the conditions are most unfavorable.

Incidentally, with the decrease in available heat in the

cooling ware the volume of the secondary air in proportion to its weight is becoming less. This means that the amount of secondary air by weight brought in to support the combustion of the gas is becoming greater all along. We are, therefore, burning with a greater excess of air than absolutely necessary, thus encountering another source of considerable loss in heat, which we have to make up by additional fuel. Further it must be borne in mind that for a given material within certain limits, drawn by its characteristic qualities, the fastest burn will bring out the most beautiful effect of which the material is capable.

When ready to take up a new chamber, i. e., when the temperature and all conditions have been found satisfactory in every respect, we may proceed to form the connection between gas main and gas distributing flue by means of the gas breeching, leaving, however, the butterfly valve in this connection closed as yet. Then we have to open slightly all the distributing valves in the gas distributing flue for the new chamber. In this connection it will be well to point to the areas obtainable by raising these valves to certain heights. By way of illustration figures are given below for three sizes:

Areas of Gas Valves (Mushrooms).

	9 in. Valve	12 in. Valve	14 in. Valve
	63.61 sq. in.	113 sq. in.	153.9 sq. in.
Raise,	27.27 sq.in.cfce.	37.69 sq.in.cfce.	43.98 sq.in.cfce.
1-16=0.0625 in..	1.77 sq. in.	2.36 sq. in.	2.75 sq. in.
1/8=0.125 in. ...	3.53 sq. in.	4.71 sq. in.	5.50 sq. in.
1/4=0.25 in.	7.06 sq. in.	9.42 sq. in.	11.00 sq. in.
3/8=0.375 in. ...	10.60 sq. in.	14.13 sq. in.	16.50 sq. in.
1/2=0.5 in.	14.14 sq. in.	18.85 sq. in.	22.00 sq. in.
5/8=0.625 in. ...	17.67 sq. in.	23.56 sq. in.	27.50 sq. in.
3/4=0.75 in.	21.20 sq. in.	28.27 sq. in.	33.00 sq. in.
1 in.	28.27 sq. in.	37.69 sq. in.	44.00 sq. in.
2 in.	56.54 sq. in.	75.38 sq. in.	88.00 sq. in.
2 1/4 in.	63.61 sq. in.	.....	.....
3 in. ....	.....	113.07 sq. in.	132.00 sq. in.
3 1/2 in. ....	.....	.....	154.00 sq. in.

These figures will be valuable as a guide in handling the valves. The areas shown are the actual areas obtained, and it will be evident that with decrease in area the resistance brought about by the friction of the gas on the faces of valve and seat is increased. Therefore the amount of gas flowing through a valve will become increasingly less with decreasing areas, more so than would appear from the proportion of the areas.

After the distributing valves have been opened the butterfly in the new gas connection should be opened slightly. This done, we have to close the butterfly and also the mushroom valves of the finished chamber proportionately. In the course of an hour or two, as may seem warranted in each particular case by the state of affairs in these chambers, proceed to increase the area of gas distributing valves and the main gas connection for the new chamber, gradually and simultaneously decreasing the areas of the corresponding members of the finished chamber.

After the gas connection to the new chamber has been formed the draft connections also have to be advanced one chamber. Thereby, that water-smoking chamber nearest the fire which in regular operation and with proper care should have obtained a heat of about 250 degrees to 300 degrees F., or which has otherwise qualified as perfectly dry, will come into the fire range. Should for some reason or other this chamber not yet be far enough advanced, the forming of the waste gas draft connection by way of this chamber should be deferred until the same is in proper condition.

The procedure of advancing the draft connection is as follows. For instance:

Old arrangement—

- No. 4. Waste gas draft connection.
- No. 5. Water-smoke draft connection, high heat.
- No. 6. Water-smoke draft connection, low heat.
- No. 7. Freshly set.

*Paper read before the Third Annual Convention of the Northwestern Clay Association at Minneapolis, Minn.

Then the new arrangement will have to be—

- No. 5. Waste gas draft connection.
- No. 6. Water-smoke draft connection.
- No. 7. Water-smoke draft connection.

To accomplish this, before leaving the top of the kiln, move the hot air breechings from No. 5 to No. 7, giving the butterfly valves only a very small opening, at the same time closing the butterfly or slide damper in water-smoking flue between No. 5 and No. 6.

Then we have to move the hot air breeching at the far end of the cooling range, which had been supplying No. 6 with warm air to the chamber ahead of the one which had been sending hot air to No. 5, at the same time closing butterfly in water-smoking flue between these two new connections and opening the old one. Thus the hotter air will be drawn to No. 6 and the warm air to No. 7.

In such cases where there is no "endless" water-smoking flue, but only a "straight" flue, the transfer of the breechings has to take place as described. Instead of diverting, however, the hot air currents to both sides by butterfly or by the slide dampers, the hot air travels in the same direction (except when water-smoking the end chamber of a single battery kiln). The regulation of the temperature necessary for the cooler water-smoking chamber has to be done in this case by judicious admission of atmospheric air into the breechings. The frequent use of a thermometer as a guide of course is obligatory.

These arrangements made, with "open battery" kilns, proceed to the ground floor, move the extra draft breeching to chamber No. 7 and set same in place, thus connecting the uptake from the collecting flue under No. 7 to the corresponding downtake to the main draft flue, but leave the butterfly valve in this breeching closed. Then, after setting the butterfly of draft breeching on No. 5 to about one-fourth of its full area, the paper partition covering the bags of No. 5 should be torn, if not already bursted by the suction or burnt, and the area of the butterfly of draft breeching on No. 4 reduced so that the combined area of draft breeching on No. 4 and No. 5 will equal about that which had been carried by draft breeching on No. 4, or to such area as in the course of time and by experience in previous burns has been established as the proper one.

Now we open the butterfly of draft breeching on No. 7 to such an extent as to obtain a reading on the draft gauge of 1 mm, or whatever else may have been found correct to start with.

Draft breeching No. 6 should also be looked after so that no jump in the gauge reading will occur.

If the kiln be of the block system the main draft flue being located in the filling between the two rows of chambers, the proceeding would be as follows: Set draft valve of No. 5 on about one-fourth its full area, close draft valve of No. 4 proportionately and then open draft valve of No. 7. At the same time observe the rules with the other arrangement.

All connections having been made, the burner should devote his attention to the regulation of the valves. The latter should be done in strict accordance with the temperature requirements of the finishing chamber and using as a guide, aside of the pyrometer readings, the draft gauges which always should be attached to the chamber from which the waste gases are drawn directly to the fan or stack and to the finishing and full fire chamber, as well as the water-smoking chambers.

The draft valves should now be manipulated in accordance with the showing of chamber No. 5, gradually increasing the area on breeching or valve on No. 5 and decreasing the area on No. 4 in the measure as chamber No. 5 can stand the treatment.

As to the rate of increase in temperature, the aims should be to obtain the finishing heat in about 12 hours when burning

18 hours as with light hollow ware, or 18 hours when burning 24 hours, or 30 hours when burning 36 hours, and 42 hours when burning 48 hours. The last six hours are to be used to equalize the temperature in the chamber, to bring the heat to the points farthest away from the bags or burners.

For instance, a ware shall be burnt at 2,100 degrees F. The temperature was when taken in full fire 1,700 degrees F., then 400 degrees increase in temperature shall be obtained in 18 hours or on an average 20 degrees to 25 degrees F. must be raised each hour. Naturally the temperature will rise more readily during the first part than towards the end. But the increase must by all means be gradually progressive, i. e., there should be no falling off, long standing or rapid irregular rising.

The gauge reading, gauge attached about 5 feet from floor should gradually decrease in the full fire chamber until it reaches about the zero mark. This behavior will partly be automatic as the heat increases, partly, however, it has to be accomplished by proper regulation of the main draft damper or dampers.

During the last six hours the fire should be held at the finishing temperature, and with the gauge reading zero, it will be no task to obtain the greatest possible uniformity of burn.

For some reason or other it may occur that the chamber next to be taken into the full fire shows that its heat is not coming along in the proper way and promises not to have attained the regular temperature by the time it is to be taken in full fire.

In such case it is well to connect the gas to this chamber and fire it lightly and according to its needs, rather than to burden the finishing treatment with the extra amount of heat to be made up. The full fire would have to be forced more than usual, the burner would have to contend with an irregularity, may go wrong in his judgment, and a chamber of bad ware may be the result.

When burning vitrified ware, instead of gradually closing the gas connection to the finishing chamber, after the new one has been attached, inside of a few hours, sufficient gas should be kept on the finished chamber to maintain the temperature about on the same stage, by no means raising it, however, for about 12 more hours. The closing off of the gas naturally should then be done very gradually and in the regular way. This mode of firing will insure a vitrified brick thoroughly tempered and of uniform quality.

The same rule as for vitrified brick will apply to the burning of very large sized ware, fire clay blocks, etc., which require a greater length of time to be thoroughly and uniformly burnt to the core.

In such cases where reducing fire is desired to obtain certain results, this may be accomplished by increasing the gas supply from the producers and eventually slightly decreasing the draft in order to cut down the air supply. In this way any degree of reduction may be accomplished.

In order to obtain absolute control over the burning operation it is well to have outside of a pyrometric installation the aid of Seger cones and the settling rod.

The pyrometers will indicate the rate of increase in temperature. The cones will especially be valuable in the lower part of the kiln, or where the pyrometer cannot reach, and would indicate the degree of uniformity in temperature of the kiln. The scope of the settling rod would be to check on the work performed by the heat. The use of all the above mentioned means of control has been described so frequently by others that to repeat such instructions at this place seems superfluous.

If an Orsat apparatus is available, it will be good policy to from time to time determine the CO₂ contents of the waste gases. Naturally as in any other kiln or furnace the efficiency depends also to a great extent on the excess of air carried. The amount of CO₂ found in the waste gases enables us to

know approximately the extent of this excess, which for the different percentages of CO₂ has been agreed upon to be as follows:

Per cent. CO ₂	2	3	4	5	6	7	8	9
Total air ...	9.5	6.3	4.7	3.8	3.2	2.7	2.4	2.1
Per cent. CO ₂	10	11	12	13	14	15	16	
Total air	1.9	1.7	1.6	1.5	1.4	1.3	1.2	

A gas fired kiln under proper regulation of gas, air and draft should show a percentage of 15 to 16 CO₂ in the waste gases. The sample, of course, should be taken at a place where no water-smoking air has been added yet.

Cooling.

The cooling range of a well-appointed continuous kiln will as a rule be sufficient to effect a gradual and uniformly progressive decrease in temperature without endangering the quality of the ware by checking. This feature is especially valuable for hard burnt and dense wares.

The exact requirements in the rate of cooling have, of course, to be worked out in each particular case, the fundamental idea being to cool and unload as rapidly as the ware

the right time and to act accordingly; in other words, he has to learn. That satisfaction, however, he will always have, the better he masters the idea of the kiln and its operation, the easier and the more agreeable will be his job.

(The end.)

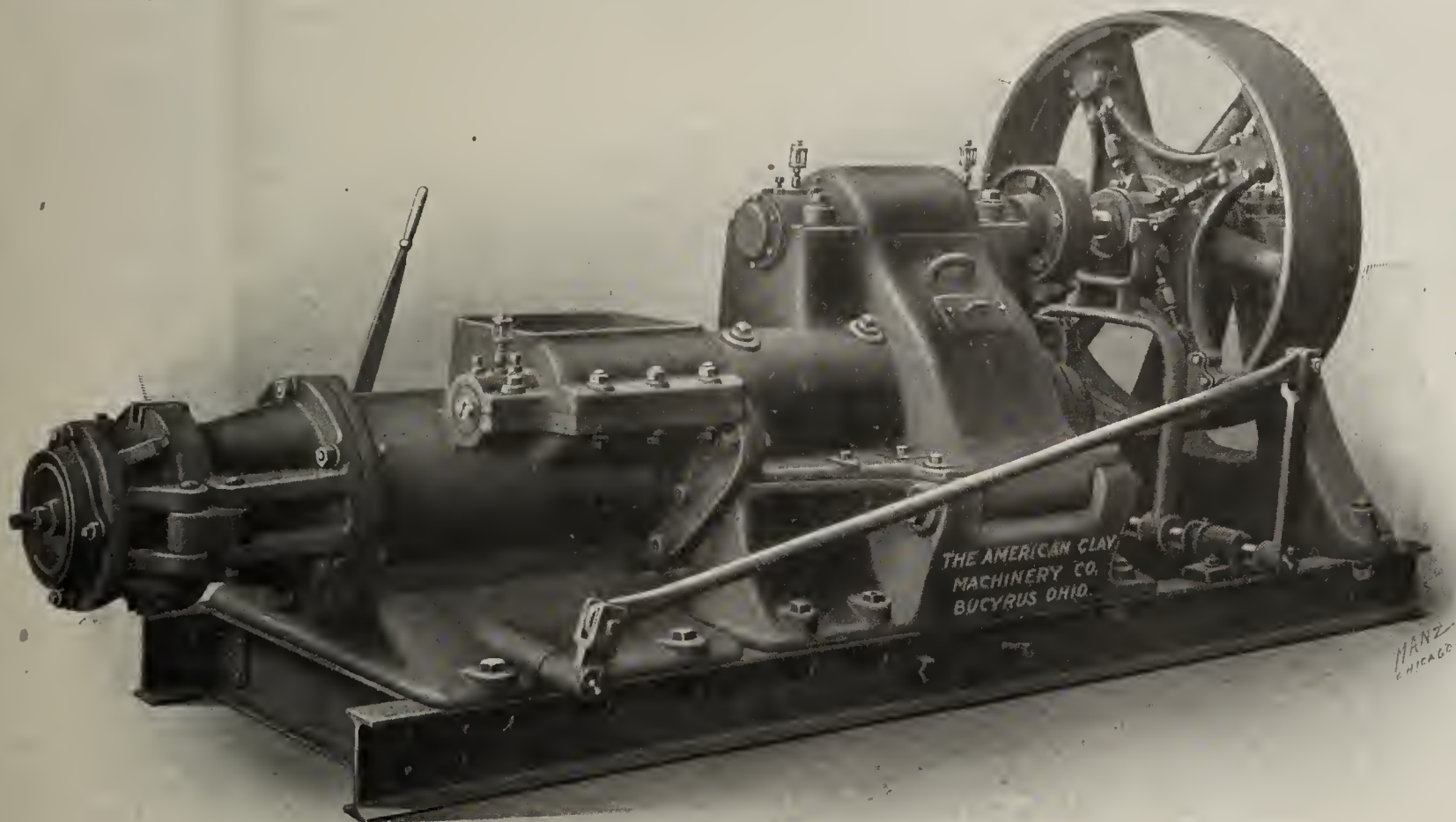
MORE AND BETTER TILE.

No. 218 Drain Tile Auger Machine a Decided Step in Advance.

THE manufacturers of drain tile, like the manufacturers of brick, find it necessary to make a larger quantity with a minimum amount of labor in order to meet the demand and competition.

The American Clay Machinery Company, Bucyrus, Ohio, has designed the No. 218 drain tile Auger machine to meet these conditions.

The entire machine is mounted on a steel "I" beam frame, well riveted and braced, making the machine self-contained.



American Clay Machinery Company's New Drain Tile Auger Machine.

and the conditions of the kiln will allow, and as is consistent with the requirements of the full fire chamber. In this latter respect it must be borne in mind that the cooling range at the same time shall serve the purpose of furnishing all the available heat stored in the burnt ware to the secondary air, which supports the combustion of the gas. The best outward sign of a cooling range of proper length would be that the chamber next to the one under full fire, when the latter is being finished, still shows a bright heat, and that the second chamber still retains a dark red color.

If, as sometimes will occur in the summer, the chamber to be emptied is uncomfortably warm, it is well to establish circulation by connecting same to the water-smoking flue or to the main draft flue, whichever may be the most efficient or convenient mode of procedure in a certain case.

Summary.

The whole operation of the producer gas fired continuous kiln, once mastered, is extremely simple. Naturally, as with any apparatus, the attendant has to get accustomed to seeing things and thinking of things pertaining to the operation at

The front which holds the die is provided with an adjustable core bracket for holding the core pin. This front is hinged at one side of the nozzle and is held by the shearing attachment on the other side, allowing the front to swing open when the pressure upon it becomes too great. The nozzle is provided with a removable corrugated liner. This nozzle is bolted to the clay cylinder, which is also provided with removable corrugated wearing liners. The clay cylinder is made in one piece and is securely bolted to the main gear frames. To the bottom of the clay cylinder is bolted a base extending its full length and the base is bolted to the steel "I" beam frame, forming a rigid support for the front end of the machine.

The hopper or feed opening of the clay cylinder is provided with a feeder, consisting of a shaft on which are mounted removable tool steel blades for forcing the clay down, as well as preventing the clay gathering on the side of the hopper and bridging over, causing the hopper to choke and stop the clay feeding into the machine. This feeding attachment is driven from the auger shaft by a pair of steel cut gears. The gear frame is made in two pieces, the lower

half being mounted on the "I" beam frame; the journal bearings for the auger shaft are a part of this frame. The front bearing is 15 inches, while the back bearing is 12 inches long. On each side of the frame is a heavy bolt which answers two purposes, first to take the end thrust, second to act as a hinge bolt for the upper half of the gearing frame. The auger shaft bearings are provided with caps, each held by six one-inch bolts. The frame is also designed with an oil basin so that the master gear is always running in a bath of oil. This also oils the driving pinion. The front end of this frame extends beyond the front journal bearings to the clay cylinder, leaving a space between the two. In this space is a mud collar, made in halves and clamped to the auger shaft. This is so constructed that it can be renewed and it prevents the clay from working into the front journal bearing.

The top half of the gear frame is hinged at each side of the lower frame and when in position is bolted to same. The clay cylinder is also bolted to this half of the gear frame. The journal bearings of the driving shaft form a part of this upper gear frame. The caps for the driving shaft journal bearings are joined together. The part which connects the caps forms a cover for the driving pinion. By arranging the gear frame in this manner the oil bath as well as the gearing and journal bearings are entirely protected from the dust.

The thrust block is a hollow cylindrical cover bolted to the upper and lower gear frames, enclosing the two oil reservoirs. The back chill disc is self adjusting and through the center is an oil hole so that the thrust plates are oiled from the center, at the same time the discs run in the bath of oil.

It will be noticed that in designing the No. 218 Auger Machine they have followed modern engine designing by distributing the metal around the thrust lines of the auger shaft, making what is known as a straight line machine. This is one of the distinctive features of this machine.

Another distinctive feature in the designing of the No. 218 machine is the construction of the bearings. Most of the auger clayworking machines are constructed with the ordinary babbitted bearings and cap with little attention being paid to proper and continuous oiling facilities. For several years the American Company has been giving more attention to better facilities for oiling the bearings and gearing of machines so that, in designing the No. 218, they bored the bearings out of solid metal, in which they inserted an iron bushing or sleeve. In this sleeve is driven a brass bearing, so designed that there is a cavity surrounding it which forms an oil reservoir. This reservoir, when filled with oil, will run several days without being renewed. Leading from the oil reservoir to the shafts are slots filled with closely woven felt, which leads the oil from the reservoir to the bearings. All the journals of this machine are constructed in this manner and will be so furnished at an increased cost over ordinary bearings.

Another advantage in having bearings constructed in this manner is that when the brass bushings wear out they can be renewed and the machine is in perfect alignment, the same as when first built.

The thrust plates are oiled through a pipe leading from an elevated oil tank, which forces the oil between the plates.

The outer bearing and friction clutch pulleys are also provided with these reservoir bushings.

The master gear and pinion are made of steel, the teeth being cut from solid metal.

The auger shaft is made of hammered steel round throughout with a spline cut into it to receive a key cast into the bore of the augers to keep them from turning. This shaft is made larger at the wheel fit so that the auger and knives rest against a shoulder on the shaft instead of being held by set screws which prevent them from being crowded back.

This machine was designed to make four to five thousand four-inch tile per hour with a minimum amount of power. The first section of the expressing augers are made double while the remaining portion forms a continuous screw. These

augers are made of a special chill mixture which will outwear manganese steel about 3 to 1.

The driving shaft is made in two sections, coupled together, so designed that when the upper half of the main frame is to be swung back to make repairs or renewals of master gear or bearings, the shaft is uncoupled. The other section of shaft and friction clutch pulley remain intact, and is supported by the outboard bearing on one end and by the friction lever on the other. If the friction pulley or the driving pinion or journal need to be removed, it is unnecessary to remove the entire shaft.

Another distinctive feature of the machine is that the driving shaft is in the center of the machine, so that at no time is the belt pulling on the caps of the bearings.

The out-board bearing is of the box pattern and extends from the driving shaft to the steel "I" beam frame to which it is bolted.

The design of this machine is a bundle of strength, symmetrical in appearance and all connecting joints are machined and all bolt holes reinforced. This makes it the best possible construction from every standpoint, and at the same time insures strength and durability.

The friction clutch pulley is 48x12 inches and should run at a speed of 175 to 225 revolutions per minute. The clutch can be operated by a lever placed close to the front end of the machine and on each side.

This machine is not designed to make larger than 12-inch tile, but is designed to produce large quantities of smaller sizes.

The dies are bolted to the front in the usual practice.

The length over all is 13 ft. 3 in.

The width over all is 4 ft. 9 in.

The width of steel still frame is 3 ft. 8 in.

Height from floor to top of pulley, 5 ft. 8 in.

Height from floor to top of hopper, 3 ft.

Height from floor to center of auger shaft, 1 ft. 10 in.

Size of hopper, 14 in. by 14½ in.

Distance from center of driving pulley to back end of hopper, 3 ft. 1 in.

Distance from back of hopper to face of die front, 7 ft. 10 in.

NOW LET US TAKE HEART.

Nearly every man and nearly every woman, too, for that matter, in the United States has fretted and fumed more or less during the last year or two about the high cost of living, and some have pointed to one cause and some another, some suggested one remedy and some another, and we have all gone on paying the higher cost just the same. Now let us take heart by way of comparison and finding out from some of our brothers in other parts of the world who are worse off than we are. The material from which we can take cheer of this kind is supplied through some of our recent consular reports on wages and the cost of living.

From down in Brazil Consul S. P. Warner of Bahia writes that the following is a fair estimate of the cost of living for a family of four in the best section of town. A family to live well and comfortably without any extravagance or entertaining. Items per month:

Rent	\$ 75.00
Provisions	150.00
Servants	30.00
Fuel for cooking	10.00
Lighting	10.00
Water	5.00
Laundry	25.00

Total for one month, \$305, or \$3,600 a year. The rent item is for house unfurnished and it is said that the furnishing of a house costs at least 100 per cent more there than in the United States. If that is so the average man who undertakes to buy good furniture there will think that he is going some, because we are inclined to kick about the high prices of our good furniture here at home.



New Clay Beds.—In the district of Newsham very valuable deposits of fine pottery clay have been found. Lord Ridley and Mr. George Skee will explore the deposits and are contemplating the erection of a large brickyard and pottery plant. According to the tests made the clay is of the same quality as the famous Doulton Clays.—*Moniteur de la Ceramique* No. 9, 1911.

Feeding of Dry Pan.—The proper feeding of the dry pan is always a serious problem. The illustration, shown herewith, is patented by E. F. W. Kunath, of Obergorbits. The clay is

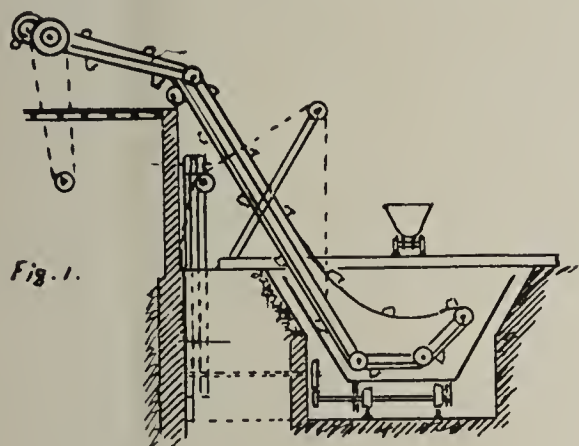


Fig. 1.

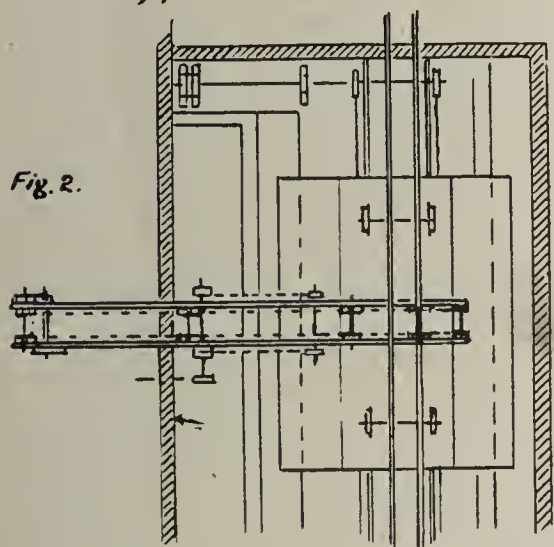


Fig. 2.

Dry Pan Arrangement.

taken out of a movable car by elevator arrangement and fed into the dry pan overhead.—*Deut. Topf. & Z. Z.* No. 34, 1911.

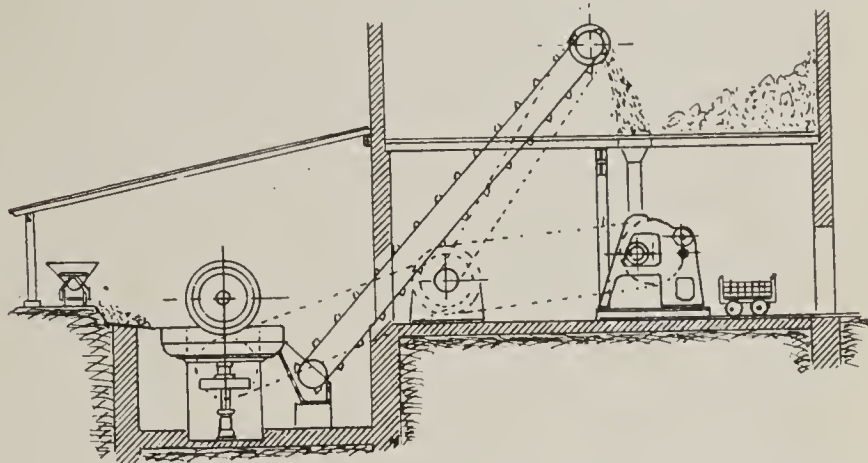
Austrian Sand Lime Brick Test.—The Imperial Technical Museum in Vienna has made tests regarding the quality of sand lime brick as compared with the clay brick. These tests have shown that the clay brick is superior in every instance over the sand lime brick and, the report states, that while these tests show that the brick tested have shown a superiority over the sand lime brick, it must be borne in mind that there are no first-class sand lime brick made in Austria.—*Tonwaaren fabrikant* No. 8, 1911.

The Pottery Industry of Holland.—There is only one pottery in Holland which manufactures porcelain. This pottery is located in Maastricht. There are several other potteries which are making what is called "Aardenwerk." This is neither a porcelain nor a majolika body, but a body similar to stoneware, but whiter in color. The oldest establishment of Splimage was founded in 1839, and employs 3,500 persons of

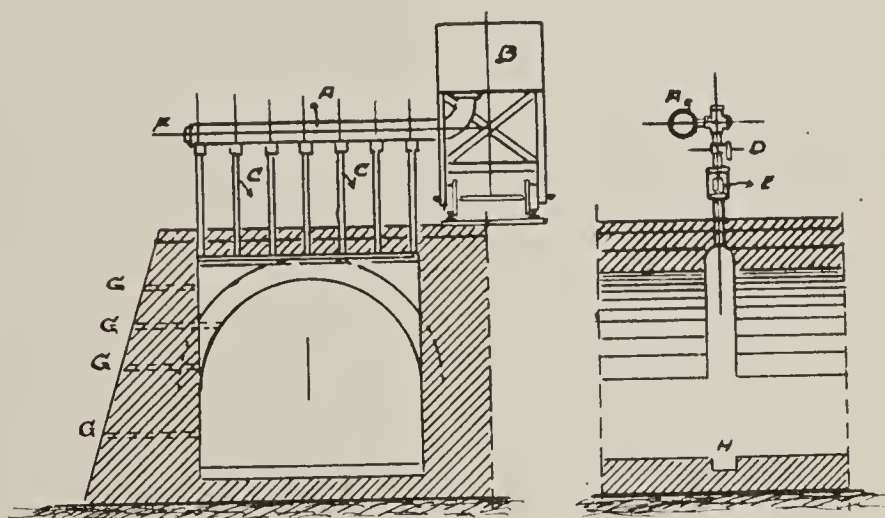
which 1,200 are women. There are quite a number of smaller establishments around Maastricht, and, taken in all, there are over 8,500 people employed in this industry.—*Revue de Ceramique*, No. 5, 1911.

German Dry Press Plan.—The dry press method has been used in Germany to some extent. However, the results have not been very encouraging. The main point of the arrangement of the plant had to be worked out according to the clays found. Mostly shales are used for dry pressing. A typical arrangement of a German dry press plant is herewith shown. The power is motor drive. The dry pan is of the undergear type and the elevator arrangement is plainly shown.—*Tonind. Z.* No. 52, 1911.

Crude Oil for Continuous Kiln.—The use of crude oil in kilns without having to force the same has not been tried very often. The cut shows an arrangement by which the oil can be fed direct into the kiln by gravity. A represents the



Arrangement of German Dry Press Brick Plant.



Direct Feed for Crude Oil for Continuous Kilns.

main pipe line. B is the oil tank. C are the feed pipes; they are of glass with metal enclosed, so that the flow of oil can be watched closely. D and E are peepholes in the kiln. H is a small canal or gutter in the kiln bottom in which any surplus oil is drained into for burning the bottom. This system is in use in many places in Russia. Its installation is very cheap and the results obtained are all right.—*Tonind. Z.* No. 45, 1911.

The Value of Peat as a Fuel.—Peat can be used in gas generators with the same effects as coal. The peat gas can be regulated better than coal gas, and has been used successfully in several continuous kilns. Good dry peat has about half the heating power of coal. According to the statement of a head burner of a brickyard with five million capacity, peat fuel gave better results than coal. The brick were of a better color, and he could burn 20,000 brick more by the week than with good English coal. The peat has a long flame and the temperature burnt was from cone 05a to cone 1a. He used 1,000 pieces of peat to every thousand brick, and the

expenses were from 75 pfenning to 1 mark less with peat than with coal. This gives an average of about twenty cents per thousand brick.—Tonind Z. No. 41, 1911.

The Buff Burning of Calcerous Clays.—The temperature at which the best results were obtained on ten different clays was between 1055 and 1135 degrees Fahrenheit. The highest percentage of lime in the clays was 18.5% with 3.8% of iron, and the ratio of iron oxide to carbonate of lime varied from 1:2.7 to 1:9.8. The samples all produced a good buff color, but attention must be paid to the proper burning of such calcerous clays.—Lerindustrien No. 10, 1911.

Gold Bricks.—The old city of Golconda in the province of Haidarabad in East India, which was well known centuries ago for the large gold mines, has again been brought into public notice for the making of gold brick. A brickmaker has obtained the rights to manufacture brick near one of the old dumps of the gold mine. He has been making brick for some time, and has built ten large kilns for the burning of his bricks. After the first brick came from the kiln, they had a very nice yellow color. Upon investigation it was found that these bricks had a very large percentage of gold dust. The Secretary of State of India was made acquainted with these facts, and he gave order to the Nitcham of Haiderabad to guard the brickyard and the clay bank at once. A systematic process has now been devised to regain the gold and more than 6,000 kilos of gold has been saved so far from the bricks which has been valued at over four million dollars.—Deut. Topf. & Z. Z. No. 26, 1911.

The Cost of Making Brick.—The figuring of cost in brick-yards has not been practiced much, and while the figures which are obtainable vary greatly, it has been found that the best results are obtained over a long period of operations. The following table will give an idea of the operations of a large brick yard, well equipped, which made six million brick per year. In 1904 they had a strike and in 1909 the year was very bad for production on account of the weather condition. The power used was a steam engine of 80 h. p.

Production in Year.	Millions.	Labor.	Kiln Coal.	Engine Coal.	Repairs.	Expense..	Supplies.	Total.
1901	3,250	6.86	2.90	2.15	2.02	0.75	0.48	15.16
1902	2,225	7.06	3.30	1.62	1.88	1.39	0.15	15.40
1903	2,500	7.00	3.24	2.28	2.48	0.88	0.14	16.02
1904	3,000	7.04	2.87	1.40	3.47	1.28	0.20	16.26
1905	3,500	6.91	2.92	1.28	5.00	0.68	0.20	16.79
1906	4,150	7.00	2.95	1.40	0.89	0.70	0.18	13.12
1907	3,634	8.00	4.40	1.19	1.25	0.73	0.17	15.74
1908	4,300	7.30	3.12	1.50	0.60	0.78	0.10	13.40
1909	2,674	10.35	2.73	1.60	1.60	1.20	0.17	17.65
1910	3,809	8.15	2.49	1.44	1.57	0.75	0.21	14.61
Av.....	3,304	7.57	3.09	1.59	2.07	0.91	0.20	15.42

These figures are all based on the thousand brick, and the values represent marks (1 mark, 24.8 cents). Most brick-makers make the mistake that they do not count the depreciation of the plant, and also do not bear in mind the interest. It can be safely stated that a brickyard is run down in twenty-five years, and a depreciation of four per cent is, therefore, not too much.—Deut. Topf. & Z. Z. No. 31, 1911.

Thomas B. Freeman, Edward Friend and Thomas E. Wilkins have applied for a charter for the Montour Brick Company with offices in the Keenan building, Pittsburg, Pa. The company has purchased the plant of the Imperial (Pa.) Brick Company and will make improvements which will increase the capacity of face and common brick per month.

Written for THE CLAY-WORKER.

A GREAT BRICK ORGANIZATION.

IN last month's issue of THE CLAY-WORKER reference was made to a meeting to be held the last of June for the purpose of discussing some sort of organization for the Hudson brick interests. It was not the first meeting of the kind—indeed, there have been meetings throughout the past year at which some method of getting together was sought which would be effective and at the same time would not violate the Sherman anti-trust law. Some of the ablest lawyers in New York have been engaged upon the problem. They believe they have solved it. They believe that the Hudson river interests, numbering 110 firms, are in a safe and legal working arrangement which will help in the adjustment of the profits and save the losses which have accrued so periodically during the past few years.

The new organization is known as The Greater New York Brick Company and it began business July 1. It contains within its membership about ninety per cent of all the brick manufacturers along the Hudson river and the present officers are quite confident they will be able to get the others in shortly. They hope to make their proposition so attractive that no one can stay out. The officers of the new company are: President, Hon. John B. Rose; vice-president, Aaron E. Aldridge; secretary, Frank DeNoyelles; treasurer, Robert Main; directors, the officers and Lucien H. Washburn, of Haverstraw; Everett Fowler, of Haverstraw; H. J. Jova, of Roseton; Henry, R. Brigham, of Kingston; Alonzo Rose, of Kingston; George W. Washburn, of Saugerties; C. F. Suderly, of Coeymans.

A meeting was held on June 19 at the Palatine Hotel, Newburg, for the purpose of coming to some agreement. There were seventy-five manufacturers present and the company was organized. By-laws were adopted and this board of managers was chosen: Hon. John B. Rose, of Roseton; Robert Main, of Saugerties; Everett Fowler, Haverstraw; A. S. Staples, Kingston; Frank DeNoyelles, Haverstraw; George S. Allison, Stony Point; Lucien H. Washburn, Haverstraw; C. F. Suderly, Coeyman's; D. Fowler, Jr., Haverstraw; Henry R. Brigham, Kingston; John F. Shankey, Haverstraw; David Terry, Kingston; Fred P. Lutger, Kingston; C. L. Bleakey, Verplank's; H. J. Jova, Roseton; Percival Golden, Catskill; Edwin Brockway, Brockways; W. A. Nicholson, Dutchess Junction; John E. Lynch, Haverstraw; Hiram Merritt, Newburg; A. E. Aldridge, Fishkill; George Hutton, Kingston; M. M. Haven, Newburg; Alonzo Rose, Kingston; William Malley, Haverstraw; W. W. Rider, Athens.

Hon. John B. Rose was chosen temporary president and Hiram Merritt was made temporary secretary. After some discussion, the meeting adjourned for permanent organization the next day at the main offices, 103 Park Row, New York. The next day twenty-nine, representing the board of managers, met at the company headquarters and elected the officers previously mentioned. On July 1 all the old commission houses and other antiquated selling methods went out of existence, excepting in a few instances, where they were left for the purpose of clearing up what they had on hand and this new giant took hold. It was a revolution in the brick business in the East. Thus was brought into existence the greatest organization the brick business has ever known.

What this company means can be understood from the fact that it will represent ninety per cent of the manufacturers of the Hudson river district, producing from 1,400,000,000 to 1,800,000,000 annually. In 1909, the last year for which figures are available, the total value of the product was \$6,443,190 on an output of 1,218,784,000. The new company now controls an annual output approximating 1,096,905,000 brick. The current price when the company was organized was \$5.78½, or a total value of \$6,345.598. The

price has moved up a bit already, and will probably go up still more, thus proving the contention of the organizers that it would be good business policy to undertake a thing of this character. The average price obtained thus far this year has been \$5.50, yet even this low figure would have shown a total of \$6,032,980.

The organizers and those who have entered this combination strenuously deny that it is intended to control prices or to restrain trade in any way. On the contrary, they point out that its principal function will be to assist the manufacturer to buy his materials more advantageously and to help him when it comes to those seasons when the business is operated upon a heart-breaking basis as it has been a number of times during the past ten years. No attempt will be made to control the selling price. In fact, it would be impossible since it is all one firm and the selling price made by the agents is the selling price for the goods of one firm only.

They deny that the organization is a trust, pointing out that the capitalization, something like \$100,000, is too small for a trust. But they do aver that they have undertaken to organize a company which will help individual manufacturers to do business at a profit. The saving in the purchase of supplies and in other similar ways will merely guarantee a profit. In other words, it is the intention of the organization to put the Hudson river brick business once more upon a paying basis.

The methods of handling brick which have prevailed in the New York market from time immemorial have passed away. Formerly all the brick came down the river on consignment. The agent took them and obtained what he could. There was no regulation and no attempt at regulation. The brick came down. If the market was active they brought a good price. If not, there was danger of overloading and the price fell. This is all done away with. The commission men's offices have been closed, or will be closed as soon as the business now in hand is cleaned up, and the output of the company will be handled by its own agents. The consignment of brick passes with the old methods of marketing.

The picturesque brick market at Fifty-second street, New York, will disappear. There will be landing places about the city, but no more will there be scores of consigned loads of brick tied up at the old market. That is a matter of history now. The spirit of the age, consolidation, has wiped it out and in its place has established a profitable method of dealing with the selling problem. It will make the old timers wince, but after all it is profits they want and the new scheme promises them more abundantly.

The capitalization is for \$100,000, which is taken to mean that the declaration of the organizers that the selling of brick is the only thing the company intends to do, is true. It would require a much larger capital to handle the manufacturing end. It doesn't need much capital to sell. The requirement of large capital lies in manufacturing.

Of course, there is much comment upon this new scheme. Builders do not altogether like it. But brick men point out that in some instances certain builders have heretofore had advantages which arose from connection with some one or more manufacturing plants. Hereafter that must cease. The builder is upon the same footing as every other buyer. No advantages can be obtained of this or that manufacturer. They are all to sell alike.

It is undoubtedly true that the disposition of the past to cut prices or one manufacturer to sell lower than another, has been productive of a good deal of the friction which has characterized the trade. That has passed with the rest of the old-fashioned selling machinery. There will be no favorites in the future. Cut prices for one will mean cut prices for all, and no one manufacturer can give a buyer an advantage without the consent of all.

The history of the brick industry on the Hudson river

has been one of ups and downs. It has had prosperous years, but it has had more when brick were made without profit. This has been true during the past ten years a number of times. There have been various sorts of clubs and organizations, but they have not succeeded in maintaining any degree of unity among their members. One has sold at one price, and another at something else. The effect has been ruinous and many of the yards have failed for lack of profits.

The new company is considered capable of overcoming all this difficulty and manufacturers are looking forward to prosperity which will afford them a reasonable profit upon their business.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

The Boston market has not changed much during the past month. Some few good sized sales were reported, aggregating 500,000 to 1,000,000 brick, but there was a sufficient surplus to supply everything wanted without drawing seriously upon the reserves. The effect of these was not, therefore, as good as many hoped it would be. However, the situation is not growing worse and in some instances slightly better figures have been obtained. Some are of the opinion that business is better and are confidently looking for more movement. Others are not so optimistic and consider the market likely to remain substantially as it is indefinitely. The hopeful ones point to important building operations which are to begin shortly and are confident that those to come will take more brick than the ones just finished.

Hampden county, Massachusetts, is a busy place. It contains the growing residential city of Springfield, with Holyoke seven miles away and Chicopee even nearer, and both are important manufacturing cities. During recent years Springfield has lost some of its old aristocratic character and factories of considerable size have been erected. A recent summary of the building operations in Springfield shows that they aggregate substantially \$5,000,000 per year. A factory addition to cost \$400,000 is shortly to be erected in Chicopee, and extensive additions are contemplated for Holyoke. The brickmakers in that vicinity anticipate a demand for something like 20,000,000 brick to fill these orders. There are many smaller towns nearby which will undoubtedly contribute their quota to the demand. West Springfield, Indian Orchard, Palmer, Westfield, all have important manufacturing interests, and all are more or less affected by this growth. The situation looks good to the brick interests in that vicinity.

The manufacturers of the Harvard, or, as some call it, "water struck" brick, report that their output for 1910 is entirely exhausted. They are rushing their kilns as rapidly as possible so as not to disappoint any of their growing list of customers.

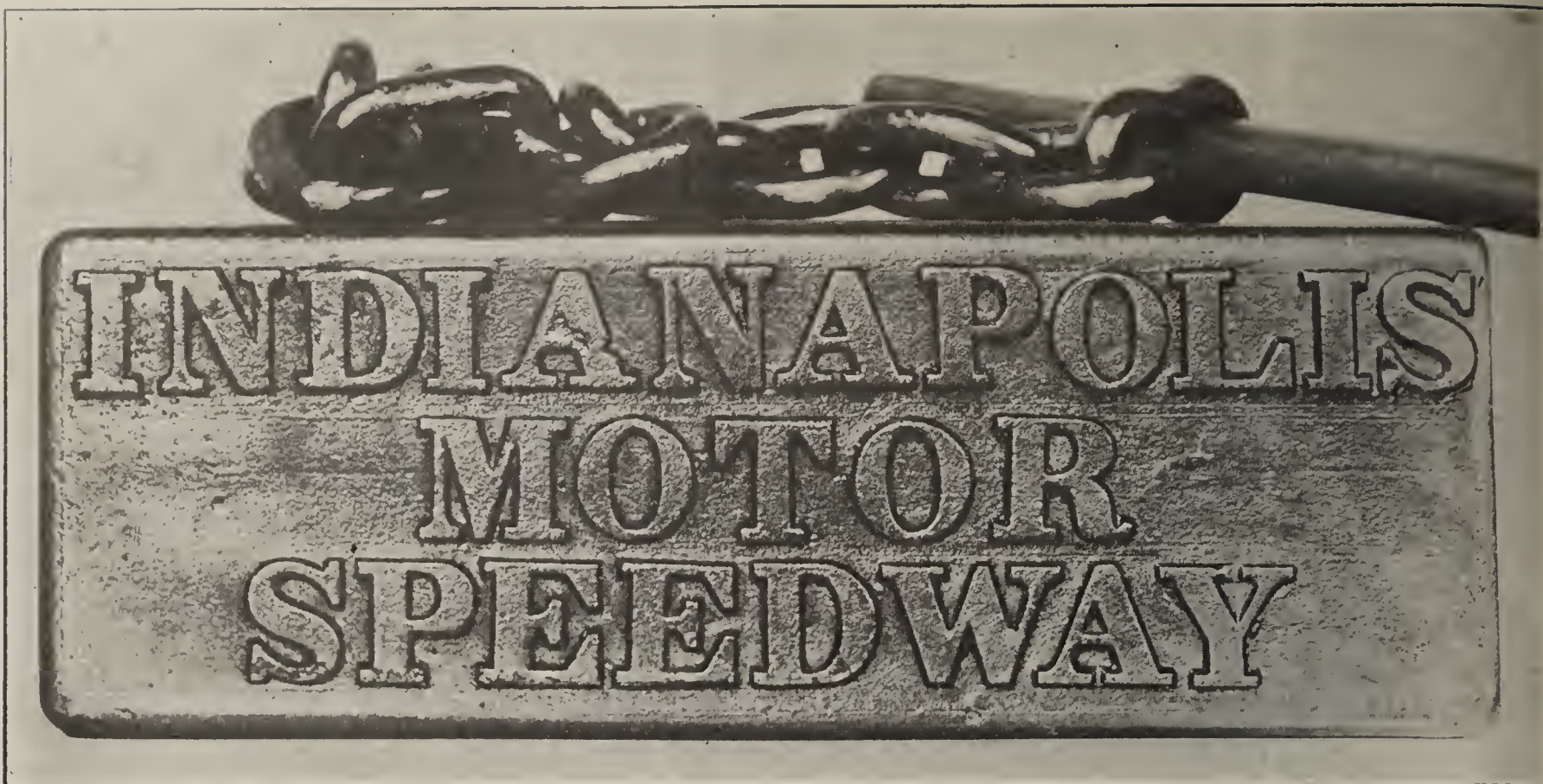
Building permits in Connecticut show substantial increase in number. The cost of the buildings exceeds those which have heretofore been erected. Architects all say they have more work than last year and there is a general disposition to say that the outlook for the season is far more promising than it was last year at this time. At Hartford the scarcity of lumber is causing an increased demand for brick for building purposes. The price of common grades continues low, lower, in fact, than most makers care to see. The quotation is now \$5.50 at the yards, and contractors are able to obtain concessions from even that low figure. A fair demand is reported for hollow brick, with a quotation of \$7 made for immediate delivery. Other grades in proportion.

Bangor, Me., which recently suffered such a severe fire, has adopted a new building code which excludes wood structures from within the fire limits. The new buildings will be largely of fireproof or slow burning material. No more dangerous frame structures will be permitted.

At Dover Point, N. H., the present season promises unusual activity. E. A. Gage has recently bought one of the Parle yards, giving him control of three large yards now.

At Providence, R. I., more or less dullness is reported. Connecticut brick have overloaded the market and nearby manufacturers are waiting for prices to improve.

HIRAM.



THE GREATEST RACE COURSE IN THE WORLD.

AVING BRICK manufacturers may well congratulate themselves on the success of the brick paved speedway at Indianapolis where, on Decoration Day, several new world's records were established with but a single fatality, and that was in no way due to the track or roadway, but to an accident that might happen on any course where speeding was indulged in. It is an admitted fact that on no other course could such high speed have been maintained for so long a period with so little danger and discomfort to the dare-devil fellows who drove, and so little wear and tear on the autos. Be it remembered that a 500-mile race was run in the remarkable time of 6 hours, 42 minutes and 8 seconds. The winner, Ray Harroun, drove a Marmon car, alone, that is, unaccompanied by a mechanic, at an average speed of but little less than eighty miles an hour.

That this remarkable achievement is due in no small degree to the merits of the brick pavement is acknowledged by all of the road engineers and experts who witnessed the race. The accompanying letter from Mr. Harroun is well worth careful (we are tempted to say prayerful) consideration of all road builders, for Mr. Harroun is well within the truth when he says that "Brick is the only thing that will withstand the wear and tear of speeding motor cars." He has participated in many of the most important racing events in America in recent years and knows whereof he speaks. The same is equally true of David Bruce Brown who, in a Fiat car, led in the race for several hours despite serious tire troubles and finished a good third. There were over forty cars in the race. Fred Belcher, and H. A. Lozier may both be regarded as experts and speak with authority on the subject, and we commend their brief expressions to all who are interested in permanent roads and smooth pavements.

Automobile Races Should Be Confined to Tracks Paved With Brick.

Secretary National Paving Brick Manufacturers' Association:

Dear Sir—Your letter of June 7 received. I am free to say that, in my opinion, if all automobile races were confined to tracks or speedways paved with brick it would be much better for the sport. I am a great believer in an extremely hard surface for automobile racing, and I believe that brick is about the only thing that will withstand the wear and tear of speeding motor cars.

Yours very truly,
(Signed) RAY HARROUN.

Indianapolis, Ind., June 13, 1911.

A Brick Paved Course the Only Safe and Sane Speedway.
National Paving Brick Manufacturers' Association, Cleveland, Ohio:

Gentlemen—In all my experience in speed work I do not believe I have ever gone onto a course where I felt as safe as on the Indianapolis Motor Speedway course on May 30. I had no sprains or stiff feelings as one experiences in a road race or dirt track course.

A great many times the danger has been marked by tires bursting, the front especially noted. As I believe I had nearly as many tires blow as the majority of the boys, I would say that in no instance did I experience any difficulty in righting the car, which was due, without question, to the construction of the course.

Very respectfully yours,
(Signed) FRED BELCHER.

Boston, June 14, 1911.

Opinion of an Experienced Racer Who Finished Third in the Five-Hundred-Mile Race.

National Paving Brick Manufacturers' Association.

Gentlemen—In answer to yours of the seventh, I would like to tell you how very fine I think the surface of the Indianapolis speedway is. The bricks allow very little skidding, very little wear on the tires, good, hard and fast surface which makes it comparatively safe when you blow a tire, as the rim can not dig in and therefore there is practically no chance of a car overturning.

Very sincerely,
(Signed) DAVID BRUCE BROWN.

Little or No Danger of Accident on a Brick Paved Speedway.

National Paving Brick Manufacturers' Association.

Gentlemen—Your letter of the 6th inst. is at hand. On Decoration Day last, I witnessed the 500-mile race on the Indianapolis speedway, and had a splendid opportunity to see the track put to the most severe test. As I remember, upwards of forty cars started. There was not the slightest semblance of an accident or an approach to an accident, due to layout or construction of the course; the only accidents were through defects in some of the cars, which were brought out while they were running at high speed continuously.

Yours truly,
(Signed) H. A. LOZIER,
President Lozier Motor Co.

July 8, 1911.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Clay-Worker Improves With Age.

Editor CLAY-WORKER:

Dear Sirs—Enclosed find \$4.00 for subscription to CLAY-WORKER, covering current year and a year in advance. The paper improves with age and I like it very much. I expect to get ready this fall to make stiff mud brick, changing from the hand method.

Thanking you for your kindness, I am,

Yours truly,

Grenada, Miss.

C. A. CARL.

BRICK BUILDING OVER ONE HUNDRED YEARS OLD.

Editor CLAY-WORKER:

Just a word in defending the strength and long life of brick. In this age of cement buildings and cheap brick construction it would be well to let the public know the value of brick and good construction by reading the history of the old court house at Williamsburg, Va.

This building has been standing for 142 years, it was gutted by fire on March 6, 1911. The walls were uninjured by the fire and the contract has just been let to rebuild the old structure in its old walls.

These old walls are practically as good as the day they were built and even the rain of grape shot and canister during the civil war failed to injure it.

Historic Old Court House Will Be Restored at Once.

Williamsburg, Va., July 26.—The joint building committee from the city council and the James City board of supervisors were in session today to receive bids and award the contract for restoring the old Colonial court house, burned the morning of March 6. The contract was awarded to R. H. Richardson & Son, of Hampton, at \$5,452. Work will be commenced July 1 and the building turned over to the city and county in ninety days. The old walls are two feet thick and will be used again. The building was erected in 1769 by Sir Christover Wren, who afterwards designed and built St. Paul's Cathedral in London. From the architectural standpoint ex-Mayor McCarthy, of Richmond, says it was one of the most beautiful and complete buildings in America. It will be put back as it was originally, with the large white columns in front supporting the overhanging porch.

Very truly yours,

H. L. JACOBS.

An Appreciation of Cyrus Chambers, Jr.

Editor CLAY-WORKER:

I have just learned of the death of our honored friend and member, Cyrus Chambers, Jr., in Philadelphia last Sunday.

Permit me to pay a feeble tribute to his memory in your columns. Perhaps no man endeared himself to so many of the older members of the National Brick Manufacturers' Association, by the winsomeness of his character and the geniality of his presence, as our lamented friend.

The infirmities of ripe old age have kept him away from recent conventions, but it was a genuine pleasure to shake

his hand once more at the Philadelphia convention a few years ago.

But the scope of his influence was more far-reaching even than the bounds of the Association. Brick manufacturers throughout the world are under incalculable obligations to his inventive genius and resourceful intellect.

He was truly the pioneer in the art of brick machinery, and present and future generations will rise up and call him blessed.

Take him all in all he was a grand and noble man, and we shall not soon look upon his like again.

With profoundest sympathy for his loved ones in this bereavement,

Yours sincerely,

JOHN W. SIBLEY,

Treasurer.

Clay Products Show of Great Benefit.

Editor CLAY-WORKER:

Some time ago I wanted to compliment you upon your March issue, and particularly pages 485 and 487. Immediately after the Louisville convention, I complimented Mr. J. Parker Fiske on this proposed Clay Products Show and told him I considered this a grand affair, and that it would be an eye-opener for the architects and public in general. This display, I am positive, will be of great benefit for the brick industry in the future, and do hope that all brick manufacturers will take a deep interest in same.

Have made a suggestion to Mr. J. Parker Fiske to invite all the leading architects of the United States to this display, for where those people are interested good results will be the outcome.

The display as shown on page 465 of the March CLAY-WORKER is also a fine one, and I have no doubt that your journal and other brick magazines will do their utmost to have the large manufacturers make similar displays, so as to make a grand impression.

Your article on page 513 of the same issue on "Advertising and Signboards" pleased me very highly.

Hoping you will keep up the good work begun, I am

Yours truly,

DAVENPORT BRICK AND TILE COMPANY.

Davenport, Iowa, May 10, 1911.

The Chicago Situation.

Editor CLAY-WORKER:

Building is picking up at a pretty fair rate in Chicago this month, now that the brickmakers' trouble has been settled, and the strife between the rival unions of plumbers and steamfitters is less turbulent than it was.

The number of new buildings in downtown Chicago just completed, or at various stages of construction, is astounding, and still more are coming, excavations being begun in some cases, and in others the final plans having been newly turned out of the architects' offices.

The very latest announcement is of a skyscraper in Washington street opposite the new City Hall-County Building block by the Marshall Field estate. Announcement is made of the purchase of the Chicago Opera House and the old block next adjoining on the west. It is said that \$6,000,000 will be spent on the new building, bringing the investment to a total close to \$10,000,000. This will put it in a class with the proposed new home of the Continent-Commercial National Bank on the LaSalle-Adams-Quincy street and Fifth avenue block.

Work has been started on the annex to the McCormick building in Michigan avenue, a structure which will duplicate the present building, and construction is being pushed as fast as practicable in the face of unfavorable conditions on the Otis estate building, at Madison and LaSalle streets, and on the new Insurance Exchange at Jackson boulevard and Sherman street, as well as on the Hamilton Club's new home;

the City Hall Square Theater and office building, mentioned last month; the Monroe building at Michigan avenue and Monroe streets; the North American building, at Monroe and State streets, the reconstruction of Mandel Brothers' store, of Rothschild's store, and a large number of other new buildings. The Chicago Telephone Company also has a new twenty-story building under way. It will cost about two and one-half million dollars.

Another month should show a situation decidedly improved. SCRIP.

MORE PROOF OF THE PUDDING.

Editor CLAY-WORKER:

We beg to submit the following list of brick manufacturers, to whom we have recently sold Gravity Brick Carriers. We desire that you publish same in order to show your readers that up-to-date concerns are equipping their plants with our devices:

Wychkoff Pipe and Creosoting Co., Inc., New York, N. Y.
 Paul & Henry, Barberton, Ohio.
 Thurber Brick Co., Thurber, Texas.
 E. A. Poe Brick Co., Fayetteville, N. C.
 Winnebago Drain Tile Co., Winnebago, Minn.
 W. M. Pattison Supply Co., Cleveland, Ohio.
 Charlotte Brick Co., Charlotte, N. C.
 Bowlus Brick and Tile Manufacturing Co., Bowlus, Minn.
 Boone Brick and Tile Co., Boone, Iowa.
 Luverne Pressed Brick Co., Luverne, Minn.
 Henry Schaefer Sons, Buffalo, N. Y.
 Guignard Brick Works, Columbia, S. C.
 Standard Brick Co., Palmer, Texas.
 F. R. Carter, Peoria, Ill.
 Barbourville Brick and Tile Co., Barbourville, Ky.
 Southern Brick Co., Louisville, Ky.
 Crutcher Brothers, Louisville, Ky.
 Globe Press Brick Co., Ferris, Texas.
 Diamond Press Brick Co., Ferris, Texas.
 Texas Press Brick Co., Ferris, Texas.
 Lone Star Pressed Brick Co., Ferris, Texas.
 Dunn Brick Works, Erie, Pa.
 St. Joseph Pressed Brick Co., St. Joseph, Mo.
 Lombard Brick and Tile Co., Lombard, Ill.
 Palmer Brick Co., Atlanta, Ga.
 Arnold-Creager Co., New London, Ohio.
 Dublin Brick Co., Dublin, Ga.
 D'Hanis Brick and Tile Co., D'Hanis, Texas.
 Dallas Pressed Brick Co., Mesquite, Texas.
 Cobb Brick Co., Fort Worth, Texas.
 J. P. Duffy Co., New York, N. Y.
 Barber Asphalt Paving Co., New York, N. Y.
 Field, Barker & Underwood, Norfolk Navy Yard, Portsmouth, Virginia.
 Wichita Falls Brick and Tile Co., Wichita Falls, Texas.
 Aetna Engine Works, Menominee, Wis.
 Alberta Clay Products Co., Medicine Hat, Canada.
 Minneapolis Brick and Tile Co., Minneapolis, Minn.
 Craycroft-Herrold Brick Co., Fresno, Cal.
 Zeeland Brick Co., Zeeland, Mich.
 Chicago City Railway Co., Chicago, Ill.
 Kellar Brick Co., Cuyahoga Falls, Ohio.
 Eureka Brick Co., Lynnhaven, Va.
 Landers-Morrison-Christenson Co., Minneapolis, Minn.
 Great Eastern Clay Co., New York, N. Y.
 W. M. Harris, Jr., Providence, R. I.
 Garden City Sand Co., Chicago, Ill.
 C. J. Anderson, Marinette, Wis.
 Jamestown Shale Paving Brick Co., Jamestown, N. Y.
 Jamestown Street Railway Co., Jamestown, N. Y.
 Lawrence Vitrified Brick and Tile Co., Lawrence, Kansas.
 Alsip Brick and Tile Co., Ft. William, Ont.
 Woodcock & Sellhorn, Brickton, Minn.
 P. Flannigan & Sons, Baltimore, Md.
 M. K. Beach, Baltimore, Md.
 Livesey Brick Co., Omaha, Neb.
 Wise, Smith & Krabil, Canton, Ohio.
 W. H. Ringwald & Sons, Richwood, Ohio.
 Geo. Long Contracting Co., Baltimore, Md.
 Cook & Brown Lime Co., Oshkosh, Wis.
 Turnbull & Son, Canton, Ohio.
 W. E. Forshee & Co., Cincinnati, Ohio.
 Clay Products Co., Brazil, Ind.
 Stone & Webster Engineering Corporation, Minneapolis, Minn.
 N. Y. C. & St. L. R. R., Cleveland, Ohio.
 M. Ford, Cedar Rapids, Iowa.

American Clay and Machinery Co., Willoughby, Ohio.
 Hummelstown Brown-Stone Co., Waltonville, Ohio.
 J. B. Ford, Harrisburg, Ill.
 E. D. Bowen, Twinsburg, Ohio.
 Drury Brick and Tile Co., Essex Junction, Vt.
 H. P. Kniseley, Canton, Ohio.
 William Elder, Baltimore, Md.
 Heilman Brothers, Tiffin, Ohio.
 E. T. Lewis Co., Nashville, Tenn.
 M. J. Beach, Baltimore, Md.
 E. E. Morgan, Ravenna, Ohio.
 A. Heims Brick Yards, Dubuque, Iowa.
 John C. Boss Brick Co., Elkhart, Ind.
 William Conway, Philadelphia, Pa.
 Crown Brick Co., Berlin, Conn.
 J. T. Lynch, Circleville, Ohio.
 Wm. Hatch & Son Co., Goshen, Ind.
 The National Tube Co., Lorain, Ohio.
 Corry Brick and Tile Co., Corry, Pa.
 Fulton Fire Brick Co., Fulton, Mo.
 Sudbury Brick Co., Ltd., Sudbury, Ont.
 Portsmouth Granite Brick Co., Firebrick, Ky.
 W. F. Cox, Cedar Rapids, Iowa.
 Gold Brothers Brick Co., Big Stone City, S. D.
 Whiteselle Brick and Lumber Co., Corsicana, Texas.
 Windsor Brothers, Akron, Ohio.
 Whitacre Fireproofing Construction Co., Chicago, Ill.
 Patrick Reddington & Sons, Baltimore, Md.
 Silica Stone Co., Planebrook, Pa.
 Suburban Brick Co., Wheeling, W. Va.

We believe the above imposing list of recent customers furnishes sufficient proof that our equipment is all we claim for it and as stated in our advertisement. We will gladly demonstrate the economic value of our carrier to any reader of THE CLAY-WORKER who will afford us the opportunity.

Very truly yours,

MATHEWS GRAVITY CARRIER CO.,

By F. E. Moore, Treas. and Mgr.

A SEWER PIPE PLANT FOR MACON, GA.

Messrs. O. J. Masee, Jr., and L. S. Russell, vice-president and erecting engineer, respectively, of the Bibb Sewer Pipe Company, a new industry locating at Macon, Ga., have within the past month "swung around the circle" of northern and eastern manufacturers of clayworking machinery, and after a most critical examination of the very latest sewer pipe machinery, idle at factory and active in model sewer pipe plants, placed their order with the Stevenson Company, of Wellsville, Ohio, for a complete motor-driven equipment for a two-press plant. Part of this machinery has already gone forward and with the energy these gentlemen display a complete factory will be in operation in that city by August 1.

IMPROVEMENTS FOR THE SIBLEY-MENGE PLANT.

A new continuous kiln and other improvements, including a new steam shovel, are being installed in the brick plant of the Sibley-Menge Brick and Coal Company at Sibleyville, Ala., on the Louisville & Nashville Railroad, which will increase the capacity of the plant from 50,000 daily to 100,000 daily. With the doubled capacity of the plant, the company will be placed in a position where they will be able to command a much larger demand for its product than ever before, and as the different kinds of brick are known over the entire South for their quality and finish, it is evident that the plant will be taxed to its full capacity in the future as it has been in the past. J. W. Sibley is president of the company; J. A. Menge, vice-president and treasurer, and W. L. Sibley, secretary and manager of the plant.

The Stevenson Company reports that their plant for the manufacture of brick, sewer pipe, tile and other lines of machinery at Wellsville, Ohio, has been doing a business about ninety per cent of its normal output thus far this year, and consider that rather dull. The outlook for the last half of the year, considering what is in and in sight, is very bright.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE BUILDING RECORD for the last month shows a slight gain in San Francisco and Oakland, as well as in other cities of the coast. In San Francisco, the aggregate valuation for June was \$1,954,501, compared with \$1,925,847 for May, while in Oakland the valuation increased from \$570,507 to \$656,791. These figures, based on the permits issued, do

not include quite a number of important buildings in both cities for which contracts have been let within the past two or three weeks. The Oakland city hall contracts were let about the middle of June, following the original plans in every way. All the brick work, including setting as well as furnishing the material, will be done by Gladding, McBean & Co., the large pottery firm of this city, contracts for this work amounting to \$187,000, of which \$65,000 is for terra cotta facing. This is a new departure for Gladding, McBean & Co., who have in the past never concerned themselves with common brick work, and make no common brick themselves. In San Francisco, contracts have been let for the Bankers' Investment building on Market street and the San Francisco Investment Company at Sutter and Montgomery streets, both large jobs, and some work has been given out on the Masonic Temple, which has been hanging fire for about a year. The architects have plenty of new work on the boards, and owners show little hesitation in starting active operations, though the great majority of the buildings are rather small.

Common brick is now selling at the yards in San Francisco at \$7 per thousand, which is the price set by the dealers as about the best they can hope to obtain. There is some uncertainty as to how long this price will be maintained, but if the present demand continues the market should be firm for many months to come. The kilns which now ship to this market are still very closely sold out, and some of them have difficulty in making enough brick to fill orders, while the price is hardly sufficient to attract any great amount of competition from more distant points.

Gladding, McBean & Co. are just starting work on extensive improvements to its large plant at Lincoln, Cal., and has let a contract for a steel clay shed covering an area of 75 x 360 feet. A narrow-gauge railroad will be laid from the plant to the clay beds, one and one-half miles distant, and a small locomotive will be put on to haul the cars. The cars will be loaded by a steam shovel at the clay beds, and will run into the new building on an elevated trestle, where the clay will be taken up by a three-ton traveling crane, with a seventy-five-foot span. The crane will dump the material into bins, from which it will be taken to the disintegrators by automatic conveyors. The plans for the entire installation are now complete, and orders for all the equipment will be placed very shortly. Gladding, McBean & Co. have secured the Native Sons' hall job in this city, consisting of glazed terra cotta for an eight-story building. They have completed deliveries on the Hearst building, which will be completed in about two months.

The Golden Gate Brick Company has a contract for 250,000 of its sand-lime brick for the Madera, Cal., grammar school, and is making deliveries on this job, as well as on the Huntington memorial hall at the Southern Pacific Hospital in this city.

The United Materials Company, of this city, continues to get a large share of the local business for the Los Angeles Pressed Brick Company, most of the material for this market being produced by its plant at Richmond, Cal. This plant is comparatively new, having been started about two years, with an output of one of two varieties, which have recently

been increased to include most of the products made by the company in Southern California. The output also has been increased in volume, but the company is convinced that there is still room for expansion in this vicinity, and is putting in new equipment which will double the present capacity.

The Stockton (Cal.) Fire and Enamel Brick Company is having great success with its glazed and matt glazed brick, which are being used in and around San Francisco as well as in the interior. The plant is located on the Southern Pacific tracks just outside the city of Stockton, with good facilities for the delivery of raw material and the shipment of its products. The clay is brought from the well-known beds at Lincoln, Placer county. The company's machinery is electrically operated, getting power from the Pacific Gas and Electric Company. The company has four kilns with a capacity of sixty thousand each, and turns out its finished product at one burning.

The California Pressed Brick Company, whose plant near Niles, Cal., has been laboring under some difficulties this season, has leased its equipment to San Francisco parties, and it is understood that active operation will be resumed within a few days.

The West Side Brick Company at the new town of Pentland, in the California oil fields, turned out its first lot of brick last month, finding a ready market for the material. The company has quite a lot of advance business on hand, and expects to keep busy for the rest of the year.

John Anderson started up a new brick plant at Willows, Cal., early in June, and conditions there are favorable for an active business for some time to come.

C. K. Holloway, of the Oakland Paving Brick Company, delivered an address June 14 before the Rotary Club, composed of prominent business men of the cities around the bay, on the development of the brick manufacturing industry in California. This company is a new one, but expects to get considerable business in paving brick, which is not yet produced on a commercial scale by any firm around San Francisco. The paving brick interests are keeping up their efforts to introduce their material in this vicinity, and seem to have a fair prospect of success in Oakland.

The Eureka Fire Clay, Brick and Tile Company has been incorporated at Baker City, Ore., with a capital stock of \$100,000.

The Tracey Ornamental Brick and Tile Company has started a new plant at San Diego, Cal.

Edward Horton, formerly superintendent of the Remillard Brick Company, who has been suing the company for commissions earned during his service, has won an award of \$8,000. Another suit brought by him for breach of contract is still unsettled.

O'Brien Brothers, local architects, are taking figures on a building to cost about \$80,000, to be built on Market street opposite Jones. It will be faced with pressed brick.

The Utah Fire Clay Company, of Salt Lake, Utah, is putting in a number of improvements and is experimenting with the manufacture of glazed brick. SUNSET.

MORE ABOUT THE EXPRESS RATE ON SAMPLE BRICK.

The following announcement has been sent to the members of the Ohio Face Brick Manufacturers' Association by President Queisser: "The express companies have issued, under date of May 15, Supplement No. 7 to Official Classification No. 20, putting into effect, under date of June 1, the new merchandise pound rate with minimum of thirty-five cents on sample and small lots of brick. Some yards complain that their agents had no advice of this. As this rate went into effect on June 1, if you have any trouble or you are being charged more than this, you can make claim for overcharge.

"Be sure to take this matter up with your agent."

The Stevenson Company has installed one of their latest improved motor-driven 8-foot wet pans in the works of the Columbus (Ohio) Iron and Steel Company for grinding and mixing slag and waste iron ore. They have expressed themselves as well pleased with the motor-driven machine.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



ESPIE the torrid heat of the past few weeks, building operations are quite active though very few large projects are under way. There is a great mass of building of medium sized factory and apartment buildings and of dwellings. Reports for the building inspector's office indicate that the month of June has held up well with previous years and that the record for 1911 is still ahead of all previous years.

A number of interesting events to the builders have occurred during the past month, the chief of which was the annual summer outing of the Cleveland Builders' Exchange, held at Washington, D. C., Philadelphia and Atlantic City during the last week of June and the first three days of July. Leaving Cleveland on Tuesday evening, June 27, in a special train of Pullman cars, 103 members and wives went to Washington, arriving there early the following morning. Wednesday and Thursday were spent in Washington inspecting the various public buildings, among which are several notable examples of brick architecture. An incident of one day was a public reception to members of the exchange by President Taft at the White House. Later, at the Senate office building, Senator Burton, a Cleveland man, also held a reception for the visitors. On Thursday afternoon there was a trip to Mt. Vernon, the home and resting place of Washington. Friday was spent in Philadelphia, the city of brick homes. Friday night the builders moved on to Atlantic City, where Saturday and Sunday were spent. Monday morning the special train started for Cleveland, passing through the Allegheny mountains and the scenery to be found there. The trip, in addition to being the most ambitious ever attempted by the exchange, is also rated as being the most successful in its history.

Cleveland capitalists have taken options on big clay fields, some 600 acres in extent, in the vicinity of Mineral City, Tuscarawas county, Ohio, with the expectation of developing the property on a large scale. It consists of clay mines, coal deposits, a brickmaking plant and a number of buildings. The property is valued at \$150,000. The clay deposits consist of flint clay said to be equal to the best to be found in the United States, especially for heat-withstanding purposes. The deal was made through Maynard H. Murch & Co., representing Cleveland parties who have thus far withheld their names. The property is on the Pennsylvania and Baltimore & Ohio railroads and is regarded very highly among those who have examined it.

One of the biggest contracts for face brick for immediate delivery was closed by the Cleveland Hydraulic Press Brick Company, through John McKay, recently, when an order was received for 3,000,000 Ohio Ironspot facing brick for the new city hospital buildings to be erected at Cincinnati, Ohio. The brick are of rough texture with mottled effect. A number of the large manufacturers of the country competed for the order, which was landed by the Cleveland concern. The general contract for the buildings has been let to the Westlake Construction Company, of St. Louis. Shipments will begin at once, 10,000 to the car. It will require 300 cars to carry them to Cincinnati. Only eighteen buildings are to be erected at this time, though thirty-five buildings are included in the complete plan, thus requiring about 8,000,000 brick in all. Of the 3,000,000 there will be over 500 arches requiring many thousand of ground brick at a price of \$116 per thousand, and a great many moulded shapes at \$50 per thousand. The regular bricks sold at \$16 per thousand f. o. b. Cincinnati.

The Terminal Warehouse Company of Cleveland is preparing to proceed with its new \$1,000,000 building on Ontario street near the warehouse of the Higgins Company. The building is four stories above and two below the ground and will be of brick and terra cotta, with a steel and concrete frame. The structure will be one of a group of seven buildings to form a part of the largest warehouse terminal in the

country, costing several million dollars. The buildings are being planned by Architect Frank L. Packard, of Columbus. Contracts for the work will be let within the next month.

Another building for which contracts will be awarded will be the new \$2,000,000 Statler Hotel, on Euclid avenue at East Twelfth street. It is to be twelve full stories in height, ninety feet wide and about 400 feet deep, facing of two streets and a wide alley. Plans have been completed by the George B. Post Company and foundations are now being installed. The first three and the top three stories are to be of terra cotta, while the intervening ones will be of red or brown face brick. Inside considerable enamel brick and tile will be utilized, an effort being made to make the building of the highest type of construction throughout.

Plans have been completed by School Architect Barnum for the Miles Avenue school. It is to be a fireproof structure costing \$60,000. Proposals for the work are to be received on July 10 and a contract will be awarded shortly thereafter. The exterior of the building is to be of face brick, as are all other schools in Cleveland. Bids for the superstructure of the Technical high school on the west side have been received and a contract will be awarded in a short time.

The F. D. Stevenson Contracting Company has been awarded the contract for the new \$75,000 theater to be erected at East Fifty-fifth street and Broadway for George R. Canfield from plans by Architect George A. Greible. It is to be a three-story brick building in front, with seven stories and a large theater in the rear 203 x 255 feet in size. It is hoped to have the building finished in the early fall so that it may be occupied during the coming winter. A large pipe organ is among the unusual features to be installed in the new structure.

Architect Theo. Connor has prepared plans for a nine-suite brick apartment building for Louis Fishel, at Wade Park avenue and Addison road, N. E. It will be of brick with stone trimmings. A large number of these apartment buildings are being erected in this city at present.

Contracts are to be awarded within the next week or two by Architects Knox and Elliott for the new model market building to be erected on Euclid avenue opposite East Forty-sixth street, for the Cleveland Model Market Company. The building, which will be about 120 feet wide and nearly 500 feet long, will be of white terra cotta, tile and glass throughout. It will contain 144 stalls, each one connected with a refrigerating plant in the basement. The building alone is expected to cost in the neighborhood of \$150,000.

Nearly 2,000,000 shale bricks are being used in the foundations of the new Cleveland city hall, foundations for which are now being installed. A contract has been let for the corner stone, which is to be laid on July 22, Cleveland's birthday. The new building is to cost \$2,600,000, complete, without paintings or statuary. It will be of granite, backed with millions of shale brick. Considerable white enamel brick will be used, in the interior courts.

The Crowell & Sherman Co. has been awarded the contract for the new Commercial building on Euclid avenue just east of East Ninth street, to be erected during the present summer. The building will be 180 feet wide and six stories high. It is to have a front of white glazed terra cotta and walls of brick. Inside considerable tile is to be employed in addition to marble. It is to be divided into four parts and leased to tenants. Architect Willard Hirsch planned the structure, which is to be in the heart of the new shopping district.

Architects Briggs & Nelson, of Cleveland, have completed plans for a four-story building, costing about \$150,000, for the Cleveland Press, which is to be proceeded with during the coming fall. The building is to be erected at the northwest corner of East Ninth street and Rockwell avenue, and will be of brick and steel throughout, with a large clock tower on one corner. Contracts will probably not be awarded until the month of August or early in September.

The Canton Pressed Brick Company has increased its capital under the laws of Ohio from \$50,000 to \$200,000. A number of needed extensions will be added at once.

The Dennison Sewer Pipe Company, of Dennison, Ohio, has also increased its capital from \$75,000 to \$100,000.

A. BUCKEYE.

OBITUARY.

The Passing of Cyrus Chambers, Jr.

IN THE DEATH of Cyrus Chambers, Jr., which occurred at his home at Overbrook, Pa., a suburb of Philadelphia, July 9, there passes a pioneer in the brick machinery business, whose name will always be linked with the foremost inventors of his time. He was born at Kennett Square, Pa., December 6, 1833, of Quaker parentage.

He early manifested an inherited tendency towards mechanical pursuits, and even as a boy made many mechanical appliances that attracted attention, a miniature high pressure steam engine, constructed principally of gold and silver and composed of over 150 pieces, being an achievement that attracted considerable interest. The engine, boiler, and stack weighed less than one-half ounce, and Mr. P. T. Barnum's agent offered Mr. Chambers one thousand dollars for his engine, which was declined.

He studied dentistry for a time and practiced with an elder brother, Edwin, at Kennett Square, Pa.

The invention of a machine for folding printed sheets, books and newspapers was the first invention reduced to commercial use, and in 1857 Cyrus and his brother Edwin gave up the dentistry profession, formed a co-partnership,



Cyrus Chambers, Jr.

and started the firm of Chambers Bros. & Co., for the manufacture of folding machines.

During the early period of the firm's existence Mr. Chambers' duties covered not only those of an inventor, but he was also draftsman, patternmaker, and oftentimes helped in the actual construction of the machines. When delivered to the customer he personally attended the erection and starting of the machines; and after payment had been received took a portion of the price to cover traveling expenses and solicit additional orders.

Notwithstanding many adverse incidents, including long-continued patent litigation for the defense of his claim to these inventions, the young firm gradually accumulated capital sufficient to establish their business on a better basis.

In 1861 they manufactured a domestic sewing machine, making large numbers of this machine under contract. At about this time, at the urgent solicitation of a friend who owned the building in which their shop was located, they took up the work of converting flint lock muskets into the percussion type, and also the manufacture of scabbards for the government, and for which special machinery was designed, making scabbards that were thoroughly interchangeable.

During the early '60's his study of the question of brick-making by machinery resulted in the production of the first Chambers brickmaking machine, which was erected at Pea Shore, N. J., at a place that was then known as the "grave yard of brick machines." So far as known, this was the first

auger machine with an automatic cutter, and, while the product was very small as compared with modern outputs, the machine was commercially successful, the output being about forty bricks per minute. The Pea Shore machine with an improved type of automatic cutter, is still in use and producing about forty thousand bricks per day after a period of over forty-five years.

From that time more and more attention was given to the brickmaking field, and a successful manufacturing business grew out of the invention of the paper folding machine and the Chambers brickmaking machine.

The firm moved from time to time as business demanded increased facilities, and finally secured sufficient capital to purchase ground and erect their own building in 1870, upon a location which is now occupied by the works of Chambers Brothers Company, the successor of the firm.

The elder brother, Edwin, died in 1875, and Cyrus took over Edwin's interest in the firm and continued the business alone under the name of Chambers Bros. & Co. until 1888, when Chambers Brothers Company was incorporated under the laws of the State of Pennsylvania, and Cyrus's nephews, J. Howard Chambers and S. Bernard Chambers, who had grown up in the business, were given an interest therein and the general management and details of the business assigned to them, in order that Cyrus might have leisure to labor in the development and exploiting of some inventions that he had been awaiting an opportunity to develop for more than twenty years.

Mr. Chambers married on May 7, 1868, Mary A. Pyle, of Wilmington, Delaware, daughter of Cyrus and Mary Mifflin Pyle, and unto them have been born four children, Isabel, wife of Robert F. Roberts, secretary of the Jones & Lamb Co., of Baltimore; Hannah, who died in infancy; Helen, wife of Rowland Comly, president of the Logan Trust Company, of Philadelphia, and Alice Pusey Chambers, who is still living at her parents' home.

In 1886 Mr. Chambers' health broke down and he was advised to travel for his recovery and to get away from business cares. A trip to Yucatan and Mexico was planned, and with his physician and eldest daughter, Isabel, the tour of those countries was made. Upon his return his physician ordered him to the country. After a year's illness and convalescence he proposed to return to business. His physician said, "No, thee is never to go back to live near the works, but stay in the country. The best thing thee can do is to buy a piece of ground and build thyself a house and stay out-of-doors for another year."

Many years ago Mr. Chambers was advised by an oculist that he was losing his sight from degeneration of the retina, and even then he began to educate himself as a blind man. A large room at his residence was fitted up as a mechanical laboratory, with a complete set of tools so arranged and fitted into recesses that he was enabled to locate their position and replace them after use. The sense of touch was so cultivated that he could oftentimes follow the lines of a drawing by means of his fingers.

This mechanical laboratory was a great source of pleasure and entertainment during the latter years of his life, and did much to prolong his life after his infirmities made it necessary for him to give up active business pursuits. His interest in inventions and in new mechanical appliances was always keen, and until within a few weeks of his death it was not uncommon for him to keep at least one draftsman and two or more mechanics constantly at work upon development and experimental work.

Until his infirmities compelled him to give up outside interests he was an active member of the Franklin Institute, being for many years on its Committee of Science and the Arts, and being on its board of managers and one of its trustees.

The funeral occurred from his home on the afternoon of the 13th. It is needless to say that the business of the firm

of Chambers Brothers Company will go on as heretofore, as those in control of same have been in charge for a number of years past.

Prominent Brick Manufacturers Pass to the Great Beyond.

The members of the N. B. M. A. will regret to learn of the death of James L. Breed, general manager of the New York Brick and Paving Company, of Syracuse, N. Y., since 1891. Mr. Breed was an old time member of the N. B. M. A. and for many years had attended the conventions regularly. His death was due to heart failure, caused, it is believed, by grief over the death of a son, May 3. Mr. Breed was 71 years old, a native of New York State and a courteous and kindly gentleman.

William Hallam, for many years prominent in the brick industry of St. Louis, died June 30. Mr. Hallam came to the United States from England in 1855, and was the first superintendent of the Laclede Fire Brick Company, and was for many years associated with the Laclede-Christy Clay Products Company, only severing his connection with the company on account of his age.

Albert Terry, one of the pioneer brick manufacturers along the Hudson river, died at his home in Kingston, N. Y., July 6, aged 75 years. He was known as the first manufacturer to use anthracite coal in burning brick on the Hudson river. Mr. Terry was president of the Terry Brothers Brick Company, at Kingston Point.

Joseph Light, a brick manufacturer of East Lebanon, Pa., was found dead in his bed June 22. His death was due to heart failure. Mr. Light, who was one of the wealthiest residents of that section, was fifty years old and leaves a wife, two daughters and one son.

M. D. Valentine, for forty years a manufacturer of fire brick at Woodbridge, N. J., died suddenly June 27 from an internal hemorrhage. Mr. Valentine was one of the best known fire brick manufacturers of New Jersey.

MOUNT SAVAGE FIRE BRICK PLANT TO BE ENLARGED.

The annual meeting of the directors of the Union Mining Company, proprietors of the Mount Savage Fire Brick Works, Mount Savage, Md., which have been successfully and continuously operated since 1841, was held in their general offices in the Fidelity building, Baltimore, Md., on June 6. The president reported that the company is enjoying an excellent demand for their "Mount Savage" and other brands of fire brick, so much so that in order to handle promptly the large volume of orders being received it has become necessary, for the second time in a period of six years, to increase the capacity of their works. With this end in view, a committee from the company spent practically the entire month of May investigating the merits of the various modern methods and machinery that could be used in the manufacture of high-grade fire brick and, during the course of their investigations, they visited many of the largest fire brick operations in the East and West. Plans for the erection of an extensive addition to their already large plant were then submitted to and adopted by the directors. The new extension is now under construction and when completed, the Mount Savage plant will have a capacity of 100,000 nine-inch brick per day. It is not proposed, however, to operate the entire plant on standard brick and shapes exclusively. A large portion of it will be devoted to the department having in charge the manufacture of special and difficult shapes used in the iron,

steel and allied trades, the lime and cement industries, water gas linings, gas bench settings, etc.

Before the new construction work was decided upon, the company spent considerable money prospecting and boring with diamond drills its large holdings of clay lands, the result being that they are assured of sufficient of the celebrated "Mount Savage" flint and plastic clays to last for centuries.

The Union Mining Company was among the first of the fire brick manufacturers of the United States to realize the importance and necessity of giving each industry a fire brick made with a view of withstanding its particular and peculiar conditions. To accomplish this, its research department is constantly at work on the question of mixing, grinding and burning its clays and calcined material and it is this close attention to the requirements of their customers that has enabled them to build up such a faithful and loyal following among the users of fire brick generally.

The company maintains offices in Pittsburg and New York in addition to those at Baltimore and Mount Savage, Md., and has special representatives in Chicago, Philadelphia, Boston, Indianapolis, Cleveland, Cincinnati and San Francisco. The officers are H. Crawford Black, president; Van Lear Black, vice-president; A. T. Burr, secretary and treasurer; W. L. Hamilton, general superintendent, and Charles H. Claiborne, general sales manager.

Written for THE CLAY-WORKER.

NOTES OF INTEREST TO ILLINOIS CLAYWORKERS.



INCORPORATION papers were granted July 1 to the Springfield Drain Tile Company, which will establish a clay-products plant on a twenty-five-acre tract just east of Springfield. The concern is authorized to have a capital of \$30,000. The incorporators are James A. Long and Charles G. McIntosh, of Portland, Ind., and John F. Miller, of Springfield. Land has been purchased from three parties for a six-kiln plant, the plans for which are now being drawn. The site is on the belt line of the Illinois Traction line and the Illinois Central Railroad. Sewer pipe will be the principal output at first, but it is planned to extend the industry to brick. Messrs. Long and McIntosh, who own a drain tile plant at Portland, will not remove their factory but will operate both industries.

Miss Susan Barr, daughter of Thomas Barr, the well-known brick manufacturer of Urbana, was married July 1 to Lloyd V. Walcott, a prominent attorney of Belleville, Ill.

John O. Smith, superintendent at Glen Carbon, Ill., for the St. Louis Press Brick Company, suffered a dislocated shoulder and many bad bruises in a runaway when the harness broke as the rig was going down hill and the horse became badly frightened.

C. G. Baldwin, of the American Railway Association, has been interesting various commercial associations in Illinois by his description of the manner in which the Burlington System uses clay ballast.

The Bement Brick and Tile Factory was burned June 18 at Bement, with a loss of \$5,000, no insurance. It was owned by H. E. Shaw and A. L. Wilkinson.

Alois J. Marxer, brick and tile manufacturer of Millstadt, Ill., and Amanda B. Penzhorn, of East St. Louis, were married June 27, at Waterloo, Ill.

The Messenger brick yard at Collinsville, Ill., was burned the latter part of June. The plant was a total loss as there were no fire plugs within 2,000 feet of the yard.

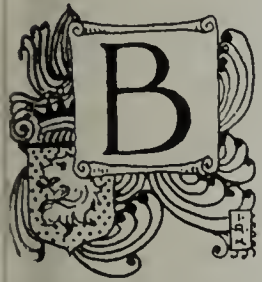
Bloomington clay-products men were in evidence at the "Made in Bloomington" show held the latter part of June in that city. The Bloomington Pressed Brick Company, Henry Keiser, president, showed different brick and hollow building tile in practical use, having finished a corner of the booth

in a number of different styles. In a parade they had an attractively decorated wagon displaying pressed brick and our children as an added attraction. The Edgar M. Heafer Tile Company appealed to the farmers with an interesting collection of tile. Some of the first tile made by the company in 1874 were contrasted with the present output of the plant. Tile exhibited at the McLean County Fair in 1876 were also shown. I. D. Lain, paving contractor, had a float showing our negroes at work laying brick pavement. This bore the caption, "The best brick pavements in Illinois are those in Bloomington."

ILLINOIS.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



BRICK BUSINESS, like every other industry, has suffered somewhat from the excessively warm weather throughout the latter part of June and the first of July. During the past few days Toledoans have experienced the hottest weather known for more than forty years. Money seems plentiful but there

also seems to be some hesitancy upon the part of the financiers to put up investment structures and such buildings have not been as plentiful in Toledo as in former seasons. A number of such structures are now, however, in the hands of architects and promise some good things for the early fall. Residence structures have been plentiful and brick seems to be growing in favor for such purposes in Toledo. All the brick manufacturers report their plants running at full time and full capacity, although there seems to be a disposition on the part of many to complain of light demand. They are hoping for a big revival of business this fall and are stocking up with a good supply to meet the expected demand. Prices have been disposed to weaken somewhat owing to a cessation of the big demand which has for months come from Detroit. That city now seems to be flooded with brick and not only are no brick being shipped into Detroit, but there is a disposition to ship them out and they have been poured into the local market until prices broke and the market showed signs of demoralization. The slump in price has not been general, as some dealers have absolutely refused to make concessions, being inclined to keep their brick rather than sacrifice them, and the different concerns have not kept very close to the schedule, there being as much as from fifty cents to a dollar and a half per thousand difference among the various concerns.

The fact that considerable creosote block, asphalt and bitulithic paving have been used in Toledo this summer, where the city fathers have been inclined to do a little experimenting, the demand for paving brick, locally, has not been great, and this has been true of all of the larger cities in this territory, although a big call has come from the smaller cities, all of which have favored the brick for paving purposes. Humane Officer Henderson is waging a war on the use of creosote block for paving purposes on Toledo streets, and in a recent published interview said: "The wooden block is the hardest pavement on the animals that there is and ought to be avoided by a city interested in its dumb animals. When Summit street was paved with creosoted block, complaints grew regular about horses falling down, breaking legs, being badly bruised, etc. In the past week, seven such cases have been reported and in one case the horse had to be shot."

There are likely to be some excellent paving contracts let yet this summer, among them being Detroit avenue from Toledo to Maumee, a distance of ten miles or thereabouts. William H. Gould, resident engineer for the State Highway Commission, recently announced that the plans were about complete and would be ready to go to the county

commissioners within a few days. The commissioners have signified their willingness to co-operate with the state in paving the road with brick. The improvement will cost about \$24,000, \$16,000 of which will be paid by the county and \$8,000 by the state. Real estate men have already commenced platting their property along the road in anticipation of this action. Detroit road is the oldest road in the county and one of the finest in the state, and it is because of this fact that the state has decided to give it recognition. This road is a favorite with motorists and was the old military highway constructed by the pioneer armies of Hull and Winchester and Wayne and before that time was an old Indian trail. It leads all the way from Fort Wayne to Detroit. The paving of thirty-eight miles of this old road through Monroe county, Mich., is also under contemplation.

Many of the smaller cities of the state contemplate some excellent paving jobs before winter sets in. The city engineer of Akron, Ohio, is preparing plans for 75,000 square yards of brick paving in that municipality, which, with the accompanying sidewalk construction, will cost more than \$100,000. Wooster, Ohio, is to have one and three-quarter miles of brick road on concrete base for the Apple Creek and Wooster road; Lorain, Ohio, is to have 3,500 square yards of brick paving; Findlay, Ohio, is coming to the front with the repaving of Main street at a cost of \$40,000; Wellsville, Ohio, is receiving bids until July 8 for paving Fifth street with vitrified brick, and Marion, Ohio, has set up a contest for nearly 1,000 square yards of paving within the confines of the city and will receive bids until July 11, brick, wood block and asphalt being preferred materials.

James E. Fox has been named receiver for the Fox Clay Products Company, a brickmaking concern located in Washington township, Lucas county. Application for the appointment of a receiver was made by Timothy Hurley, of Detroit, a stockholder in the concern.

Work has begun on the new high school building to be erected in Van Wert, Ohio, this summer. The modern building, which will be of brick, is expected to cost in the neighborhood of \$100,000, which sum has been appropriated for its construction.

The Hydraulic Press Brick Company, of Toledo, is operating its plant here at full capacity and will continue to do so until the yard is filled up. This concern has not cut the price of brick, although the demand is acknowledged to be low. "We would rather keep our brick than assist in demoralizing the prices," was the statement of the manager.

T. O. D.

TRADE NOTES.

From an unknown source, fire started in an immense wood "pile" containing between two and three hundred cords of wood at the plant of the C. E. Williams Brick Company, San Antonio, Texas, and on account of lack of water, was simply left to burn itself out, entailing a loss of \$700. A stiff breeze blew the blaze away from the buildings, otherwise the entire plant would have been destroyed. The wood burned for two days and a night.

The Savage Mountain Fire Brick Company, Frostburg, Md., has completed an addition which increases their capacity 2,000 brick per day. They have under construction a new switch, another large shed and several minor improvements. These works make the famous "Savage Mountain" roof brick and have been in the Gorsuch family over forty-seven years. Charles C. Gorsuch is president and John A. Caldwell, treasurer and manager of the company.

In a recent communication, C. E. Baudisch, drain tile manufacturer of Brownsville, Texas, says: "Drain tile is the coming industry along the border line between Texas and Mexico, especially in the Rio Grande Valley, where two drainage ditches have been started, one of which alone will require 5,000,000 feet of tile of four, six, eight, ten and twelve-inch sizes. The largest demand in this section is for six and eight-inch tile. The price of four-inch tile is \$20.00; six-inch, \$38.75; eight-inch, \$70.50; ten-inch, \$125.00; 12-inch, \$185.00. Wood costs \$2.00 a cord, and common labor costs seventy cents and one dollar a day."

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



ORE than a million and a half dollars is the gain in building operations which the first half of the year 1911 shows over the corresponding period of 1910 in the city of Milwaukee alone, and there is every reason to believe that there has been a commensurate gain throughout the State. All of which explains the optimism in the clayworking trades.

Milwaukee's record is that of a city which is making sound progress. The figures compiled by the office of the building inspector are interesting. During the first half of the year, 2,330 permits for as many structures were granted, with a total stated value of \$6,246,722. During the first half of 1910, the number of permits issued was 2,061, valued at \$4,734,540.

Six and a quarter millions for new buildings is quite a record, even for Milwaukee, which has been growing fast for twenty years or more. The most commendable feature of the record, too, is that brick has come back into its own, and in the list of buildings erected, or under construction, an unusual number show "brick and steel" as the principal materials. Several large apartment houses are going up, and concrete is a surprising minor, or entirely lacking, factor. Concrete is notoriously unsanitary, or at least unhealthy, for living purposes, and the few apartment houses built on the reinforced concrete principal during the past two or three years are virtually being shunned by flat-dwellers who know that flat-dwelling is bad enough as it is and refuse to run further risk of damaging health.

The concrete and block basement is also in its decline, for the same reason of sanitation. While it is admitted that the cost of cement or concrete basements is considerably less than for brick, the advantages of the latter offset the saving in the use of the former.

Wisconsin's production of brick and tile will doubtless reach the record mark this year. Every yard is working to the fullest capacity at this time and with progress in mode of operation and methods of manufacturing, each yard has a much larger capacity than formerly. Prominent clayworkers say there is no slack-up in the demand for their products and few admit that the concrete riot of a few years ago had much effect on them.

The Kimball Brick Company, of Fon du Lac, Wis., for instance, is producing 5,000,000 brick this year, somewhat more than the average of last two years. It has been worked to fullest capacity for several years and recent improvements have enabled the company to make more brick with the same sized yards. Two large oval kilns have been erected at the plant and these are used to make a special glazed press brick and glazed tile. Each kiln or oven has a capacity of 80,000 brick. The drain tile business of this company has grown wonderfully during the last few years, as farmers and large land owners are caught by the spirit of conservation and are beginning to utilize much of the waste land or marshes, as well as drain the bottoms and make good farming land out of it.

Every brick yard at Racine, Wis., has been working night shifts and overtime on the day shifts in order to cope with the demand for common brick. During the recent spell of torrid weather, resembling temperature at the equator, the record-breaking production was cut in two by enforced lay-offs, but with the return of seasonable and reasonable summer weather the work is going on in good style.

In numerous cities of Wisconsin there have been hard fights among residents owning property abutting on streets to be paved in regard to the kind of material to be used. Naturally, brick has been the winner. Thus at Kenosha, Wis.,

a fight of several years' standing was ended by the choice of Barr brick on concrete foundation and asphalt filler by a majority of residents who went to other cities to determine how brick stands the gaff. Christ. Peterson was awarded the contract for paving the street with Barr brick.

At Wausau, Wis., the insistent demand of property owners that their street be paved with vitrified brick has finally been granted by the city council. The residents fought long and hard against almost insurmountable obstacles but finally had their way.

The Barron Brick Company, of Barron, Wis., is employing thirty-six men and six teams this season. The first lot of 350,000 Barron red pressed brick, which are granted to be equal in every way to the finest brick of this class manufactured anywhere, was shipped during the middle of June, and the average daily output since that time has been 35,000. Many improvements were made to the plant during the off season. Five new drying sheds, 150 feet long, and a 90-foot addition to the kiln are now under construction. The company is only a youngster in the field, but, like everything else in the booming, growing and progressive New North of Wisconsin, is making itself a great influence.

An interesting piece of construction work is under way at Merrill, Wis. Instead of using steel as material for the mammoth smokestack of the new power house for the municipal water works plant, brick has been selected. The stack will be of the radiating type, 85 feet high, built of interlocking brick with air passages. It was hoped to complete the stack in twelve days.

The creditors of the defunct Northwestern Tile Company, of Milwaukee, at one time one of the largest concerns of its kind, will realize only 25.2 per cent on their claims. The final dividend, amounting to 5.2 per cent, has just been declared. The total liabilities were \$50,162.

A. BADGER.

WEDDING BELLS.

The marriage of Miss Cornelia Stephenson, the daughter of Mr. and Mrs. L. L. Stephenson, of Birmingham, Ala., and Mr. Gordon B. Massangale, occurred Wednesday, June 14, at the home of the bride. Miss Cornelia has attended a number of the conventions of the N. B. M. A. with her father and has made many friends, particularly among the ladies of the convention, all of whom, we are sure, will join with us in wishing the young couple much happiness.

FIRE PREVENTION.

The most comprehensive and thorough work ever published on that subject has been issued in text book form by the American School of Correspondence. Primarily prepared for the students of that school, it is so complete and covers every detail so perfectly that it is equally serviceable for those away beyond the student stage, for engineers and architects, officers of fire departments, insurance men, builders, building department officials, and all interested in sane and safe construction. It reviews the history of fire, the awful conflagrations of past and recent years, the causes of fire, the work that has been done in fire-extinction, the province of insurance, it tells just how a building should be done, it develops the whole scheme of real fire prevention and does it so interestingly and well that you read it as intently as you would a stirring novel and receive such impressions that you unconsciously apply the knowledge you have gleaned to everything you may have to do with a building.

The work comprehends a model building code, one that is based upon all that has been done in the code line heretofore and the experience gained by the most expert in construction. The Society of Building Commissioners hopes to have it adopted uniformly by all our cities before long.

The book, code and all, was written by Architect Fitzpatrick of Washington, D. C., and that is sufficient assurance of its thoroughness. His splendid articles on fire in the various popular magazines probably did more than anything else to arouse general interest in fire prevention.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

BRICK BUSINESS in Kansas City is in rather a demoralized condition at the present time. The manufacturers and jobbers are all striving for business, and as there is not nearly enough to go around, it has developed into a price-cutting proposition with a good many, and profits have been entirely done away with in the effort to keep the plants in operation. One jobber remarked that he had never before seen the time when business was conducted on so close a margin, and that he was not getting one-tenth of the business he tried for, and in practically every case it was because someone else underbid him. That means that the other fellow was willing to do business on still a less margin than this man thought possible.

The brick plants located in the city are not generally in operation. Only the Diamond yard of the Kansas City Hydraulic Pressed Brick Company is running, and the Lyle Brick Company and Flannagan Brothers are still burning. Plants which turn out nothing but common brick are hit the hardest, for that is the kind of brick on which competition is keenest and profits smallest; in fact, it has reached the point where there is a loss on practically every sale of common brick to someone. The prices of Kansas gas burned brick, f. o. b. cars at the present time, is \$5.50 per thousand, and that is said to be about fifty cents a thousand less than they cost.

Plants having a good output of face brick, or paving brick, and a demand for that class, are able to sell their common brick at a small loss and still pull through with a profit, but those burning nothing but common brick are up against a pretty stiff proposition. Even the plants making a good face brick are unable to find a ready market for all of them, and are not very well pleased with the situation.

Several of the largest plants in Kansas are reported to be considering a shutdown, preferring to keep their machinery in good condition so they can be ready for the demand when it comes, to wearing out the machinery producing brick at less than cost in an attempt to force the demand. This is the only sensible way to handle the situation. It is better to not produce than to produce at a loss, for if the brick are not produced there will be a demand for them at a profit when the demand becomes real and not forced.

Business in the surrounding country is very limited, little is doing in the way of brick buildings and even the paving business has dropped off considerably. A great deal of this hesitancy about doing new work is now blamed to the dry weather, which has been prevailing all spring, but it must be remembered that the hesitancy to invest came even before the dry weather, and it is hardly probable that the investors were so keen that they were able to know in advance that there was going to be a drouth.

As for the dry weather, it has already cut the hay crop down at least a half, and has damaged the oats and flax crop, while pastures are now dry. The oats and flax crop is a small matter, as neither crop is large in this territory, but the shortage of hay and pasture is likely to be quite a serious matter, as it will cause stock to be shipped to market before it is ready, and this will be a handicap to the country for a good while to come. A good rain soon will prevent this and then there should be a little effect upon building operations from the drouth, as a good rain will bring the corn out all right and the wheat crop just harvested is about up to the average, and these are the two big crops of this territory.

In the city there is a vast amount of building depending upon the starting of the new union depot, and from present indications the railroads are in no hurry to begin. They have the excavation completed but are now trying to have new ordinances passed to change the grade of the belt line through the city, and are letting everything rest until an agreement can be reached on this proposition. To the present time the work done by the railroads on this proposition has been of a half-hearted kind, indicating that they were

trying to kill time, for some reason, to hold everything ready for them at some future date. This may not be the case, but actions indicate it, and this has made investors very timid about starting their own buildings, which would be useless until the new depot was completed.

To size up the entire situation, everyone seems to be waiting for the other fellow to do something. The brick plants are all waiting for the others to close down, and the building investors are all waiting for some one else to start to building, so it is a waiting game all around, with the brick manufacturers holding the bag.

F. A. PARKER.

BOOSTING NORTHERN MINNESOTA.

At the meeting of the Northern Minnesota Development Association, held in Duluth in June, State Immigration Commissioner George Welsh, stated that in Northern Minnesota there are yet 1,500,000 acres of Federal lands open for homestead entry, not including those withheld from settlement for various reasons. Besides these, there are approximately 2,800,000 acres of state lands unsold. These lands are now lying idle and without taxation, so the cost of all public improvements made by the settlers must be borne by the deeded land. This is a great burden to the settlers and a hindrance to the development of the country. It is necessary that these public lands be transferred to private ownership as soon as possible. Of the 5,000,000 acres of swamp lands in Northern Minnesota, a large part is comprised of the Federal lands remaining in the state. Congress does not seem inclined to drain these lands, although they make the most fertile areas when reclaimed, so it would seem that the best and most feasible way would be to start an agitation to have the Federal lands ceded to the state for reclamation. With the new State Reclamation Board overseeing the work, the redeeming of these swamp lands would then progress beyond our most sanguine expectations, and a classified survey might also be taken.

Essentials in Development Work.

Mr. A. J. Maguire, superintendent of the Northeast Experiment Station and member of the new State Reclamation Board, recommended that it engage its energies in three separate lines of work: first, an accurate survey of the state lands in Northern Minnesota, so that the prospective settler can get definite information on this point from the state land office; second, the clearing and draining of such lands, or parts of them, so that the settler can make a living from the start; and, third, the selling of these reclaimed lands only to farmers, so as to avoid their continued idleness in the hands of speculators.

Resolutions on Drainage

and reclamation were adopted as follows:

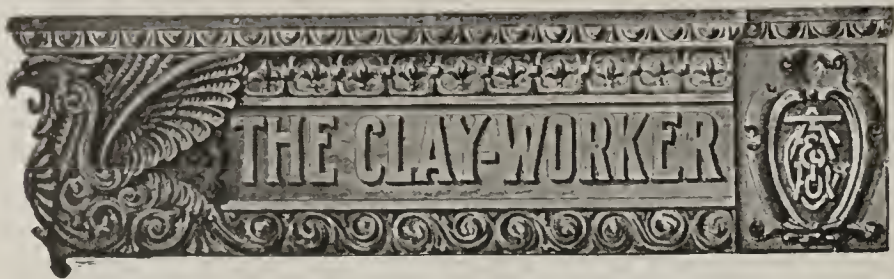
"Resolved, That we indorse the act creating a reclamation board for the improvement of state swamp lands, as not only justice to the people of Northern Minnesota, but a good business investment for the whole state, bringing the state land into production years sooner than otherwise—production that is of more value to the state than the purchasing price of the land.

"We therefore pledge the support of this organization in behalf of this work as fast as its expenditure proves of value and to all matters best calculated to advance the work of the reclamation board in effecting permanent settlement and cultivation of all state lands adapted to agriculture.

"It is the belief of the association that every purchaser of state lands should have at his disposal for the easiest and least expensive examination a correct and comprehensive description of the soil and agricultural conditions of all state lands; it is the sense of this association that the state auditor be requested to cause such a survey and report on such lands to be collected to the extent that funds for such purposes are available.

"Be it Resolved, That the state drainage commission be urged to reconsider its action in rejecting the drainage project for the northeastern portion of Roseau county, and that the said commission be asked to proceed with the drainage of the vast area of good, fertile lands that would be affected, and that it may be reclaimed, settled and developed; and

"Resolved further, That a copy of this resolution be sent to the state drainage commission.



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TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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CURRENT COMMENT.

The conspicuous part the freight item plays in brick, tile and other clay products should create a strong incentive to cultivate industriously the home market.

We are all interested in the coming opening of the Panama canal, but really those inland water-ways closer to home need more attention and, too, promise more direct benefits.

There ought to be nearly as much good brick used in paving big sewers as is used in paving big streets, but there is not. Are you doing anything to push the interest in clay products for sewer paving?

It is comparatively easy for the brick man to demonstrate to the public that the time has arrived when, counting paint and the cost of repairs, it is cheaper to build the walls of a house with brick than with lumber.

The President has just had his silver anniversary and will perhaps feel like celebrating a golden jubilee if congress will hurry on and complete its work and do what he wants done.

From both England and Germany we buy annually about a quarter million dollars' worth of pencils, from which it might be said that these two older countries help us make our mark in the world.

A well known furniture man who has made a success of his business is being pretty widely quoted now as saying emphatically that the best friend every business man has is the trade paper. That the trade paper is a good and convenient friend no one who has made a study of the subject

feels disposed to dispute. How good it may be to one depends somewhat on how he makes use of it.

Trust busting and bribery investigations are bringing to light the fact that there are many standards of morals or codes of ethics and they are about as varied in colors as was Joseph's coat.

Bargain sales in clay products (cut prices) are not the thing to boost business with. The way to increase the use of clay products is by talking of their better qualities and their many uses and not by what might be termed cut-throat efforts.

With the approach of dog days some of the cities are passing ordinances to require the muzzling of dogs. Incidentally, about the same time, some of the satirical editorial writers are suggesting the muzzling of snobs or at least the bridling of their tongues.

The mid-summer season is usually an active one in repairing and constructing school buildings and it should be a splendid occasion for pushing clay products, especially the fire prevention idea, because if there is any structure which should be absolutely safe it is the school building.

It will be coronation stories instead of fish stories this trip, and the question is, will the fact that the returning wanderers from that great event coming back about the end of the vacation season cause these stories to be taken with the same grain of salt that is usually applied to a fish story?

It looks like congress is giving a good illustration of a man who is skilled in killing time instead of doing work. Also, it looks like the best place for congressional loafers is at home whittling on the boxes in front of the local store. Maybe some of them will be left there next time and some real workers sent to Washington.

GROWING INTEREST IN BRICK HOUSE PLANS.

It is refreshing to note that one of the ideas that has been propounded right along by THE CLAY-WORKER for boosting brick and promoting the use of clay products, one in particular, that of making house plans of modest cost and attractive design, is meeting with quite a lot of favor and is gaining ground rapidly.

One noticeable feature of the widely awakened interest in brick house plans of this class is in the fact that the publishers of architectural books and house plans of various forms that formerly confined themselves almost exclusively to frame house plans are now giving a lot of special attention to designs for brick houses of modest cost.

Not only are the people who get out books of house plans and things of that kind giving lots of attention to the brick in structural work, but now architects and builders, contractors and people who build houses for sale are featuring in their advertising plans of brick bungalows and houses and also brick veneered houses. Indeed, there seems to be a general awakening all along the line, both in beauty and the value of brick houses of every size from the modest cottage up to the mansion, including the solid brick wall, the veneered brick, and the hollow block fire-proof wall and practically a full line of clay building products.

There is probably nothing that will do more to promote the general interest of brick and awaken the public to the point of more extensive use of it in general building than this featuring of plans for brick houses by nearly everybody. It is the brick men themselves that set the pace and started the ball rolling. Others seeing them doing this naturally find it incumbent upon them to fall in line and offer some-

thing along the same line, even more attractive if they can.

Moreover, even now that interest has been awakened and things are moving along quite smoothly, it is not a time for the brick men themselves to cease their efforts. They should keep at it, keep the subject alive and not let it become a passing fad or fancy, but keep it to the front and the feature item in the making of all sorts of house plans for the future.

FULLER'S EARTH AN ACCIDENTAL DISCOVERY.

Fuller's earth in the United States was developed as a result of accidental discovery, according to Jefferson Middleton, of the United States Geological Survey, and this accidental discovery came from an effort to burn brick.

For a great many years our supply of fuller's earth was imported from England, but about 1893, when an unsuccessful effort was made to burn brick on the property of the Owl Cigar Company, at Quincy, Florida, one of the cigar manufacturers who happened to be familiar with fuller's earth called attention to the resemblance between the clay that couldn't be burned into brick and German fuller's earth. As a result of his suggestion the clay was tested and found to be fuller's earth and from this developed the fuller's earth industry in the United States, of which Florida is still the center of supply.

One may add, as a sort of warning to this interesting story of finding fuller's earth in a supposed clay bank, that brickmakers need not get the idea from this that any dirt or clay that they find difficult to burn into brick may possibly be fuller's earth. There have been many supposed-to-be fuller's earth discoveries since, but few of them have turned out to be worth while.

CEMENT AND ITS RELATION TO BRICK.

There is presented right now the peculiar condition of the cement industry increasing in volume and yet at the same time it is becoming of less importance as a rival to brick.

We get this impression by reading between the lines of a recent report from the Geological Survey on the cement industry and reflecting on actual conditions in the trade of building, the actual position occupied by cement and brick and their relations to each other.

To say that it is a cheerful idea for the brick manufacturers to entertain goes without saying, and, moreover, it is an idea that we believe the test of time will demonstrate. That we will find eventually cement entering into building construction along with brick, more of it being used all the time and at the same time more brick being used.

In other words, there will not be so much pushing of cement along lines that were advocated a while back, to replace brick for general house construction, but more pushing of it to replace steel construction work in large buildings, for foundation work and for use in making mortar with which to lay brick.

The figures compiled by the Geological Survey show for the cement industry of 1910 an increase of ten million barrels over that of 1909.

There seems to be no question but what the cement industry made a new record in 1910 and the figures compiled show a total production of 76,934,675 barrels, valued at \$68,052,772. This is an increase of 15.3 per cent in quantity and of 26.9 per cent in value.

It all indicates that the cement industry is getting on a better footing generally. It is getting in position to realize more on its product. Something nearer a fair value. The boom days and the wild following of various schemes and untried ideas seems to have passed and it is finding its place in the structural world in a way that makes for the

permanency of the business and seems to augur for much better times in the future both in the manufacture and the handling of cement.

The best of it all is that along with this comes a feeling not only in the brick industry, but among the cement people as well, that its progress and success need not be in the way of battling against clay products, but is to come more by working in connection therewith. That each will progress in the point of quantity used in the future and that while at times there may be some rivalry as to which will enter into wall construction, in the general work of the future there will not be anything like the feeling of rivalry that existed in the past. There will be more replacing of steel than replacing of brick and there will be a better and saner use of cement products generally.

OUR IMPORTS AND EXPORTS.

From our figures of commerce and navigation for 1910, as shown by the year book of the Bureau of Statistics, we imported brick and tile to the value of \$224,892, practically one-fourth of a million dollars worth. The greatest quantity came from England. In fact, a little more than half the total product was from England. The next important source of supply was Belgium, followed by Scotland and Germany in the order named. England, however, was the main source of supply of imported brick and tile.

China, porcelain, parian and bisque ware, not decorated, were imported to the extent of \$1,196,740 worth. The largest quantity of this came from Germany, usually the trade is fairly evenly divided between Germany and England, but the previous year England was in the lead. In fact, it usually is. Last year the Germans captured enough of our trade to amount to \$424,238; England, \$351,599, and France, \$297,520. The balance of the trade was scattered between Italy, the Netherlands and several other countries, incidentally among them being Asia.

It was in the decorated or ornamental ware that we did the big buying last year. Of this product we bought a total of \$9,359,176. Here, again, Germany led by supplying the total of \$3,510,159, followed by England with a total of \$2,123,678, France with a total of \$1,488,114, and Japan with \$1,250,202. The other really important source of supply was Austria-Hungary, with a little more than three-fourths of a million.

In addition to that specified above there was other stone and china ware imported to the value of \$240,218.

An examination of the other side of the ledger shows that we exported earthen and stone ware to the value of \$802,832, but we didn't export much of this to Europe. A little more than half of it went to Canada, then came Mexico and Cuba as the next customers of importance. In other words, fully three-fourths of our exports in earthen and stone ware stay on this side of the water.

Of china ware we exported \$99,105 worth. In this product while a lot of our best customers were the same as for earthen ware, we did put some across to England, a total of \$12,153.

We exported clay to the value of \$123,115, the bulk of it going to Canada, but we did send some to both England and Germany.

Of building brick and tile we exported to the value of \$205,485, which made it the best year in three, but not up to the years 1906 and 1907. Nearly two-thirds of the building brick and tile exported went to Canada and the next important customer was Cuba.

Of fire brick we exported a little over one-half-million dollars' worth, the exact figures being \$566,230. Of this, Canada consumed \$376,320; Mexico, \$119,165, and Cuba, \$18,287, all of which goes to show us that Canada, Mexico and Cuba are so far our best customers for brick and clay products.

It may be said by way of advisory comment on these

figures that it looks like there is room to not only enlarge our trade with Canada, Mexico and Cuba, but there should be opportunities for development in all the Central and South American countries and in this direction we should look in the future, especially for an enlargement of trade in earthen and china ware and also for the sale of many other clay products.

A CORRECTION.

Our attention has been called to an error in an item in THE CLAY-WORKER for June in which it is stated that the city of Sheboygan, Wis., has contracted for paving brick which would cost about \$20.00 per thousand. Our correspondent says that the price of brick sold at Sheboygan is nearer \$25.00 than \$20.00, and that the brick were sold to J. Rasmussen & Sons, of Oshkosh, who contracted to lay the pavement complete for the city of Sheboygan at \$1.94½ per square yard.

UNDER THE BLACK FLAG.

In olden times piracy was quite common. It was also quite dangerous, for those who sailed the sea under the black flag neither gave nor expected quarter, but paid the penalty of death when captured. That is why piracy ceased and became but a memory, or a theme for fiction—that is, on the sea. On land it is quite different and piracy of one sort and another still goes on because, perhaps, there is no punishment to fit the crime. For instance, our Chicago contemporary, in its issue of June 15, publishes as the feature article of that number a paper by Prof. A. V. Bleininger on "The Tunnel Kiln," which was prepared for and read before the Illinois Clayworkers' Convention in Chicago in January. No credit at all is given to the Association. In the same issue is another paper, that by W. E. Dunwody, of Macon, Ga., on "Increase Sale of Brick," which was read at the Georgia Hardware Convention, but nothing is said of this latter fact. Literary piracy of this sort may not be dangerous, but is most disreputable.

IF.

Copyright, 1910, by the Author, Rudyard Kipling.

If you can keep your head when all about you
Are losing theirs and blaming it on you;
If you can trust yourself when all men doubt you,
But make allowance for their doubting, too;
If you can wait and not be tired by waiting,
Or being lied about, don't deal in lies,
Or being hated, don't give way to hating,
And yet don't look too good, nor talk too wise;

If you can dream—and not make dreams your master;
If you can think—and not make thoughts your aim,
If you can meet with Triumph and Disaster
And treat those two imposters just the same;
If you can bear to hear the truth you've spoken
Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to, broken,
And stoop and build 'em up with worn-out tools;

If you can make one heap of all your winnings
And risk it on one turn of pitch-and-toss,
And lose, and start again at your beginnings
And never breathe a word about your loss;
If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you
Except the Will which says to them: "Hold on!"

If you can talk with crowds and keep your virtue,
Or walk with kings—nor lose the common touch,
If neither foes nor loving friends can hurt you,
If all men count with you, but none too much;
If you can fill the unforgiving minute
With sixty seconds' worth of distant run,
Yours is the earth and everything that's in it,
And—which is more—you'll be a man, my son!

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 91.]

FOR SALE, WANTED, ETC.

FOR SALE.

10 x 18 Buchanan Jaw Crusher, good condition. Also, 2 pair 14 x 28 crushing rolls. Address BOX 6—B. T., 61 dm Care Clay-Worker.

FOR SALE.

Vitrified brick plant in St. Joseph, Mo., with 17 acres of the finest quality of shale. This is probably the best opportunity in the country. Can be bought for less than its actual value and on the most reasonable terms. It is also a great Hollow Tile proposition.

VAN SANT & VAN DEUSEN,
1107 Corby-Forsee Bldg.,
61 dm St. Joseph, Mo.

For Sale, Want'd. Etc., Ads Continued on
pages 77, 79 and 80.

"A Quality Above All Others in Clayworking Machinery."

**"It's easy enough to be pleasant
When your dryer runs like a song,
But the man worth while
Is the one who can smile
When his dryer's all dead wrong."**

From East and West they say it's best because it leads in every test. Its labor needs are very small; in fuel consumed it beats them all. In time of drying it is quick; in quality they're all good brick. Just see what others have to say on how this dryer dries their clay. If you have dryer troubles too, just let us tell you what to do. We'll send a plan and tell the cost and show what money you have lost, for we can save you every day the money you have thrown away. These men will tell you what they do—with our dryer—so can you.



BEST DRYER ON THE MARKET

THE BROOKSIDE BRICK COMPANY

LOUIS KOBLITZ, Treasurer

3639 W. 56th St.

Cleveland, Ohio, May 29, 1911.

American Clay Machinery Co., Bucyrus Ohio:

Gentlemen—The Pipe Rack Dryer you installed for us has given such splendid satisfaction and so far exceeded our expectation, that we feel indebted to you to the extent of writing to you and telling you of our experience with it during the past three months.

We have 30,000 brick in the dryer by ten o'clock each morning and on these we turn the exhaust steam to start drying. By two o'clock in the afternoon the dryer is completely filled with 60,000 brick, then the live steam is turned on the entire dryer. The first 30,000 brick are uniformly dry by eleven o'clock that night, and the last 30,000, which did not have the benefit of any exhaust steam, are uniformly dried by three o'clock the next morning, at which time all steam is shut off the dryer.

The drying is accomplished with one boiler of 100 horsepower capacity at a fuel cost not exceeding 15c per thousand brick. The small boiler capacity required and especially the low drying cost has far exceeded our expectations.

We are well pleased with the construction of our dryer as all the material used was first class in every respect, and we were also well pleased with the courteous treatment we received from you.

We would be only too glad to show our dryer and explain its operation to any of your prospective customers and tell them how well pleased we are with it. We think you have the best dryer on the market and brickmakers should investigate it before buying any other.

THE BROOKSIDE BRICK CO.,
(Sig.) Lawrence B. Koblitz, Pres.

MATTERN'S MESSAGE

Mr. Ed G. Mattern, of Pennsylvania, writes interestingly to all clayworkers as follows:

Allentown, Pa., May 15, 1911.

The American Clay Machinery Co., Bucyrus, Ohio:

Gentlemen—The American Steam Pipe Rack Dryer with condensing vacuum system which was recently sold to me and installed on my brickmaking plant by your company, is a success and I am highly pleased with it. I will be glad to show it and recommend it to anyone wishing a Soft Mud Brick Dryer.

Very truly yours, ED G. MATTERN.

WE'LL BE GLAD TO FIGURE WITH YOU.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Be sure and mention THE CLAY-WORKER in answering ads.



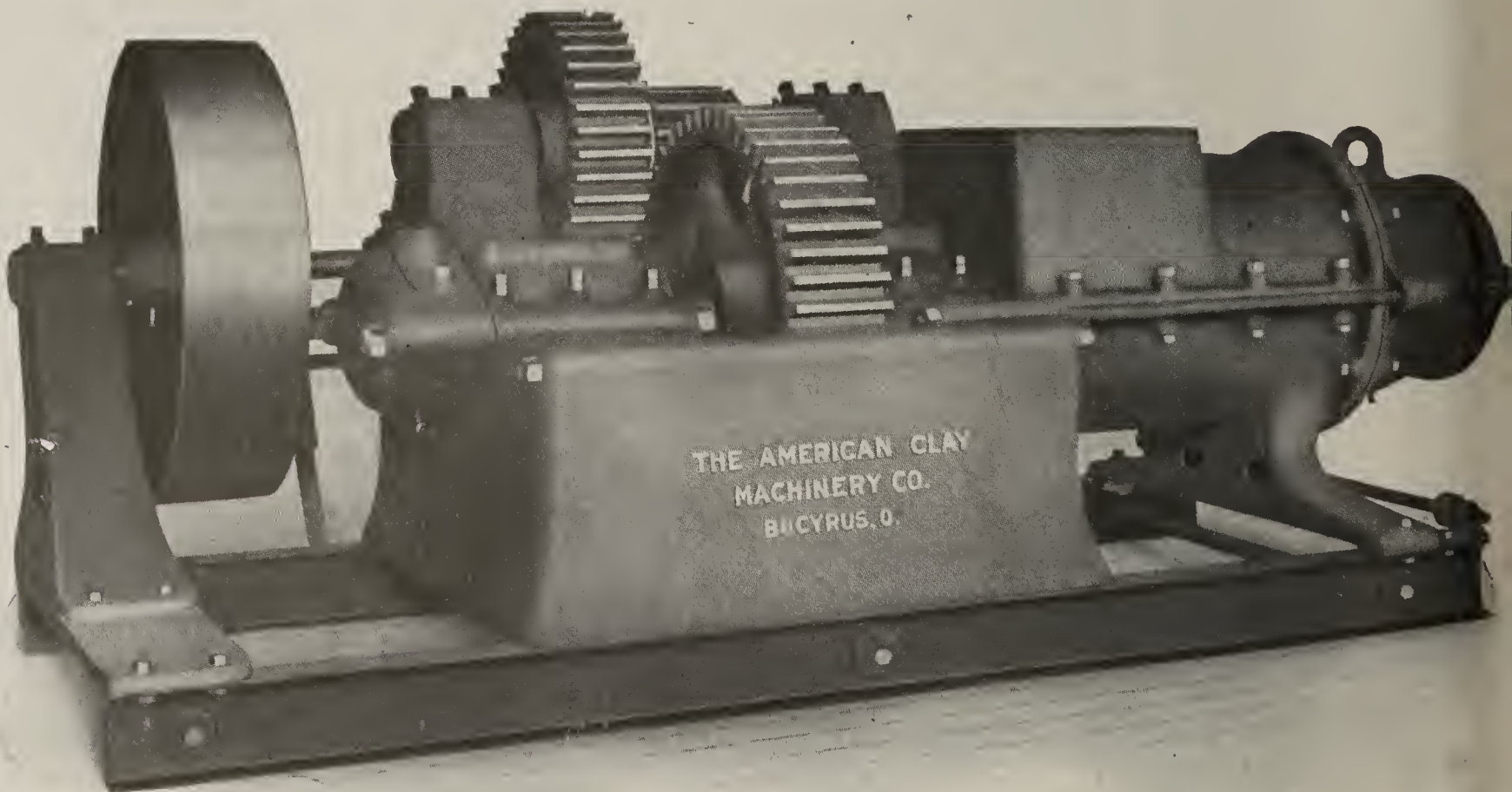
"A Quality Above All Others in Clayworking Machinery."



The Greatest Auger Brick

The No. 65 Auger Brick Machine is designed for the manufacture of brick, tile, hollow blocks and similar products. The construction of the machine is high class throughout, the material used is of the best quality and the workmanship of the highest standard. The machine is built with a high factor of safety.

It is entirely self-contained, being mounted on heavy steel I-beams. The massive self-contained gear frame contains all the principal journal bearings which are long and well babbitted. The end thrust bearing is secured to the gear frame by heavy steel bolts. This bearing consists of two large chilled plates between which is a phosphor bronze wearing plate revolving in a bath of oil. The main shaft is hammered steel $6\frac{1}{4}$ inches in diameter. The hammered steel intermediate shaft is mounted in the gear frame above the main shaft where the bearings are accessible and the gears may be protected from the dirt. The gears are covered with a neat steel housing. The gears are heavy and made with strong teeth, designed for smooth and quiet operation. All end thrust is taken on steel rods which parallel the main shaft



BOTH SIDES OF THE NO



Much the Largest Manufacturers of Clayworking Machinery in the World.

Be sure and mention THE CLAY-WORKER in answering ads.

"A Quality Above All Others in Clayworking Machinery."

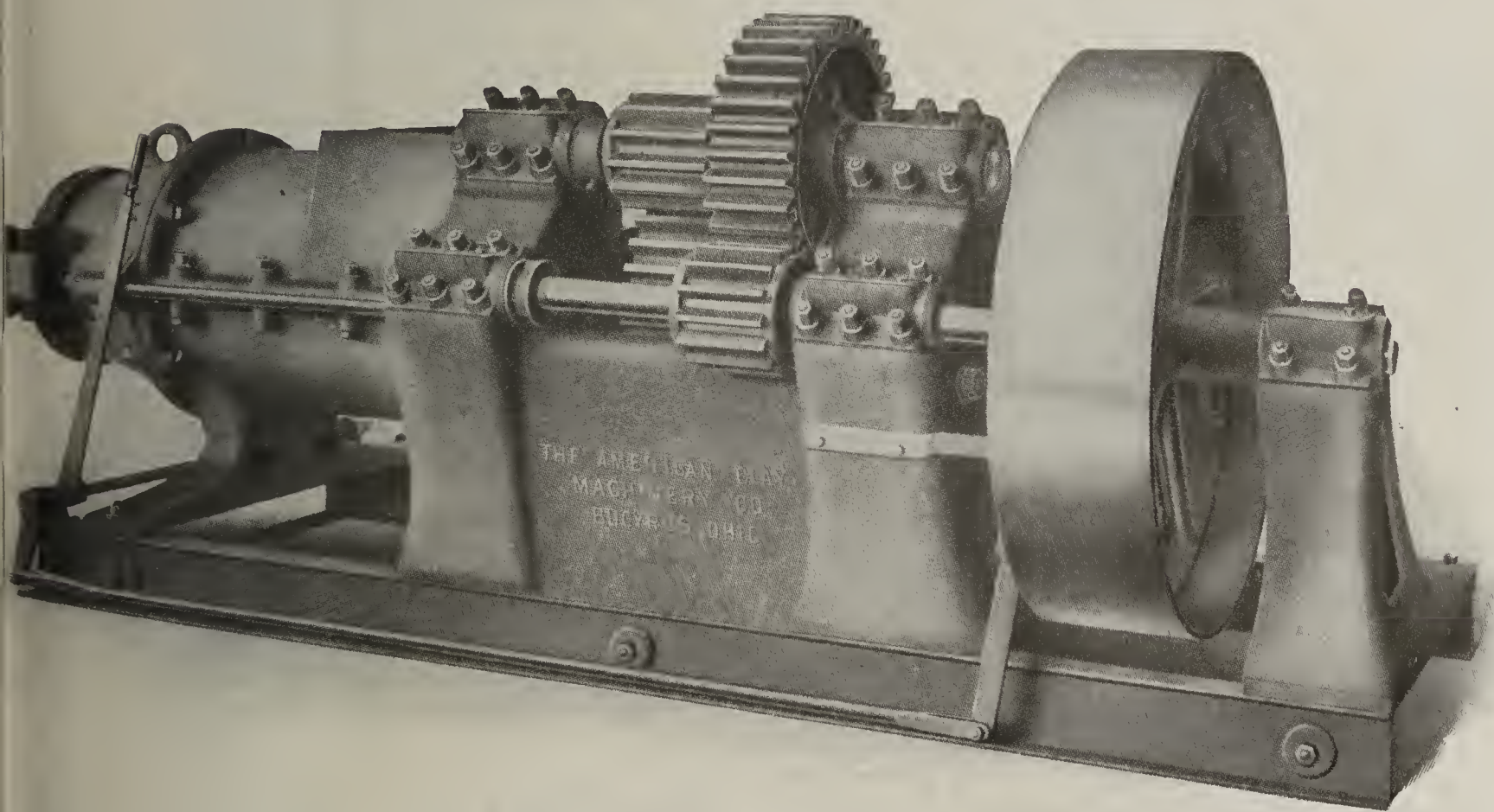
Machine on the Market

and pass through the gear frame. The nozzle is fitted with a renewable corrugated lining made of a special mixture of white and gray iron which is also used in making the auger and knives. This special mixture, we have found, gives great strength and wearing quality. The die front is hinged to the nozzle and provided with a safety-pin attachment which will shear off should the clay become too stiff and the strain excessive, thus preventing serious damage to the machine.

The machine is driven by a friction clutch pulley 48 inches in diameter, 12 inches face operating at from 250 to 300 revolutions per minute, capacity ranging from 7000 to 9000 standard size brick per hour.

We also equip this machine with automatic oiling system if desired.

THE AMERICAN CLAY MACHINERY CO.
BUCYRUS, OHIO.



5 AUGER BRICK MACHINE.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Be sure and mention THE CLAY-WORKER in answering ads.



"A Quality Above All Others in Clayworking Machinery."



Hats Off to Uncle Sam and the American Eagle

On the Fourth of July it's "Hats off to Uncle Sam and the American Eagle."

But the whole year round it's "Hats off to The American Eagle Repress."

The quality which has made the Eagle Repress famous is in the machine and not in its appearance. The quality of the material, the simplicity and perfection of the movement, the workmanship in the hands of men who have for years made the Eagle Repress a success, will always maintain its "quality above all others" no matter how closely the outside appearance of some would-be imitator may tally with the World's Famous Eagle.

As a brick man you believe that a brick house is a better investment than one of frame!
WHY?

Because the upkeep makes the brick house the best permanent investment. Repairs make the cheaper frame house expensive.

The same applies to Represses and other Clayworking Machinery. The Eagle is the better investment and a cheaper machine.

It will do more and save more than any other Repress.

Though the finest Elgin watch may have some resemblance to a Waterbury in appearance, there is still a world of difference in the value of the investment. You will be on the safe side if you buy the Eagle Repress and not an imitation.

The same high quality of material and excellence of workmanship is embodied in our long and varied line of Clayworking Machinery. We can always sell you machinery suited to your clay and product, an advantage to you well worth your consideration. We make every machine and appliance for the manufacture of every kind of clay products by every process. Each machine has "a quality above all others." Your letter will receive prompt attention. Write today about any machine or appliance in which you may be interested.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



Much the Largest Manufacturers of Clayworking Machinery in the World.

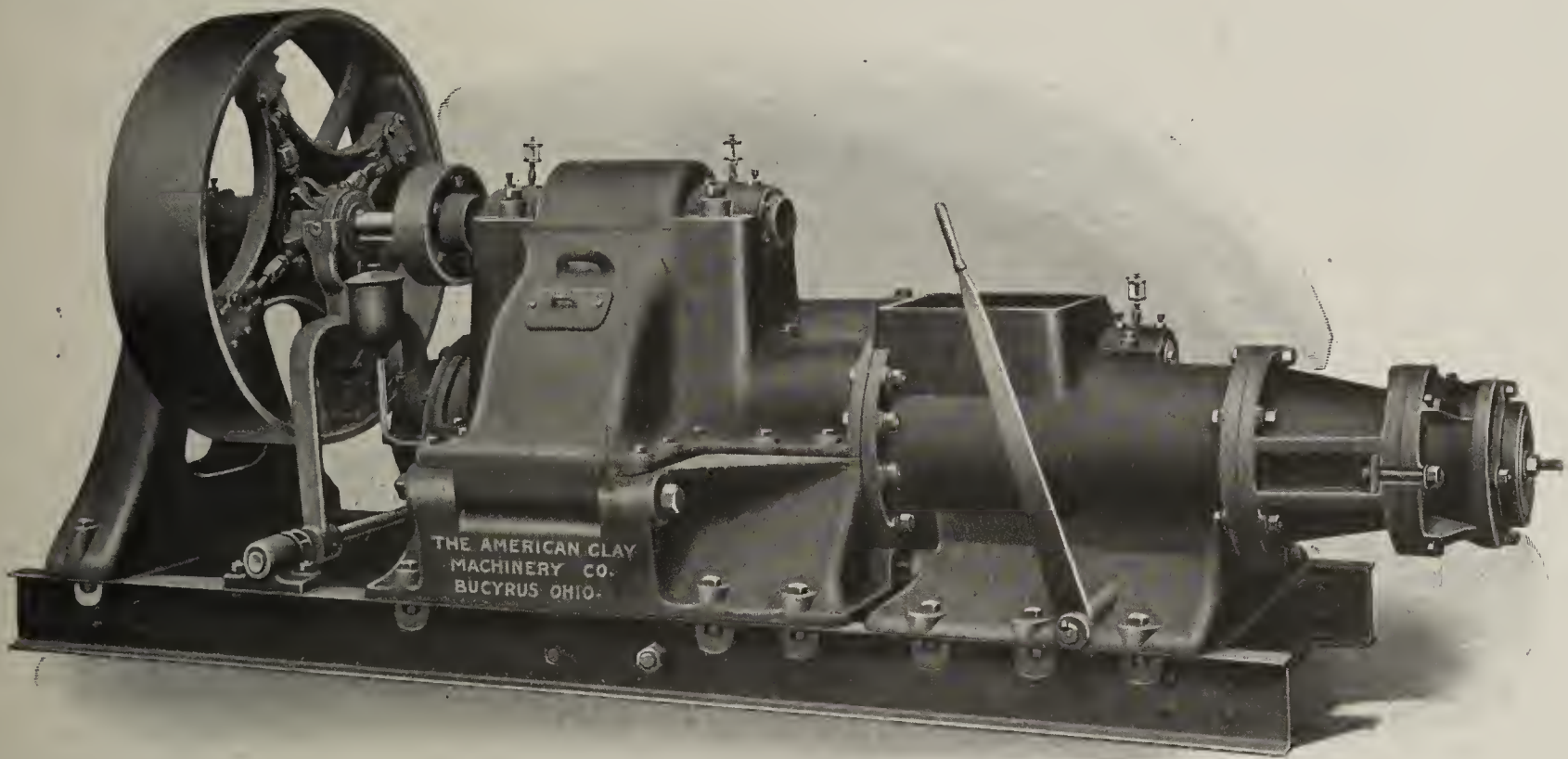
Be sure and mention THE CLAY-WORKER in answering ads.



"A Quality Above All Others in Clayworking Machinery."

More Tile With Less Power

The new No. 218 Drain Tile Machine will make more tile with less power than any other tile machine built. It is distinctive in other ways also, and though these distinctive features may be less apart they are equally important. The bearings of the 218 Tile Machine are brass bushed so that by changing the bushing the alignment is as good as new. The machine is built for speed and continuous service. The substantial "I" beams on which it is mounted, the self-contained frame and the outer bearing all insure accurate and permanent alignment. The gearing and excellent bearings mean easy running. The feed mechanism, shape of the barrel, nozzle and auger give the 218 Machine great speed. The ample proportion of all parts, the reinforcing and careful machining of parts all insure great strength and durability. The friction clutch and the break pin device give immediate control of the machine at the driving end, and safety from breaks at the expressing end. The careful buyer of a tile machine will find many points in the design and construction of the 218 Tile Machine which place it far in the lead of any other machines of the kind on the market. It is "the last



No. 218 DRAIN TILE AUGER MACHINE.

word" in tile machinery building and will be found to combine a quality which is making it a great reputation, but what is of equal importance to you, will make you a great amount of tile. This machine was designed to make 5,000 four-inch tile an hour, and other sizes in proportion. Those who are using the 218 Tile Machine say we have underrated it. The No. 218 Machine, while built for tile, is making excellent records on brick. For full description of the 218 Tile Machine, see the July issue of *The American Clay Magazine*, or write for description. We also build every machine and appliance for producing clay products by all processes.

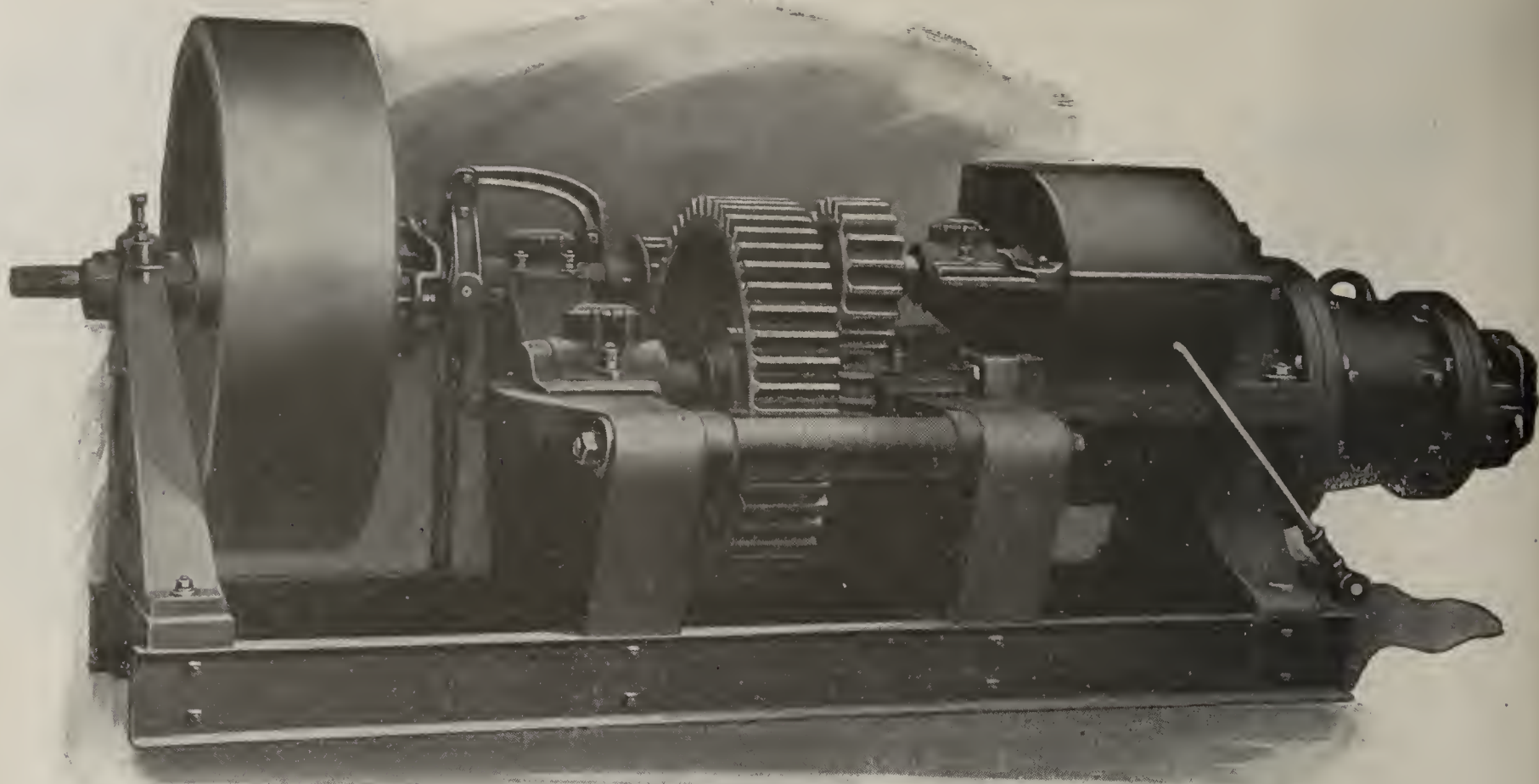
The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



Much the Largest Manufacturers of Clayworking Machinery in the World.

Be sure and mention THE CLAY-WORKER in answering ads.



Model "GA" Auger Brick Machine

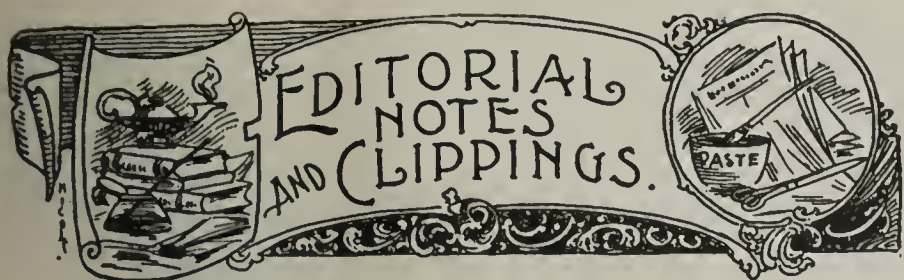
In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 112-115.



J. E. Land, of De Ridder, La., wants prices for equipment of a brick plant.

W. F. Stiltz has been appointed receiver for the Idaho Brick Company, of Lewiston, Idaho.

The Phoenix Ceramic Works of Perth Amboy, N. J., has just been formed with a capital stock of \$100,000.

El Campo, Texas, is to have a new brick plant of 400,000 daily capacity. Mr. Meredith is at the head of the enterprise.

The Alberta Press Brick Company will erect a brick plant at Calgary, Ont., Can., with a capacity of 140,000 brick per day.

The Rolla Fire Clay Company, of Rolla, Mo., has been incorporated by David E. Gowan, W. T. Dennison and J. A. Watson.

The Wilcox Lake Brick Company, Ltd., has been incorporated at Toronto, Ontario, Can., with \$100,000 capital stock.

J. B. Hammond, president of the Bolivar Pressed Brick Company, Bolivar, Pa., writes that they are in the market for some steel dryer cars.

Brown & Frantz have their new yard at Winnemucca, Nev., in operation and are turning out a good red brick, for which there is a great demand in that territory.

The "Union" plant of the Mack Brick Company at New Cumberland, W. Va., which was burned July 8, together with four of the company's horses, will be rebuilt as soon as possible.

The Hugo Brick and Tile Company, of Hugo, Okla., has been incorporated with \$15,000 capital stock. H. W. Williams, Frank Bowman, T. O. Nelson, J. J. Terry and J. H. Brader are interested.

The roof over one of the kilns at the East End Brick Company, Louisville, Ky., caught fire recently and before the blaze was put out, adjacent buildings were badly damaged. The loss is fully covered by insurance.

The Lock Four Brick Company, at Charleroi, Pa., has recently installed a 9-foot dry pan and other machinery of the Stevenson's make for the manufacturing of shale brick. This outfit displaces another make of machinery.

The Clay Products Company, of Jersey City, N. J., has been incorporated to manufacture clay products, fireproofing material, etc., with \$2,000,000 capital stock. The incorporators are T. F. Gregg and N. H. Raymond, of New York City, and F. P. McDermott, of Jersey City, N. J.

The National Sand and Brick Co. of Cleveland, Ohio, has been incorporated with a capital stock of \$250,000. The company, which is headed by Dr. George W. Haskins, of Detroit, has purchased the plant and site formerly occupied by the Eggers Brick Company, and will very shortly begin the construction of a new plant. They have bought thirty-seven acres in addition to the Eggers site.

At a recent meeting of the stockholders of the Saginaw Paving Brick Company, Saginaw, Mich., John H. Quallman was re-elected president and manager, Rudolph Otto elected vice-president, and J. H. Sleeth secretary and treasurer. Charles H. Kepler was re-elected superintendent. It was decided to increase the capacity of the plant to 40,000 a day and \$20,000 will be spent in making the change. The improvements will include the installing of a steam shovel for gathering the clay.

The Allentown Brick Company, of Allentown, Pa., has just completed the installation of its new dryer, replacing the one recently destroyed by fire. They have also installed modern machinery and the plant will have a capacity of over 12,000,000 building and paving brick per year. This is the company that purchased the stock of the Allentown Paving Brick Company, changing the name as above. The officers of the new company are Earl E. Litz, president and manager; A. B. Eilbeck, secretary and treasurer; C. K. Halteman, assistant secretary and treasurer; Stanley Kitchel, sales man-

ager; Howard I. Wheat, superintendent of plant; Samuel S. Demarest, assistant superintendent.

The plant of the Merchants' Coal Company at Boswell, Pa., was destroyed by fire June 28, loss \$15,000.

N. A. Austin, of Spring Arbor, Mich., contemplates erecting a factory at Addison, Mich., for the manufacture of clay shingles.

A fine deposit of clay has been found on the farm of U. L. Burdick at Williston, N. D. A company will probably be organized to develop same.

Fred G. Uthoff, secretary of the Consumers Brick Company, of St. Louis, Mo., died June 31, after a short illness. Mr. Uthoff was forty years old and unmarried.

The Hobgood Brick Company, of Hobgood, N. C., has been incorporated with \$75,000 capital stock. The incorporators are L. W. Leggett, K. Leggett and R. D. Thigpen.

A new company recently incorporated at Cleveland, Ohio, is the Alley Shale Brick Company. H. H. Camp, H. H. Anderson, J. Moore and W. T. Elwell are the incorporators.

The Michigan Vitriified Brick Company, of Bay City, Mich., has certified to an increase of capital stock from \$250,000 to \$300,000. The additional capital will be used in the improvement of the plant.

The new plant of the Davenport (Okla.) Brick and Tile Company started operation the middle of June. The plant has a capacity of 50,000 brick per day with a prospect of a demand for all they can make.

The Hancock Shale Brick Company, Waynesboro, Pa., whose plant was badly damaged by fire last month, has now erected a new plant which will have a capacity of 100,000 brick per day. It will operate five down-draft kilns.

The large plant of the Heager tile and brick factory at Coal City, Ill., started operation the last week in June. The plant is up to date in every respect, being equipped throughout with modern machinery and is operated by electric power.

The Laredo Brick Company, of Laredo, Texas, writes that they expect to change from the soft mud to the dry press process, and would like to receive catalogues and prices on an equipment for a dry press equipment.

The administrator of the estate of Benjamin F. Elliott, who died from injuries received when caught in a machine belt at the plant of the McLain Brick and Tile Company at Hammondsville, Ohio, last March, has brought suit against the company for \$10,000 damages.

The plant of the Bloomington Press Brick Company, of Bloomington, Ill., will increase their capacity in order to keep up with the demand for brick and building tile which they are turning out. They have only been manufacturing building tile for a couple of years and the demand for same is increasing all the time and many are shipped to the adjacent towns, in addition to those they are selling for use at home. O. W. Dunlap is manager of the company.

The new brick plant of the Anvil Island Brick Co., Ltd., of Vancouver, B. C., has recently been completed and is turning out a splendid grade of red pressed brick. The plant is equipped throughout with modern machinery and appliances and has a capacity of 30,000 stiff mud brick per day. M. B. Taylor, manager of the company, had entire charge of the construction of the plant, for which he predicts unbounded success. The works are located on Anvil Island, Howe Sound, about twenty-two miles from Vancouver.

Anacortes, Mont., is to have a new industry to be known as the Fidalgo Island Clay Works Company. The men at the head of the new concern are all well-known capitalists and men of practical experience in the manufacturing and handling of brick, tile, sewer pipe and other clay ware. They have secured forty acres of good clay land on which they will at once erect a plant to cost in the neighborhood of \$125,000. Those interested are H. A. Gearmacher, Israel Mason, W. H. Robertson and Captain Walter S. Brown.

The property of the Standard Shale Brick Company, located one mile and a half north of Youngsville, Pa., which was recently sold on a foreclosure of a mortgage, has been purchased by Foster Brothers, of Bradford. This is a very valuable property, having originally cost over \$40,000, and was purchased by Messrs. Foster for \$10,000. Foster Brothers will organize a stock company capitalized at \$60,000 and after spending about \$20,000 in improvements, new machinery, etc., will open up the plant and operate it at its

(Continued on page 77.)



Barrett's PAVING PITCH



Spaeth Street, Cumminsville, Cincinnati, O. Brick Pavement Filled with Barrett's Paving Pitch.

Helping the Brick to Endure

The character of your brick by no means settles the character of a brick pavement. Bad brick, properly laid, may outwear good brick, improperly laid. *The question of filler is highly important.*

Sand won't do because it does nothing to support the brick and prevent it from shifting and grinding. Sand also fails to protect the foundation against water and frost. The use of sand filler is false economy.

Cement, on the other hand, supports the brick too well; it locks them in a rigid monolith, and does not provide for expansion and contraction except when the unsatisfactory expansion joints are used.

Cement-filled brick when used alongside street railroad tracks break up very rapidly, for the brick needs a cushion around them to protect them against the vibration of the rails. Barrett's Pitch Filler is the ideal filler for brick.

It is absolutely waterproof, being very adhesive and sufficiently plastic to keep all apertures sealed tight, no matter how the bricks expand or contract. It has sufficient supporting power to keep the brick in place, but allows them to settle with the foundation instead of arching. Cracks are impossible in pitch-filled pavements.

A pitch-filled pavement is less noisy than a grout-filled pavement and gives better footing. When excavations are necessary, the bricks are easily removed from a pitch-filled pavement without destruction.

"Every joint is an expansion joint" so that there is no trouble from cracks due to climatic changes.

Booklet showing the records of various paving pitch pavements and a model specification will be sent free on request. Address our nearest office.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cincinnati Cleveland
Pittsburg Minneapolis Kansas City New Orleans Seattle London, England

EDITORIAL NOTES AND CLIPPINGS—Continued.

greatest capacity under the name of the Youngsville Brick and Tile Company.

The C. A. Nelson Drain Tile Company, of Beaver Dam, Ohio, has been incorporated by C. A. Nelson and others.

The Dickinson Fire Brick Company, of Buena Vista, Va., will establish a plant costing about \$25,000 for the refining of paper clays.

The Riverside Brick Company, at Hattiesburg, Miss., is making extensive improvements which will enable them to more than double their output.

J. D. Meehan, of Syracuse, N. Y., will build a plant for the manufacture of brick and tile. He expects to turn out about 50,000 brick per day at the start.

The plant of the Jamestown (N. Y.) Shale Paving Brick Company was struck by lightning last month and the power house and main building of the plant were destroyed, entailing a loss of \$60,000.

The Clay Products Company, of Sioux City, Iowa, has been incorporated with \$75,000 capital stock. Among the incorporators are W. H. Farnsworth and G. N. Fairchild, both of whom are experienced brick manufacturers.

The Missouri Slope Brick and Tile Company, of Dickinson, N. D., has been reorganized under the name of the North Dakota Brick Company, and W. J. Elliott, an experienced brick manufacturer, has been engaged as superintendent.

The Teegarden Brick and Tile Company is the name of a new concern recently incorporated at South Bend, Ind., with \$20,000 capital stock. The directors are W. B. Calvert, D. G. Miller, T. E. Kinzie, William Miller, W. C. Devine, Frank Johnson and N. L. Laver.

The Kankakee (Ill.) Brick and Tile Company is experimenting with oil for fuel instead of coal, and if the experiment proves as successful as it now seems it will, the necessary changes will be made for using oil as fuel altogether. While the expense of making the changes will be quite heavy, after the change is made the cost of operating will be so

much less than the company figures that it will pay them in the long run.

The Ohio Face Brick Company, of Fredericksburg, Ohio, has been incorporated by A. G. Putnam and others, with \$70,000 capital stock.

The tile factory of Shaw & Wilkinson at Bement, Ill., was damaged to the extent of \$5,000 by fire which was caused by the explosion of a lantern.

The Zimball Brick Company, of Sheboygan, Wis., is running its plant to full capacity and expect to turn out 5,000,000 brick during the summer months.

The North Indiana Brick Company, of Michigan City, Ind., has been organized to manufacture and deal in brick and builders' supplies. Those interested are J. L. Jackson, E. D. Church, S. S. Roby.

The Excelsior Fire Brick Company, of Lisbon, Ohio, reports an exceedingly busy season and they are now erecting a new kiln in order to increase their capacity sufficiently to keep up with the demand.

The plant of the Gardner White Brick Company at Sanfords Corners, N. Y., was totally destroyed by fire June 25. The cause of the fire is unknown. It had gained such headway when discovered by the superintendent that nothing could be done to save the plant. They will probably rebuild in the very near future.

The Canton Pressed Brick Company, of Canton, Ohio, has increased its capital stock from \$50,000 to \$200,000 in order to increase its business scope. The company now owns three plants, one near Waco, near Canton, and one at Uhrichsville, and one at Somerset. A fourth plant costing \$40,000 will be erected near Waco to be ready for operation June 1, 1912.

The Rockport Drain Tile Company, of Rockport, Ind., has been reading the advertisements of the Stevenson Company, of Wellsville, Ohio, in THE CLAY-WORKER to some purpose, and has contracted for a full equipment of Stevenson's drain tile machinery for a one-press plant with a full set of dies for making tile to thirty and thirty-six inch. The outfit is already on the road to its destination.

FOR SALE, WANTED, ETC.

WANTED

100 flat cars, 20" gauge.

ATLANTIC TERRA COTTA CO.,

1170 Broadway,

7 2 d

New York City.

WANTED.

To buy a brick plant having shale or fire clay, raw material and round down-draft kilns. Give complete description. Address

LOCK BOX 743,

4 tf d

Uhrichsville, Ohio.

EXPERT CLAY WORKER WANTED.

Wanted, immediately, a competent experienced man to lay out and superintend the installation of a \$50,000 to \$75,000 shale and clayworking plant, must be capable of producing brick, paving block, fireproofing and hollow tile, in Canada.

If satisfactory, arrangements may be made to continue as manager of the new plant and, if desired, an opportunity will be given to secure an interest in the plant.

Apply promptly, stating age, previous employment with date of same, salary expected and, if open for permanent employment or otherwise.

Enclose copies of testimonials. Communications strictly confidential. Address

G. B. RAMSEY,

P. O. Box 341,

Quebec, P. Q.

7-1-dm

WANTED—Superintendent for small shale face brick plant in Middle West. State age, references and salary expected. Address

BOX 7—WESTERN,

7 1 d

Care Clay-Worker.

WANTED TO BUY.

About 24" clay pulverizer (American Ring Hammer preferred), also five to ten thousand plain pallets, size 34"x10", 3/4" to 7/8" thick.

CONARD & SHERTZER,

7 3 cm

Columbus, Ohio.

WANTED—Position as superintendent of dry press, stiff or soft mud plant. Twenty years' experience. Sober, good handler of men. Can remedy kiln troubles and get results or no pay. Can keep machinery and kilns in repair and build any style kiln. Address

BOX 7—C.,

7 1 c

Care Clay-Worker.

WANTED—An experienced man to assist in the manufacture of iron-spot and fire-flashed brick on a plant now making common and ordinary front brick. The right man who knows how will be given a remunerative position. None other need apply. Write, giving references as to character and ability.

SALMEN BRICK & LUMBER CO.,

7 3 d

Slidell, La.

WANTED.

A party to co-operate in exploiting a valuable clay property in Illinois. Address

REFRACTORY,

4 7 cm

Care Clay-Worker.

FOR SALE—Well equipped cement tile plant, capacity 4,000 per day, located in good Iowa county seat town. Doing good business. Good reasons for selling.

BOX 7—LAND,

7 3 d

Care Clay-Worker.

WANTED.

An experienced man with \$4,000 to take management of an up-to-date new tile plant. Must have first-class business ability. Address

BOX 333,

7 3 cm

Corwith, Iowa.

WANTED.

I am looking for a good business opening or farm. Price must be right. Will pay cash. Give full particulars in first letter. Address

C. W., BOX 965,

4 6 d

Cherry Valley, Ill.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,

FRANK P. CLEVELAND,

965 Adams Express Bldg.

3 tf d

Chicago, Ill.

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KILNS

The **GENUINE** Hoffmann Kiln Model 1907B
BURNS 1,000 BRICKS with 2 cwt. of
smallest dusty coal.

90% of all bricks set are A1 colour.

It is cheaper than a number of Up or Down Draughts
for Equal Output.

GUARANTEED SAVING: On Fuel 75%; on Labour 50%.

Pays back initial outlay in 12 months.

60 Years' Experience. 20,000 References.

Also Special Continuous GAS-FIRED KILNS for Pavers, Firebricks,
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FOR SALE—A good drain tile factory; well located in town of 1,200 people; might consider a farm as part trade. Write for particulars. DAY BROS.,
5 3 cm Alexandria, Ind.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa. For full particulars, address

DE WITT BRICK AND TILE CO.,
7 3 c De Witt, Iowa.

FOR SALE.

One Scott-Madden clay gatherer and plow complete, in first-class mechanical condition. Has given service but a short time. Address

BOX 6—J. B.,
6 tf d Care Clay-Worker.

FOR SALE—Brickyard, capacity 35,000.

Wire cut, repress and sand mold machines; 11 acres fine clay deposit; railroad siding to kilns; three lines railroad and water transportation; cheap wood. Foreclosure sale—one-third cost of plant.

BONNER COUNTY NATIONAL BANK,
5 4 cm Sand Point, Idaho.

FOR SALE.

Having quit the brick business, will sell the following equipment at a low price, all of which is in good condition: one all metal mold sander, with shafting and pulleys; 200 grate bars for kiln, one dirt crusher and 20-foot elevator with shafting and pulleys.

J. S. COLLINS,
321 Main St.,
6 4 dm Frankfort, Ky.

FOR SALE.

Brick plant, greatest bargain in the United States; 30M Chambers Auger, end-cut outfit, machine sheds, drying racks, Scott system, clamp kilns, 20 feet unsurpassed red clay, 100 acres land, 300,000 feet standing timber. Best shipping facilities. Six-room dwelling and store. Unlimited demand. Complete sawmill; \$7,000.00 cash. Particulars on application.

D. A. LAKE,
7 1 2p Care Clay-Worker.

FOR SALE.

Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new.

F. H. EGGERS,
3 tf d Cleveland, Ohio.

FOR SALE.

Five-foot dry pan, bucket clay elevator and two-mold dry press, made by American Clay Machinery Company; 26-foot 16-inch clay conveyor, made by the J. D. Fate Company; Dunlap Perfect screen. All in good condition. Will sell at half price.

GOLD BROS. BRICK COMPANY,
4 tf d Big Stone City, S. D.

FOR SALE.

Martin "A" power brick machine. Pug mill and belt sander. 1 Potts clay crusher.

10,000 wooden pallets, 34-in. long and 10 in. wide, with a strip 2-in. wide and 4½ in. high nailed on each end. 140 24-in. gauge 6 ft. Atlas brick cars.

JOHN WILSON,
1025 Williamson Bldg.,
7-tf-d Cleveland, Ohio.

FOR SALE.

101 ft. 24" 6-ply rubber belt, nearly new.

62 ft. 22" 6-ply rubber belt, nearly new.

Several 16", 14" and 12" and pulleys. 57 ft. 29½" 3-ply leather belt. Good condition.

ATLANTIC MANUFACTURING CO.,
7 3 cm Wilmington, Del.

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For Brick or Cement Plants.

One No. 48 American Ring-Hammer shale pulverizer; one 10-foot revolving screen, in service one year, good as new. Will sell for 70 per cent. of the original cost. Also one Jeffery chain elevator, 150 feet, with fifty 24x8-inch steel buckets; elevator complete; \$150.

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5 4 d Ft. Smith, Ark.

FOR SALE CHEAP.

Second-hand boiler, 12 feet by 54 inches, 40 tubes 4-inch diameter.

One second-hand Nagle slide-valve engine, size 10 by 16.

One second-hand Cookson feed water heater, oil separator and filter combined. All in first-class condition. If you are in need of any of the above, write for price today.

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5 3 c Sandusky, Ohio.

FOR SALE—A good one-kiln tile plant in a live Ohio town, convenient to railroad. Will sell cheap for cash. Further particulars given on application.

BOX 7—S.,
7 1 dm Care Clay-Worker.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address,

BOX 3, B. T. CO.,
3 tf d Care Clay-Worker.

FOR SALE—Sixty acres of land in Minnesota containing large deposits of clay, five to thirty feet in thickness. Great percentage is so-called No. 1 clay, while the other is good for sewer pipe and fine brick. Address

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7 1 dm Milwaukee, Wis.

FOR SALE.

A complete stiff mud brick plant, boiler, engine, Chamber's end-cut-off brick machine, Martin pug mill, pulverizer and full equipment. Owners have other interests and can not give attention to plant. Address

BOX 7—G. R. S.,
7 1 d Care Clay-Worker.

FOR SALE.

Modern brick plant; capacity 9,000,000 of brick per year; equipped with Chambers' brick machinery and Standard Dry Kiln Company's eight-track dryer, with transfer trucks and turntables, and tracks to the kilns; all complete and in good order; two 90 horsepower boilers; one 125 horsepower Atlas slide-valve engine, with 24-inch double-thick oak-tanned leather belt to drive the machinery; 130 double-deck dryer cars; return trap to take the condensed water from the dryer pipes back to the boilers; kilns are in good repair. We have our own sidetrack to the kilns to load brick on cars to ship. Plant long established.

One ten-room dwelling house at works; stable with ten paved stalls, horses and carts to haul clay and do other work; storage shed for lumber 100 feet long by 27 feet wide; storage building 75 by 27 feet for machinery; tool house for all kinds of tools; 30 acres of clay—inexhaustible. Good reason for selling. Plant can be seen at work any time; in operation any time. Located on the Clinch Valley division of the N. & W. Railway, at Tip Top, Va. Address

GEO. SHAFER,
Supt. Radford Brick Company,
5 tf d Tip Top, Va.

(Continued on next page.)

Classified Advertisements—Continued.

WANTED, ETC.

WANTED—Position by an experienced terra cotta chemist. Address
BOX 7—T. C. C.,
7-1-cm Care Clay-Worker.

WANTED—Position as manager of fire brick plant. Experienced in fire clay, silica and building brick. References the best. Address
BOX 7—LAND,
7-1-cm Care Clay-Worker.

WANTED—Position as superintendent or head burner of any kind of a brick plant. Can handle any kind of fuel or kiln with best results. References. Address
C. W. F.,
7 1 c Care Clay-Worker.

WANTED
Position as superintendent or inside foreman for a large yard, paving or face brick, 17 years' experience. First-class references. Address
BOX 7—STEADY,
7 1 c Care Clay-Worker.

WANTED—A practical dry press superintendent who has faith enough in himself to take a working, financial interest in the best face brick proposition in the West.
YANKEE HILL BRICK M'FG. CO.
7 1 d Yankee Hill, Neb.

WANTED—A good, practical brick and tile man to take part interest in a well equipped pressed brick brick and tile plant. Good locality in northern Colorado. To act as superintendent and manager of same. Address
BOX 7—COLO.,
7 1 dm Care Clay-Worker.

WANTED.
Position as superintendent of a brick plant making brick by the stiff mud process. Am thoroughly familiar with the business, from construction of the plant to the marketing of the brick. Can furnish best of references.
A. C. BARNETT,
6 2 dm Washington, Ga.

BRICK MACHINERY WANTED.
Plant in Pacific Northwest wants dry pan, pug mill, crusher and bucket elevators. State make, model, size and capacity of machines, length of service, location and price, f. o. b. cars at shipping point, and on what railroad. Machinery must be guaranteed to be in perfect working order. Address
CLAY,
7 1 d Care Clay-Worker.

AN OPPORTUNITY.

Brick and terra cotta plant with five (5) kilns, at railroad station (with siding), forty-five miles from Philadelphia. Rent free for ten years to any responsible party who will make clay products; unlimited supply of clay on property half mile from works. Address
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72x18 high pressure, 72x18 standard. 72x16, 66x16, 60x16, 60x14, 54x16, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, 36x12, etc.

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BOILERS—VERTICAL.

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All sizes, open and closed.

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All sizes, Single and Duplex.

MISCELLANEOUS.

Saw Mills, Lath Mills, Edgers, Cut-off Saws, Re-Saws, Blowers, Exhaust Fans, Tanks, etc. Write for list.

Also full assortment of new machinery. Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St., Cincinnati, Ohio.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

P. MITTLER,
Robbins, Tenn.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the every-day details of brick-making. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,
Indianapolis, Ind.

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197 Havemeyer St.

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Conveying, Elevating and Power-Transmitting Machinery.



The only perfect spiral conveyor. Continuous flight—no laps or rivets.
A Complete Line of the Best Supplies.

Belt, Chain and Cable Conveyors.

Ask for General Catalogue No. 34.

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The Universal Turret Nozzle

The Most Efficient Device Known for Hydraulic Stripping

NO HOSE REQUIRED—Connected direct to pipe line from pump.

Does not have to be staked down or anchored in any way.

Universal in movement, it has a greater range of delivery and greater "flexibility" than hose.

EASILY AND SAFELY OPERATED BY ONE MAN.

This nozzle will pay for itself in a short time by the saving of labor alone, to say nothing of the increased amount of material that can be moved, as against other methods of hydraulic stripping.

MADE IN VARIOUS SIZES.

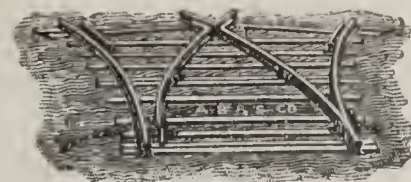
Write us today for prices and full information.

The Universal Nozzle Company

502 Commercial Club Bldg.
INDIANAPOLIS, IND.



Mention the CLAY-WORKER,
WHEN WRITING TO ADVERTISERS
Mention the CLAY-WORKER.



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Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.

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The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them
YOU CAN'T TAKE IT
for Brick, Mortar, Cement, etc. Red, Brown, Purple and Black.
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MILWAUKEE, WIS.

Construction of Continuous Ring Kilns of various systems for all kinds of clay products.

Continuous Chamber Kilns for glazed products, roofing tiles and pottery.

All other systems of kilns built with best results.

All references furnished.

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Bolivar, Pa.

We Make Six Lines of Brick That Are Winners:

1. Matt Glaze, Impervious White, Blue Grey, French Grey.
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6. Fire Brick and Fire Clay for Kilns, Coke Ovens and Boiler Settings.

Associated Plants in Ohio and Kentucky. Best shipping facilities and Largest Line of Impervious Face Brick of Any Manufacturer in America.

Agencies Desired.

Correspondence solicited.

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SYSTEM
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**MEASURES THE CAPACITY
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N. J. State University.
N. Y. State University.
Ohio State University.
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Automatic Clay Bin Emptier.

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Automatic Cutting Tables.

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Wellington Machine Co.

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Morehead Mfg. Co.

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American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

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Wellington Machine Co.

Brick Machines (Soft Mud).

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Hensley, J. W.
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Wellington Machine Co.

Brick Machines (Stiff Mud).

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Chambers Bros. Co.
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Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
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Brick Machines (Dry Press).

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Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

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American Clay Machinery Co.

Buffing Machine.

American Clay Machinery Co.

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Boss, John C.
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Dennis, F. W.
Haigh, H.
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Koch, J. J.
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Marion Brick Works.
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Evans & Howard Fire Brick Co.

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Ceramic Supply & Con. Co.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

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American Clay Machinery Co.

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Brewer & Co., H.
Caldwell & Sons Co., H. W.
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Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
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Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.

Couplings.

(See Supplies.)

Clay Crushers and Pulverizers.

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American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works.
Wallace Mfg. Co.
Wellington Machine Co.

Contracting Engineers and Machinists.

Dennis, F. W.
Haigh, H.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hiltenbrand.
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Cutting Tables (Brick & Tile).

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Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Brewer & Co., H.
Ceramic Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

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Bonnot Co., The

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Chambers Bros. Co.
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Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
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Drain Tile Machinery.

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Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
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American Process Co.
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Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
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Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
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Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Scott-Madden Iron Works.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

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Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Eastern Brick Machinery Co.
Hensley, J. W.
Ohio Ceramic Engineering Co.
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Raymond Co., The C. W.
Steele & Co., The J. C.
Scott-Madden Iron Works.
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Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

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Raymond Co., The C. W.

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Evans & Howard Fire Brick Co.

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American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
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Barnett Mfg. Co.

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Stevenson Co., The
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Rockwood Mfg. Co., The

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Richardson-Lovejoy Engr. Co.
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Chambers Bros. Co.
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Chisholm, Boyd & White Co.
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Snowden & Co., G. E.
Shumaker, J. H.
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(See Supplies.)

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evans & Howard Fire Brick Co.

Kiln Irons.

(See Supplies.)

Kiln Lugs.

(See Supplies.)

Knives.

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Milwaukee Locomotive Mfg. Co.

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Raymond Co., The C. W.
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Stevenson Co., The

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Eastern Brick Machinery Co.
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Freese & Co., E. M.
Hensley, J. W.
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Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Richardson Lovejoy Engr. Co.
Scott Madden Iron Works.
Steele & Sons, J. C.
Stevenson Co., The
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Wallace Mfg. Co.
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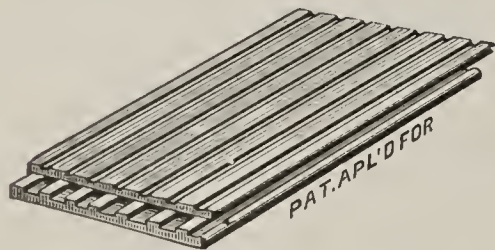
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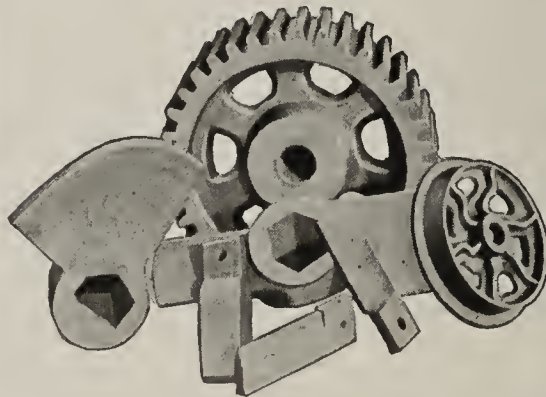
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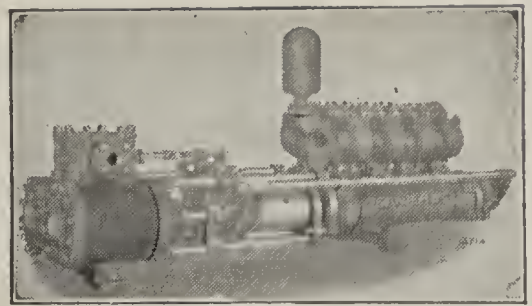
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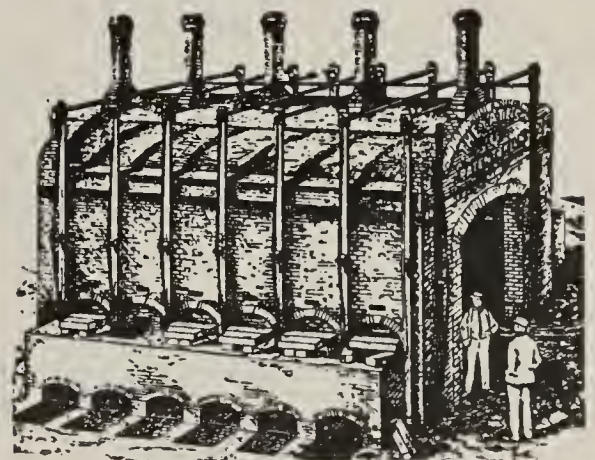
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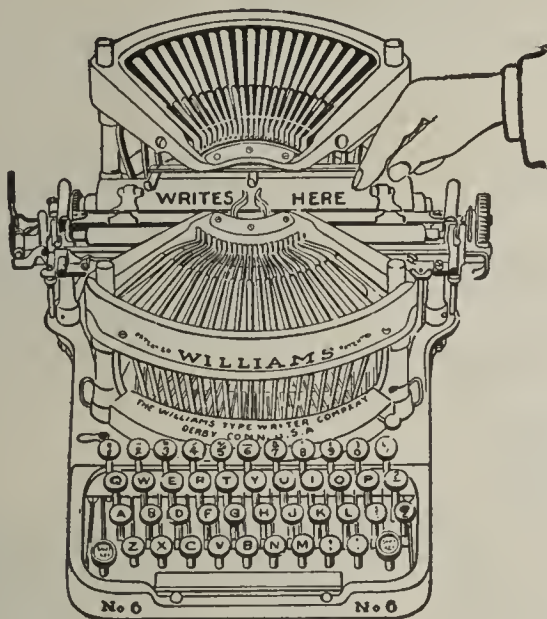
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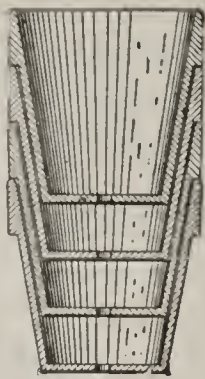
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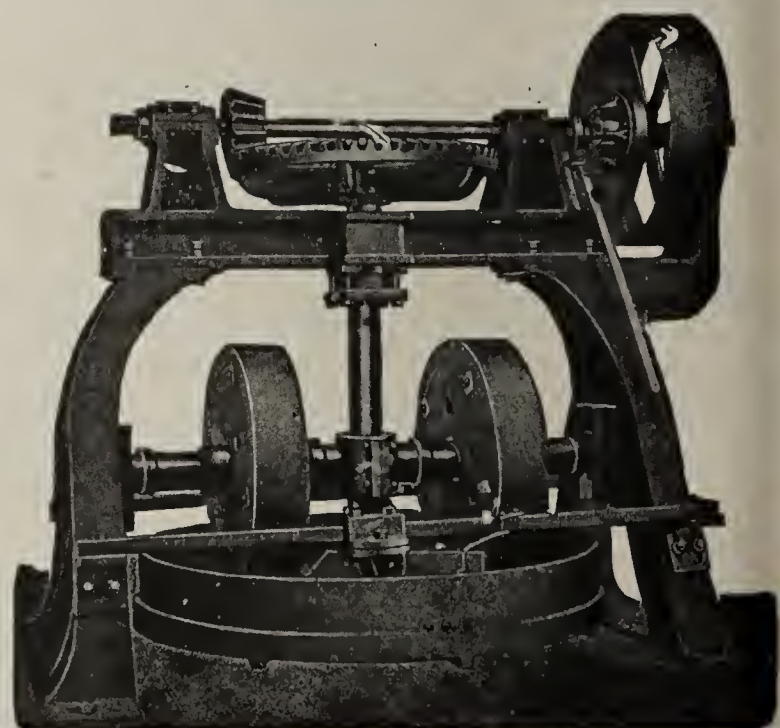
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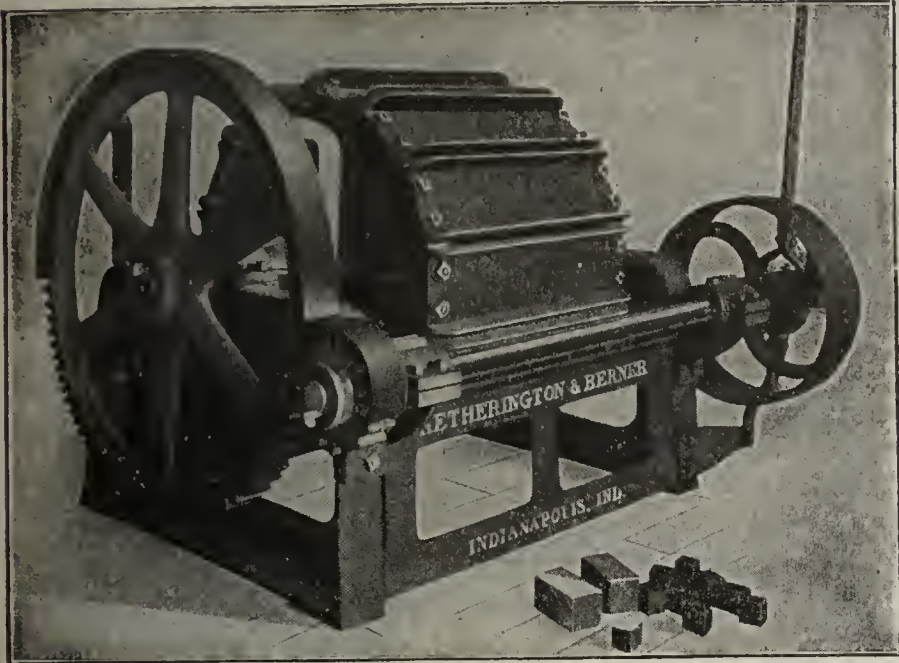
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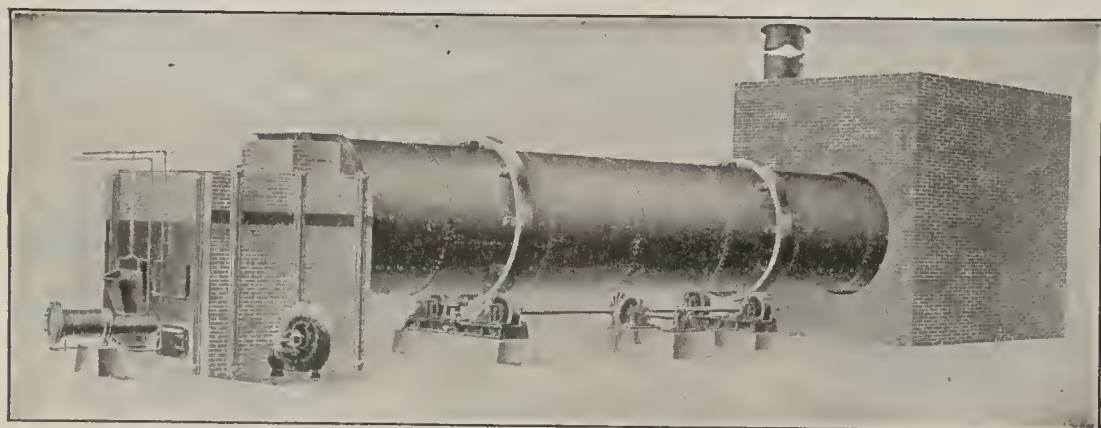
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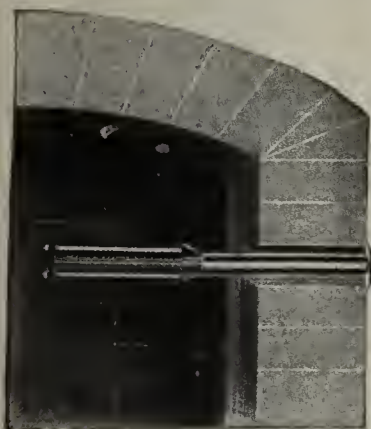
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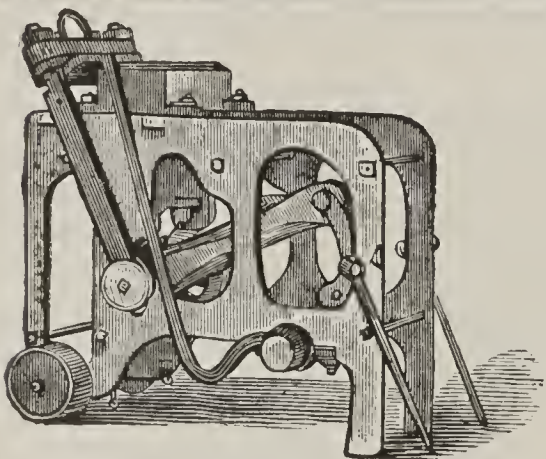
Gilbreth's "Bricklaying System" is a book whose 330 pages are filled with rules and hints for his foremen and bricklayers, designed to increase the output of the workmen and to enable men of moderate skill to do difficult work in the best manner. There are 73 charts showing different bonds, ornamental and plain, some of which would be exceedingly hard to execute were it not for the methods explained in the text. To the architect, 73 ornamental charts alone will prove of great value, for practically none of them can be found in any other book, and no other book has more than 8 different bonds.

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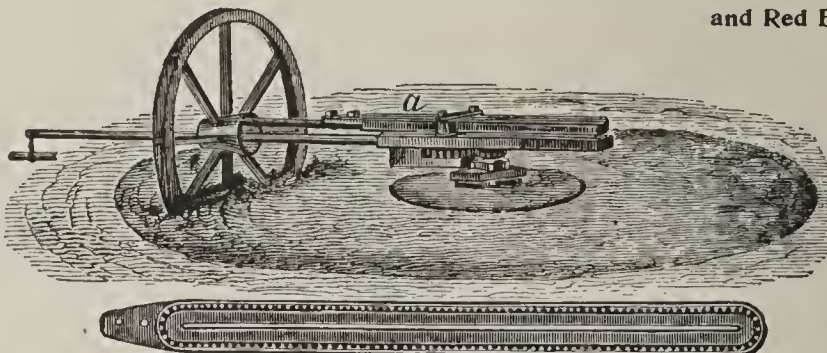


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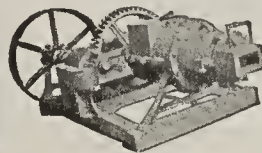
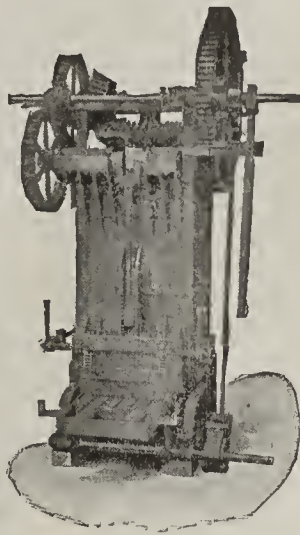
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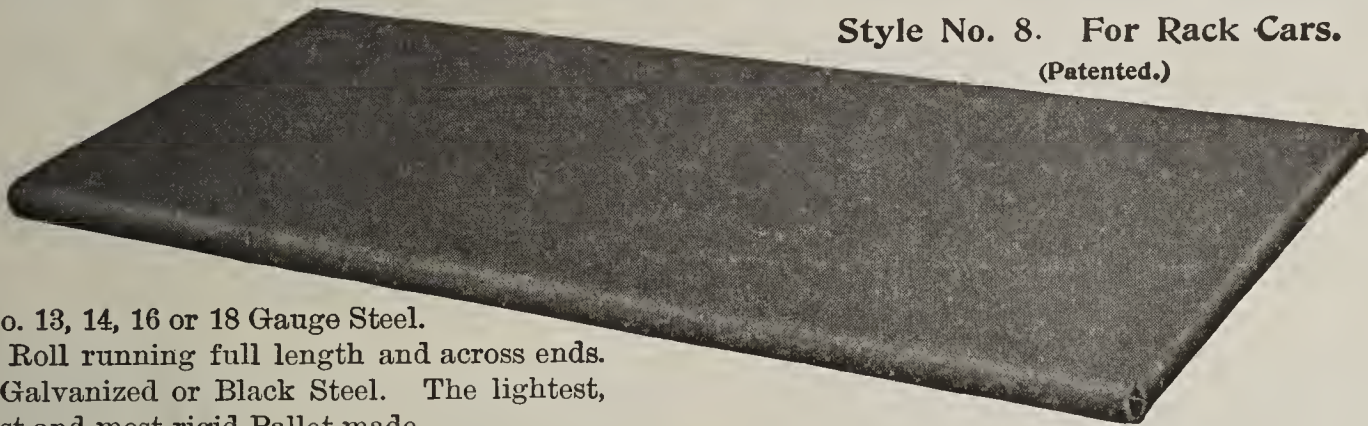


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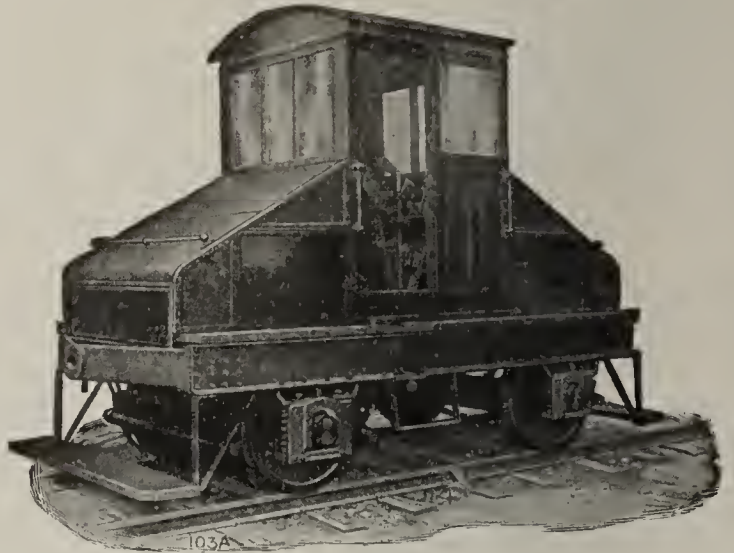
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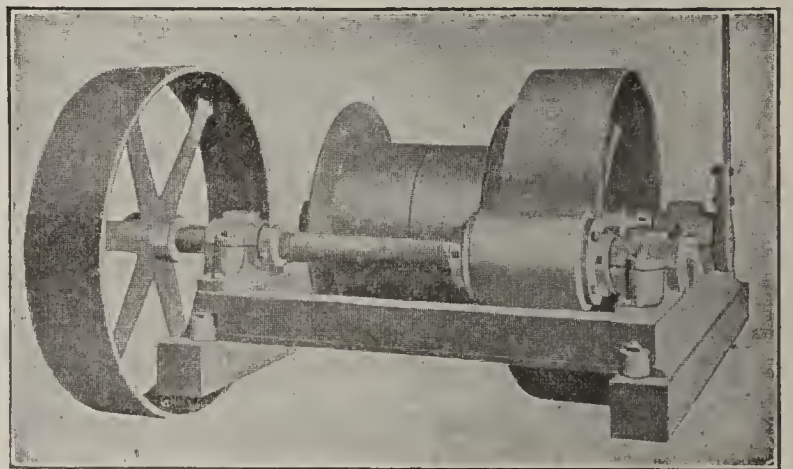
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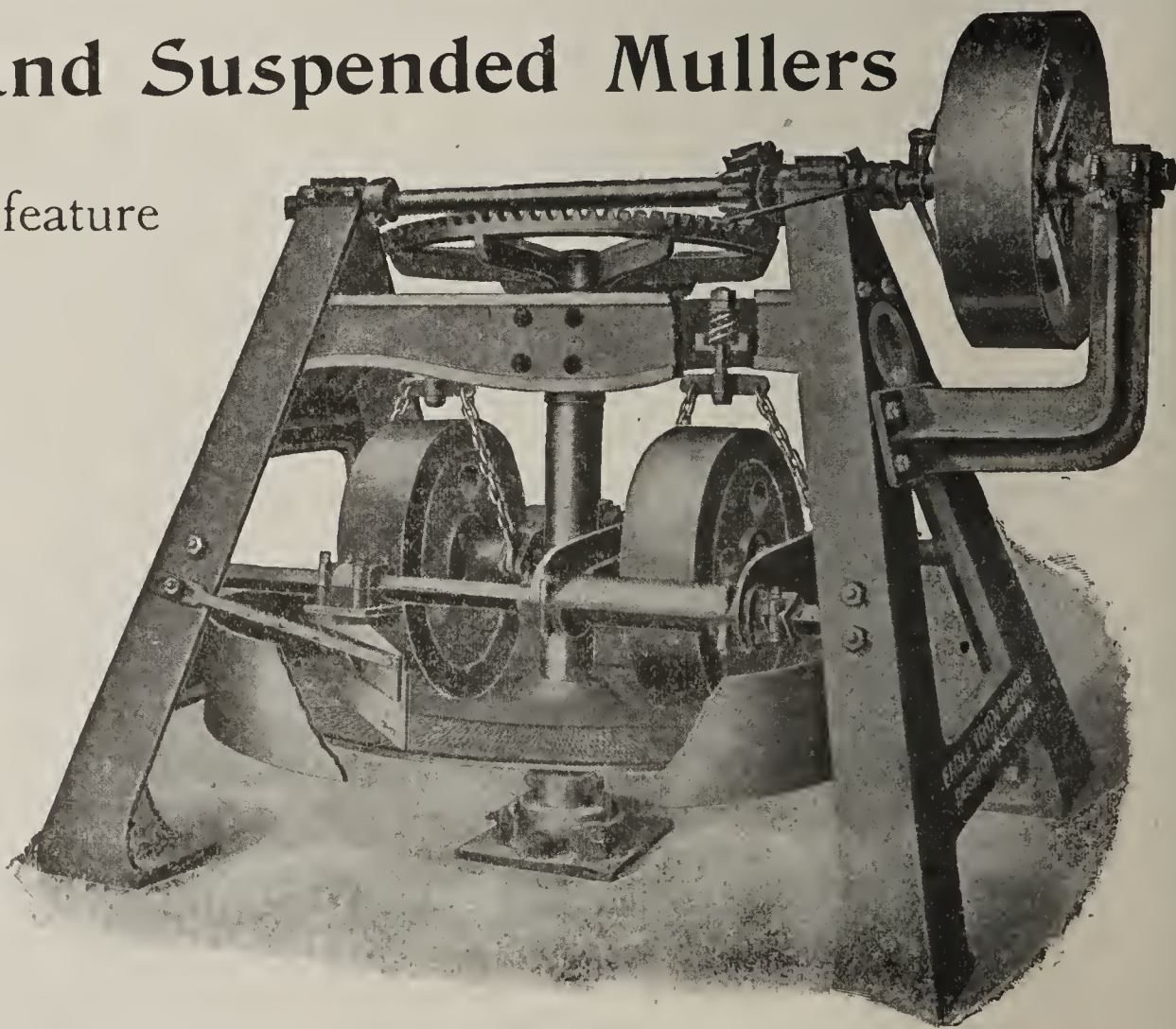
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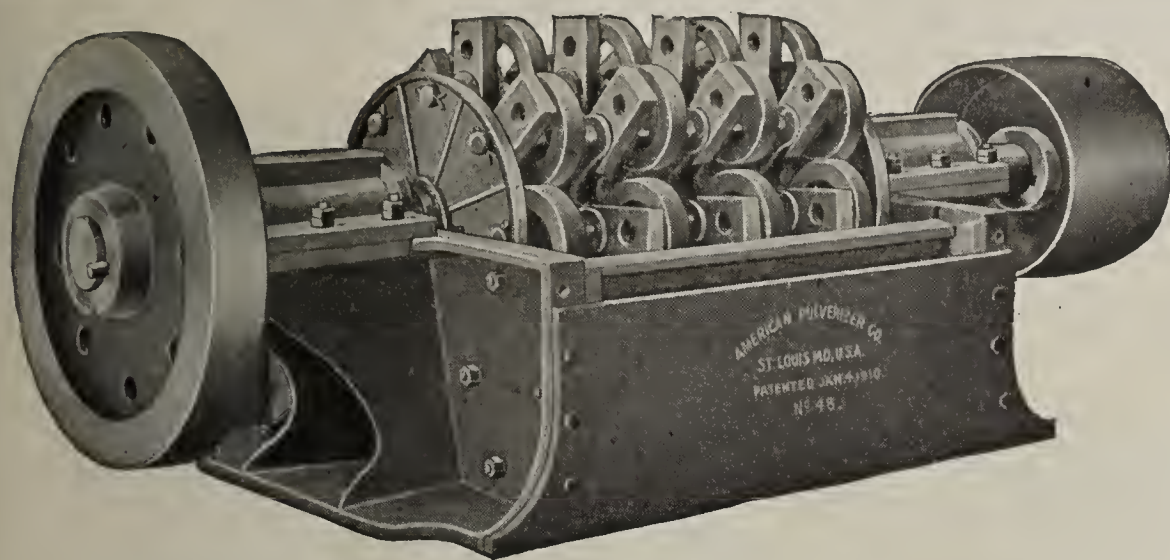
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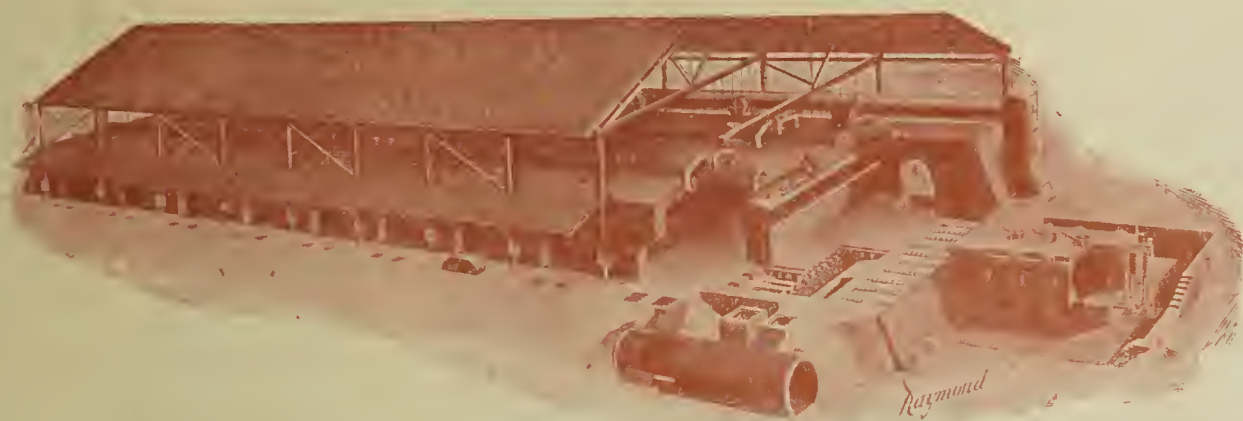
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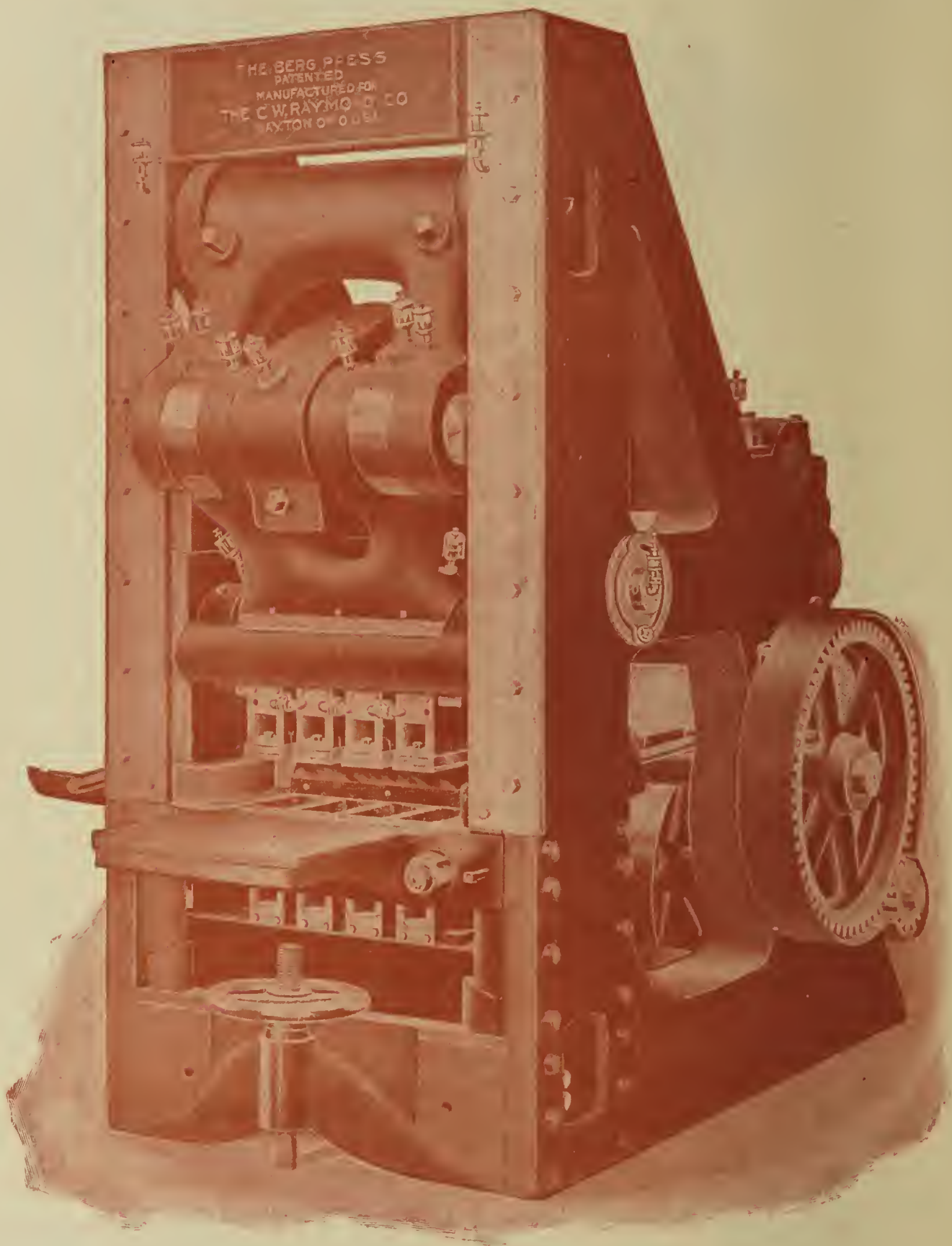
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Consider These Points:

- (1) Greater pressure and fewer working and wearing points than any other machine.
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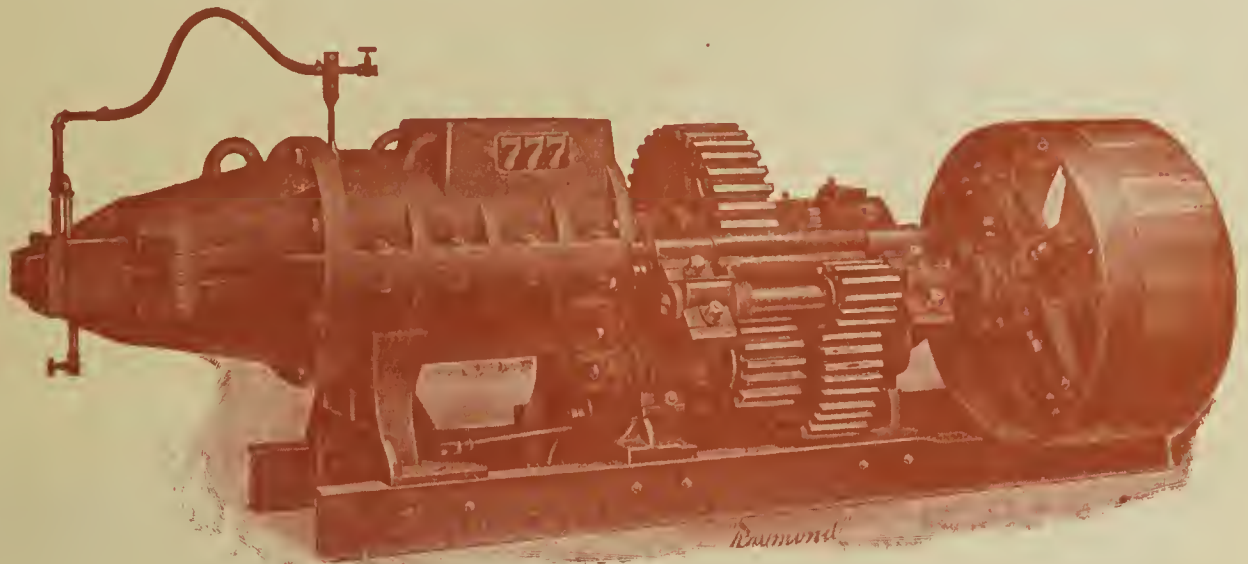
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THE RAYMOND No. 2 AUTOMATIC CUTTING TABLE

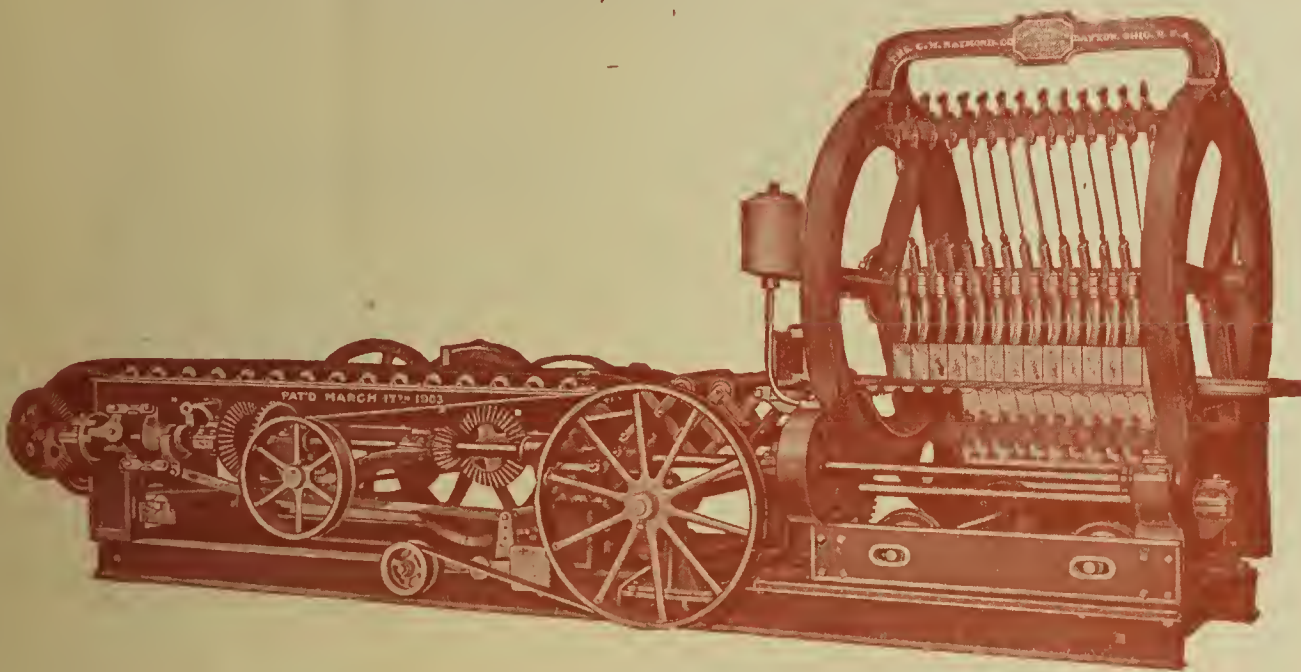
Our "777" is a brick machine of unapproached record. It will make more brick and better brick than any other machine of equal rated capacity.

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A product of the best Engineering skill, it contains every desirable feature known to the modern clayworking machinery builder. Its capacity is 40,000 to 60,000 standard size brick per ten hours.



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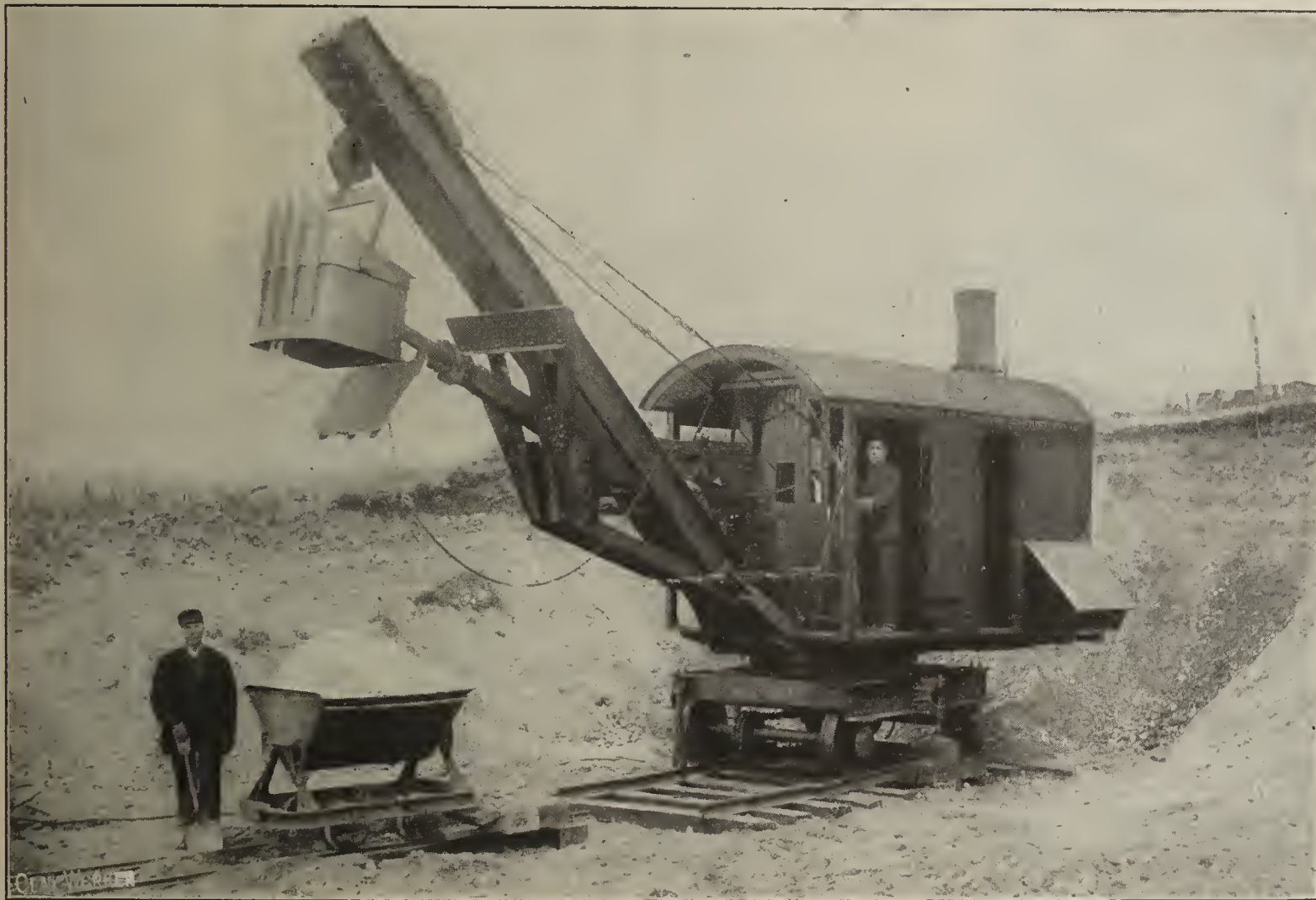
Dayton, Ohio, U. S. A.

Handle Your Clay With One Man and a **THEW SHOVEL**

For ten years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



A Typical Thew Shovel

ONE MAN OUTPUTS

Our 13 Ton Shovel with $\frac{5}{8}$ yard dipper will handle any ordinary clay for outputs up to 100 M brick.

Our 20 Ton Shovel with $\frac{7}{8}$ yard dipper will handle any ordinary clay for outputs up to 150 M brick.

Our 30 Ton Shovel with 1 yard or $1\frac{1}{4}$ yard dipper will handle any clay for outputs up to 200 M brick.

Our 40 Ton Shovel with $1\frac{1}{4}$ yard or $1\frac{1}{2}$ yard dipper will handle any clay for outputs up to 250 M brick.

Any of the above machines will handle double the output specified with a full working crew of engineer, fireman and two laborers on the ground.

WE BUILD

SPECIAL SHOVELS FOR SHALE

Our 35 Ton Shovel with $\frac{3}{4}$ yard dipper is suitable for all ordinary shales up to 125 M brick per day.

Our 50 Ton Shovel with $1\frac{1}{4}$ yard dipper will handle any shale you may encounter.

We can give you high lift booms if desired.

We equip with electric motors if you wish.

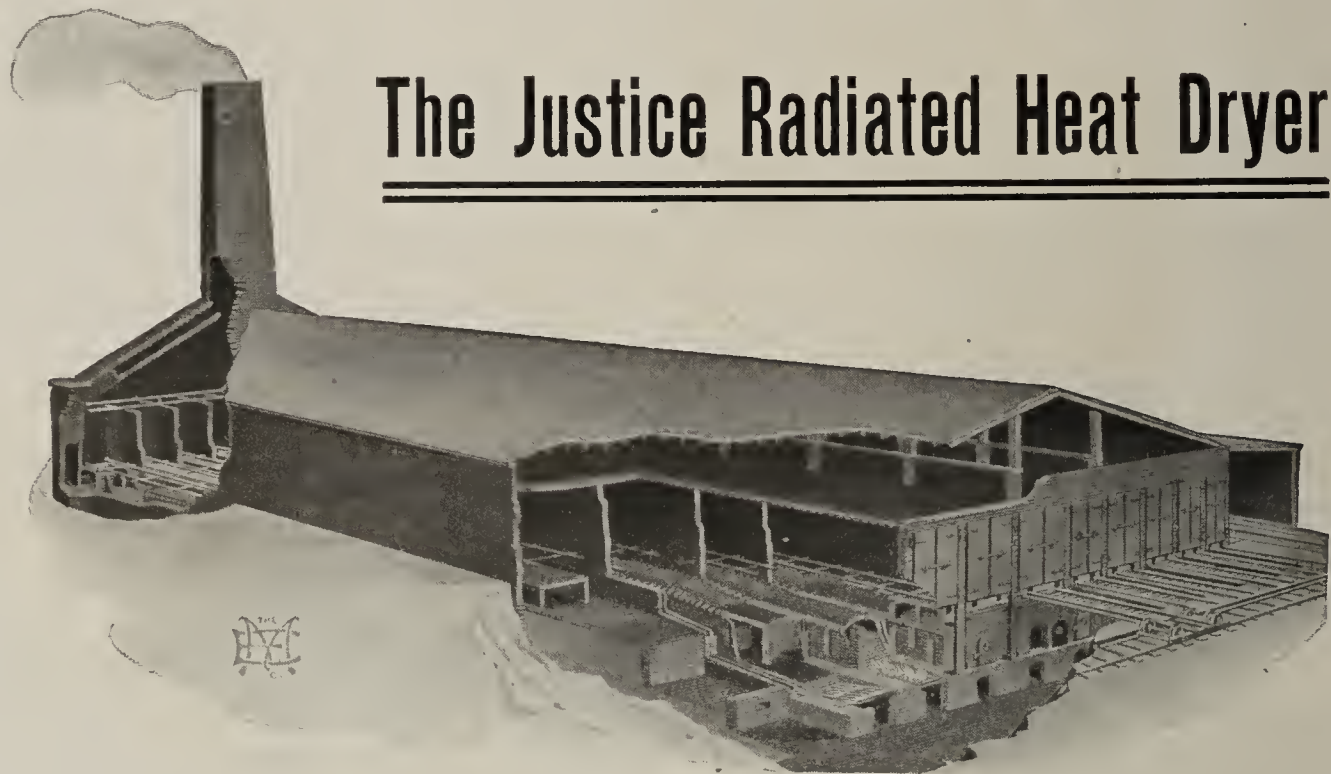
Write for information.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

The "Meco" Line of Piano Wire Screens and Brickyard Supplies

A SUCCESSFUL DRYER

Does not by any means consist solely of embodying in a structure the required amount of building material and iron work and providing tunnels or other means for enabling the cars of bricks to pass through so as to come into contact with the heat. With such a structure, however, properly designed and back of it a thorough knowledge of the art of drying clay products and a perfect understanding of the air movements, humidity, and temperature regulated to suit any and all conditions, we have a successful, progressive dryer; and in no other are these merits more pronounced than in



The Justice Radiated Heat Dryer

This dryer is the culmination of a quarter of a century of study of drying problems, and it is not an idle boast when we say that there is absolutely nothing as good in the dryer line as "THE JUSTICE RADIATED HEAT DRYER." If you will kindly drop us a line if interested, we will send our Bulletin No. 1, telling of the many meritorious features of this dryer and will further show how its installation means economy both in cost of construction as well as operation.

THE MANUFACTURERS EQUIPMENT COMPANY

Sales Agents for

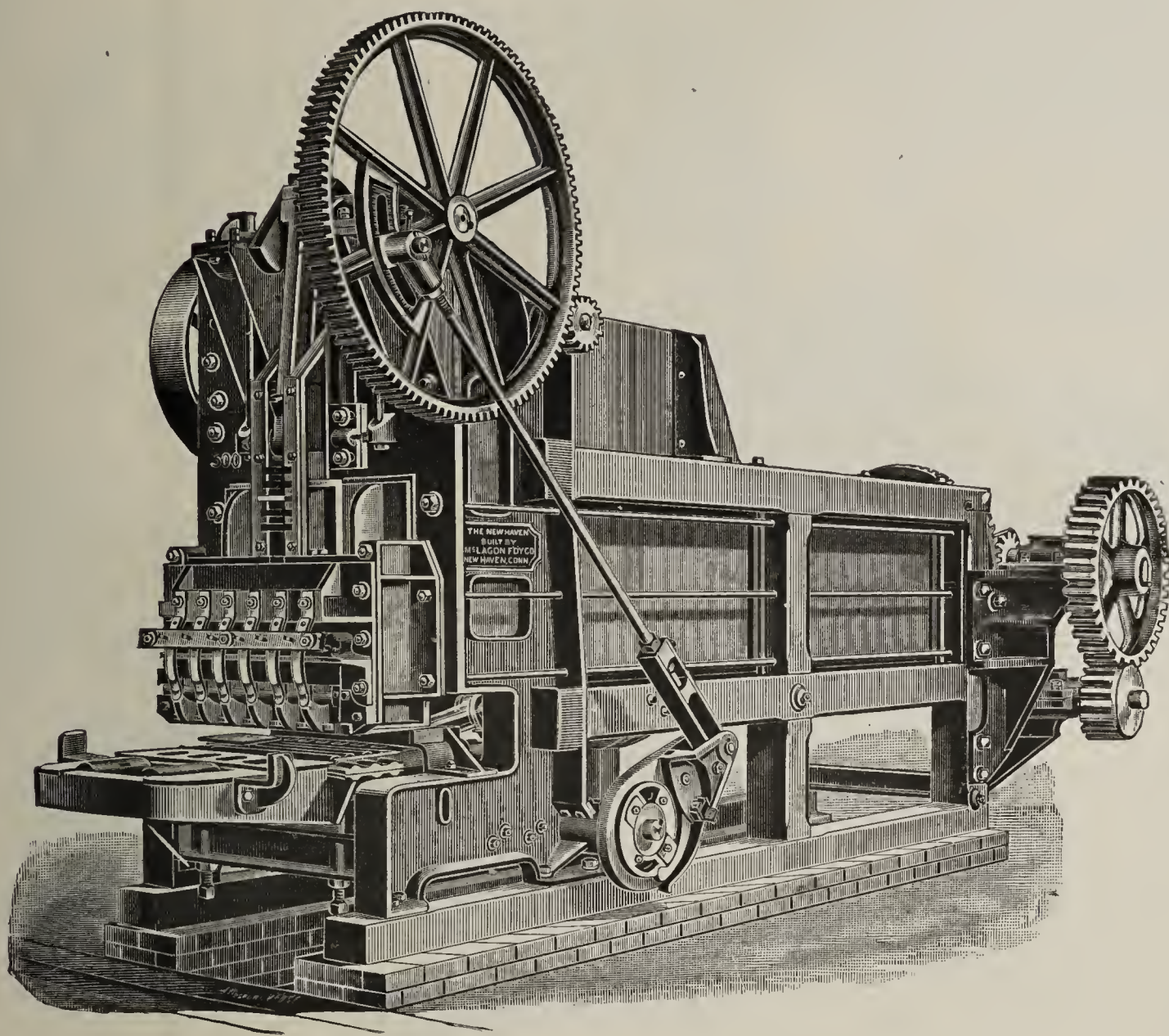
The J. D. Fate Co.'s Complete Line of Clayworking Equipment
The Joplin Rock Crusher The Elwood Dry Press

Dayton, Ohio, U. S. A.

The "Meco" Line of Piano Wire Screens and Brickyard Supplies

There is a Standard in Everything.

In soft mud brick machines the New Haven is the Standard. Equalled by few and surpassed by none. The New Haven machine is built to last.



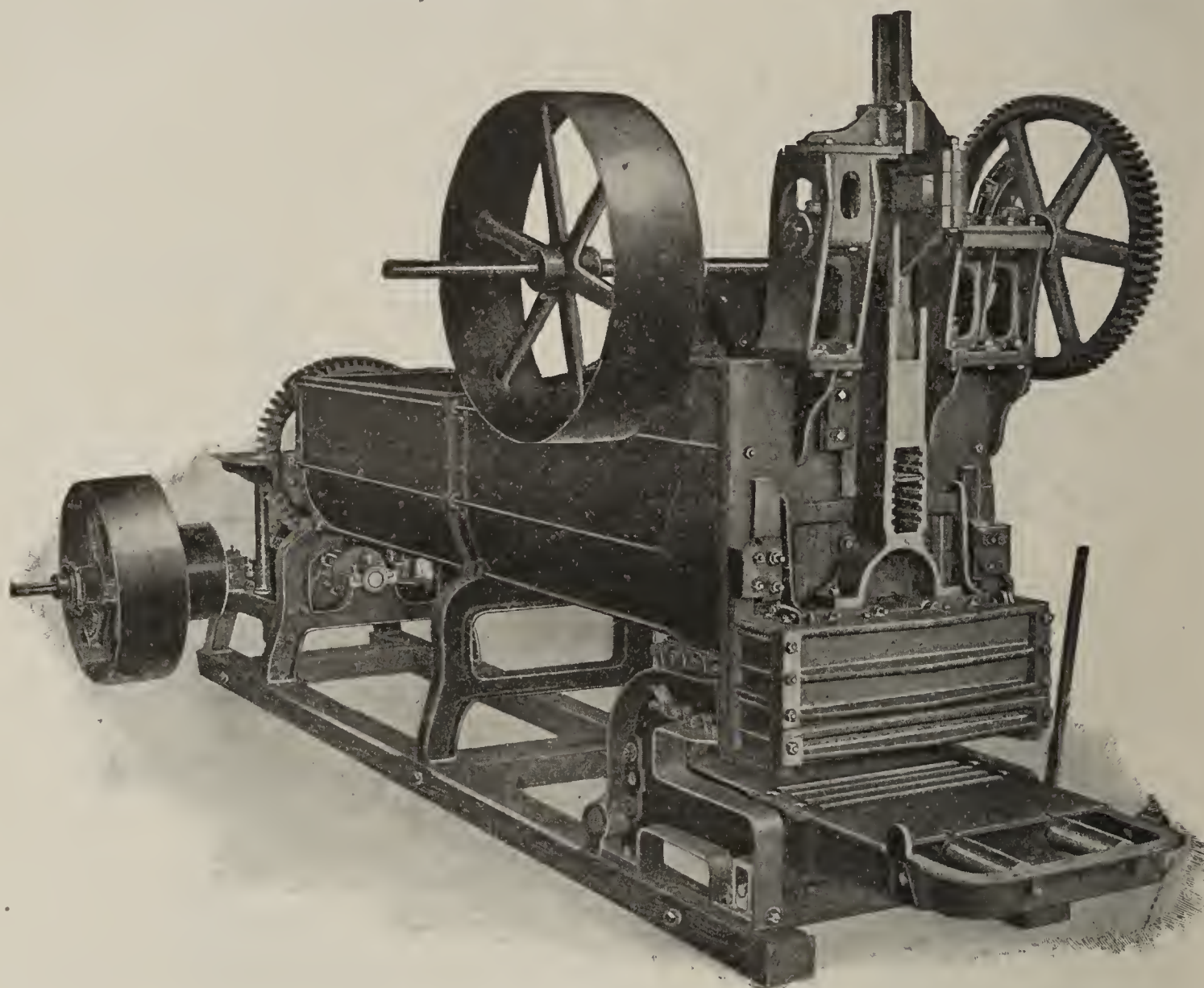
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This machine is built for service and has never failed to make money for the purchaser. As an evidence of this more than three-fourths of all the brick made in New England, the home of the New Haven machine, are made on New Haven Machines. Write for catalogue.

The EASTERN MACHINERY CO.

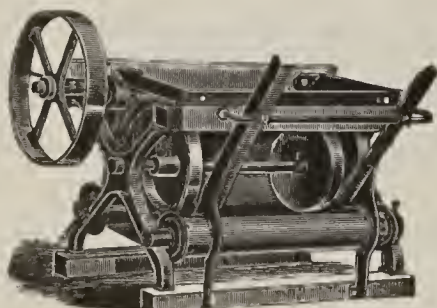
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THE ONLY MACHINE HAVING CAST STEEL GEAR
THE BEST CONSTRUCTED MACHINE MADE

A machine well built, of the best material, by skilled workmen. You cannot make a mistake in purchasing this machine. It cannot be equaled for quality and quantity of brick made. It will run steadily every day, making a given number of brick with little or no cost of maintenance.



POTTS MOLD SANDER

We manufacture the most complete line of SAND MOLD machinery, and are prepared to erect modern and up-to-date plants of any desired capacity, guaranteeing results.

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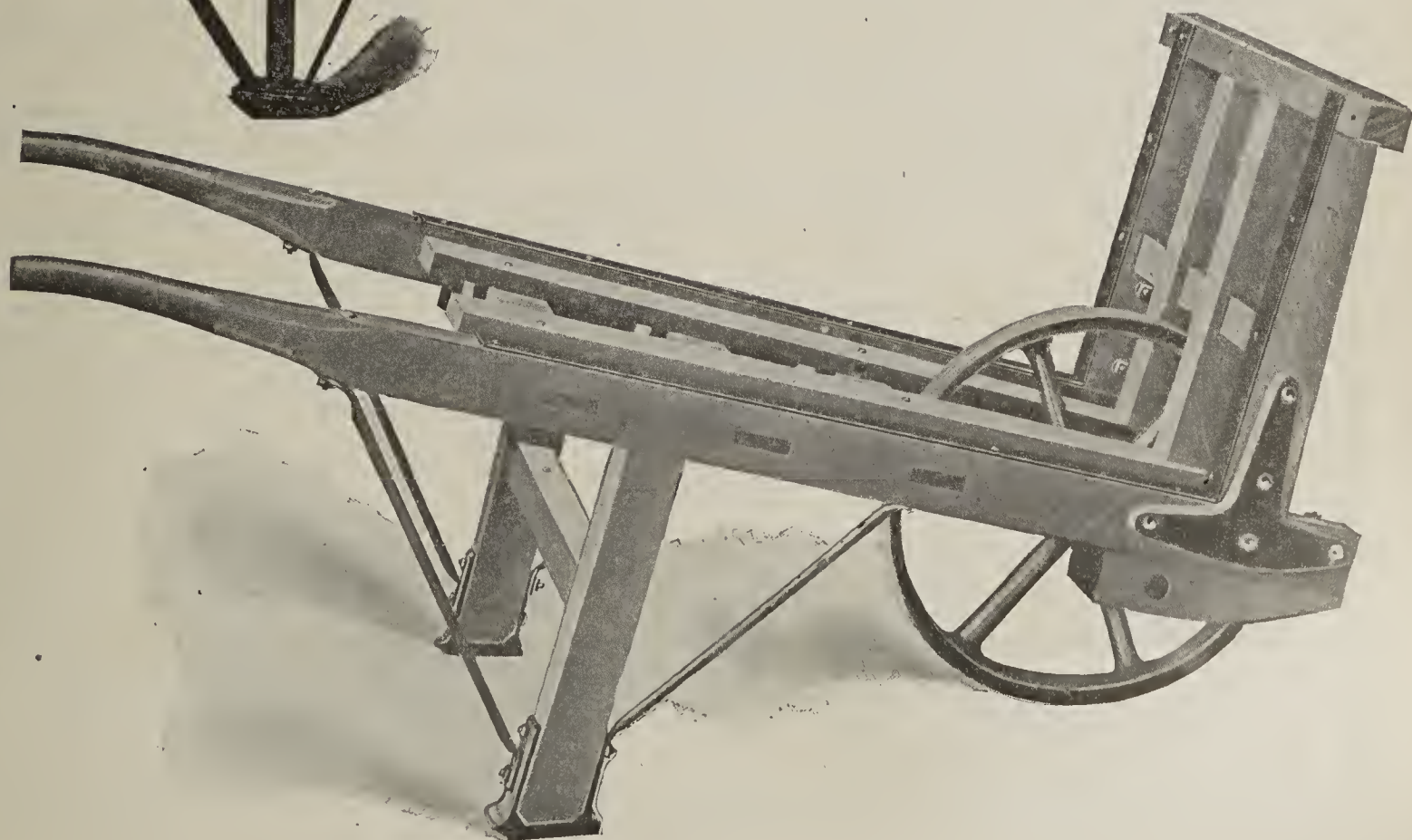
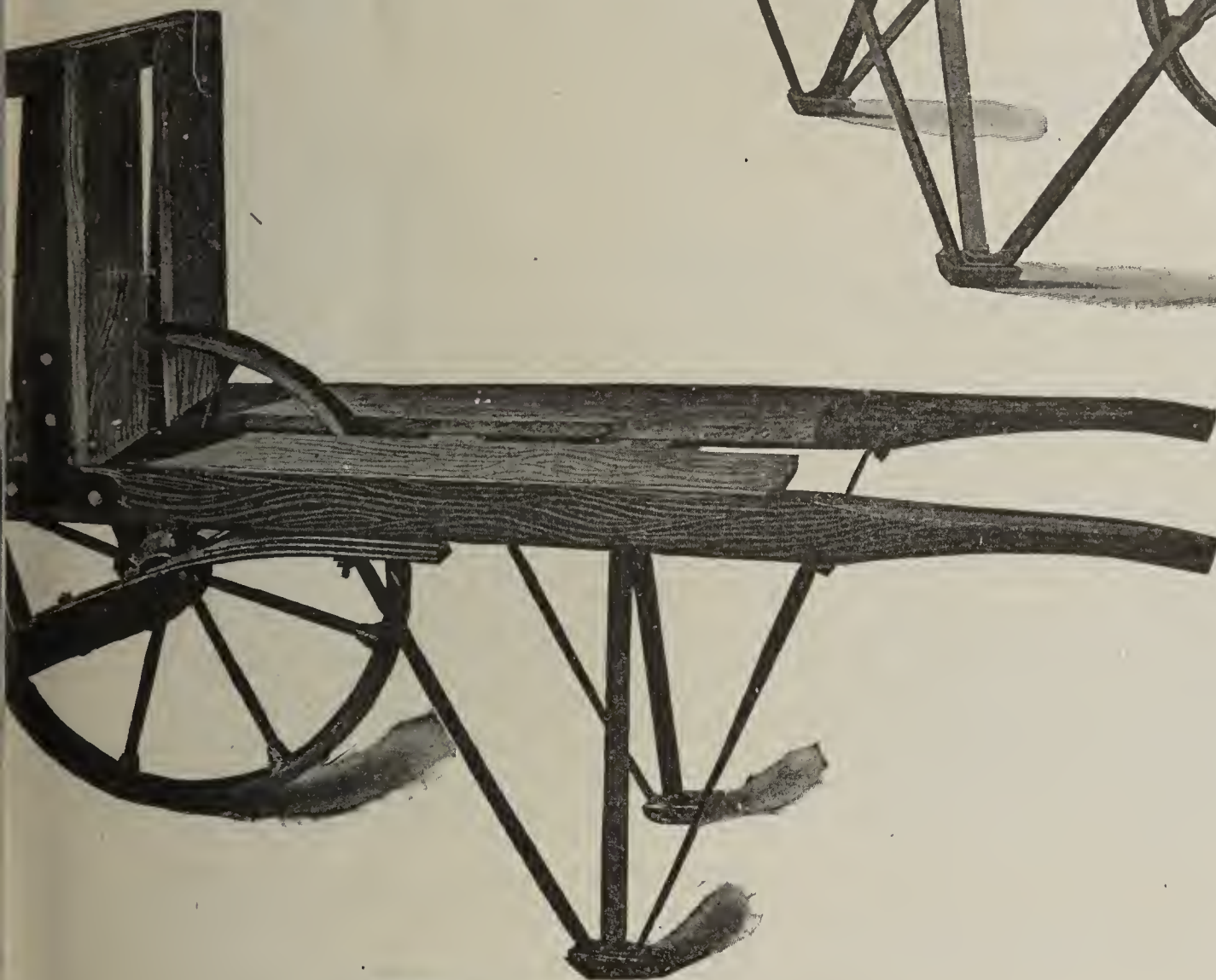
BRICKYARD BARROWS

For Green Brick, Burnt Brick, Tile, Pallets or Sand; Steel Slat Barrows;
Barrows with or without Springs; Barrows with or without Roller Bearings.
19 different styles.

case-hardened end Roller-Bearing



best roller bearing on the market



Wellington
Machine Co.
Wellington, Ohio

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These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

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With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

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Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

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A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen, and enable them to do difficult work in the best manner.

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Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

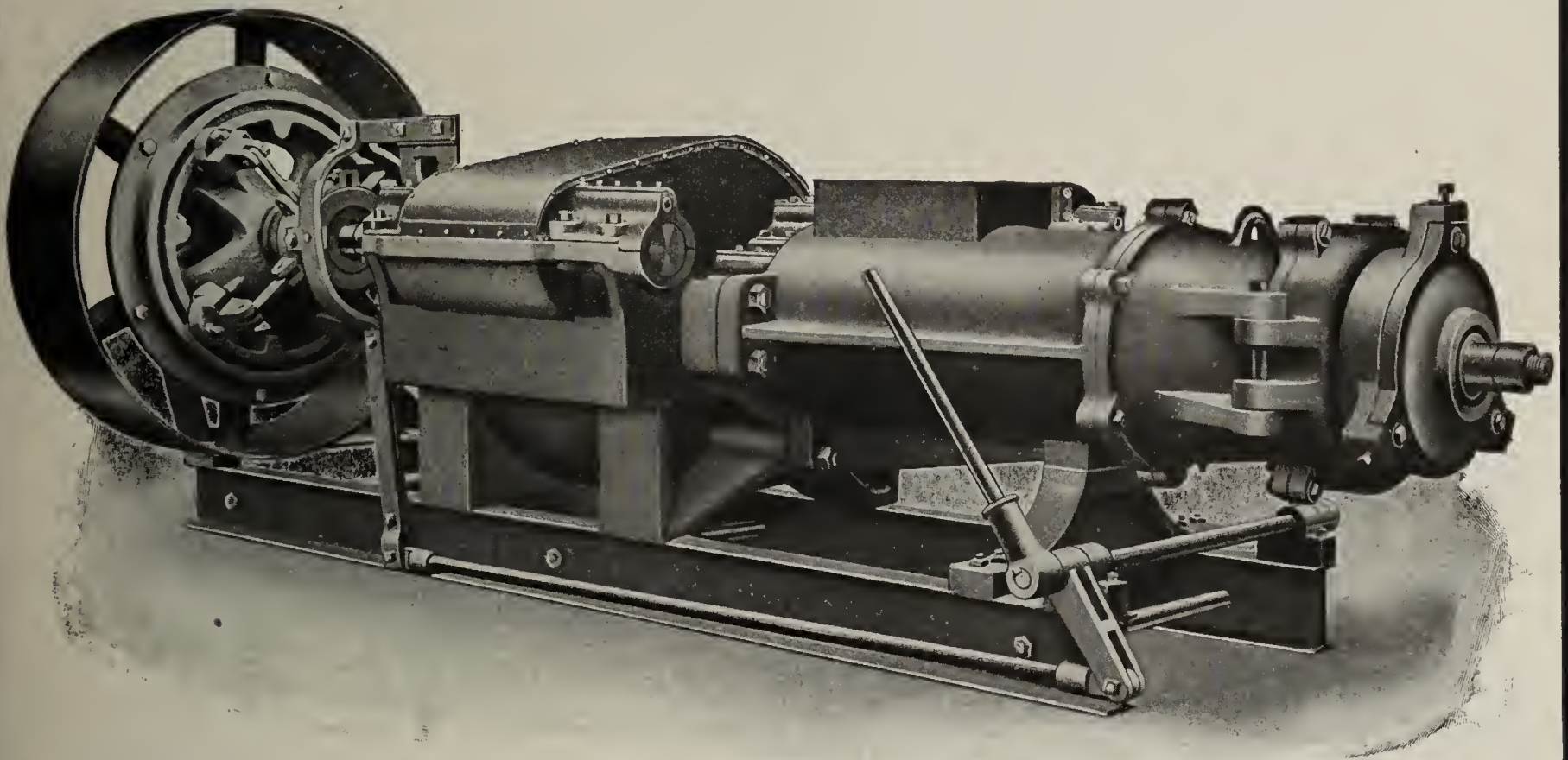
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The Brewer No. 88 Horizontal DRAIN TILE MACHINE

A high grade, high speed, heavy duty pattern, new enough to be up to the minute, but old enough to have shown what it can do.



Here Are a Few Construction Points:

- Cut gears, covered and running in oil.
- Gear frame cast in one piece.
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- Hammered steel shafts. Self-oiling bearings.
- Sectional lined screw case. Heavy 29-in. disc clutch.
- Tool steel bushed dies.

Ask for complete catalog, references and prices.

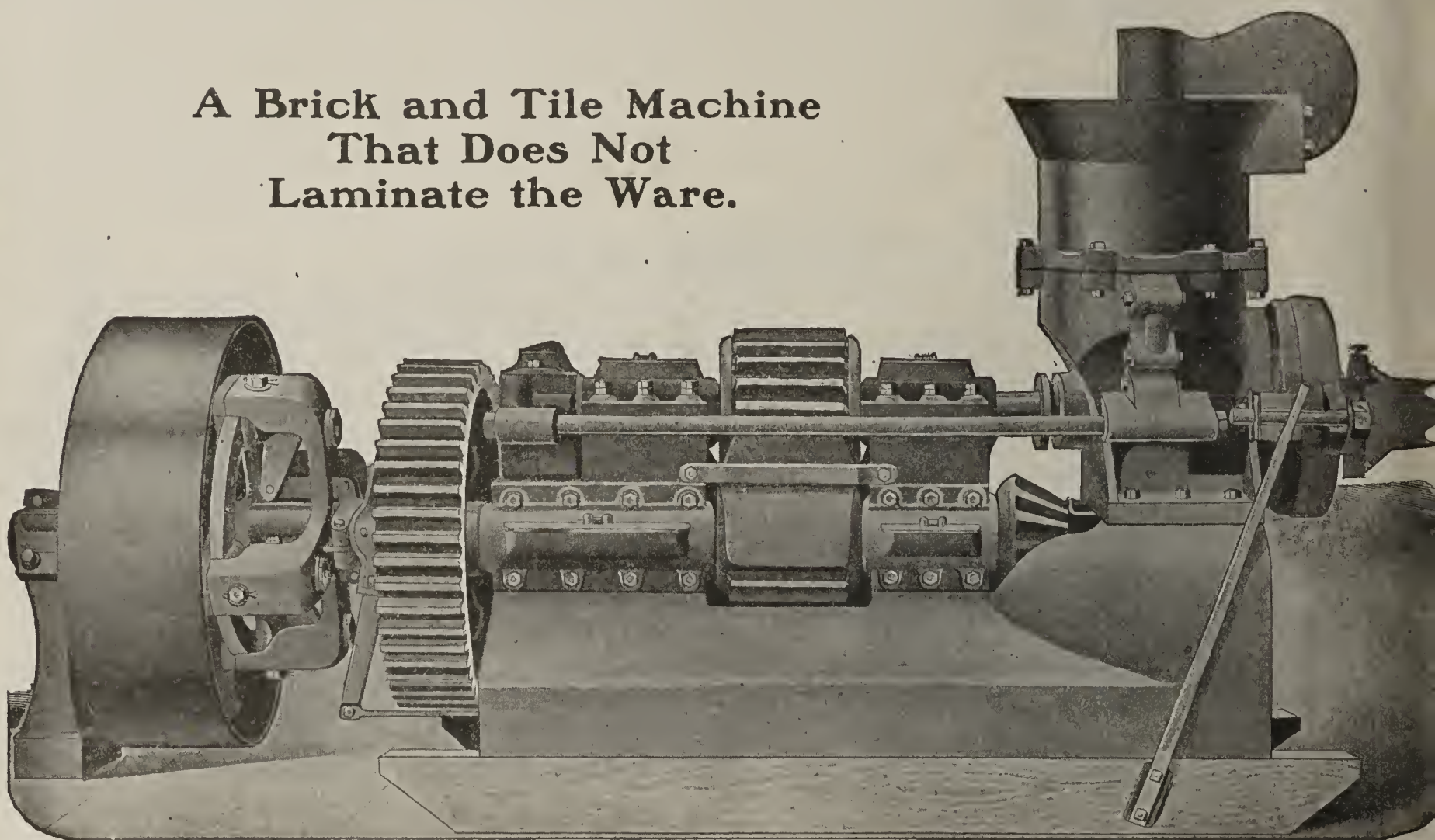
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With The Wonder Machine.

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A Brick and Tile Machine
That Does Not
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The Big Wonder Brick and Tile Machine.

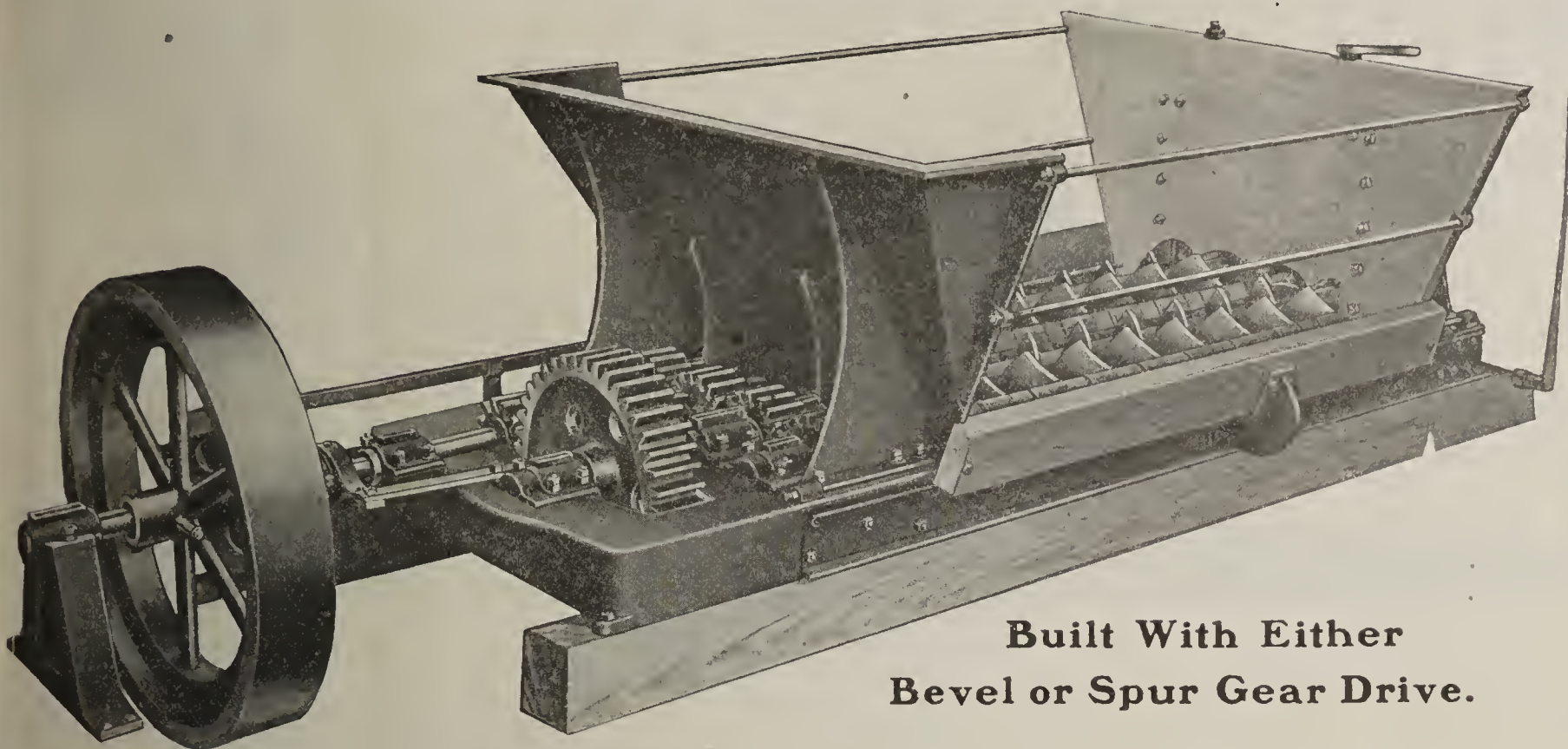
We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

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THE WALLACE MFG. CO.,
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THE ARBUCKLE GRANULATING CLAY FEEDER.

A Great Addition to the MADDEN Line.

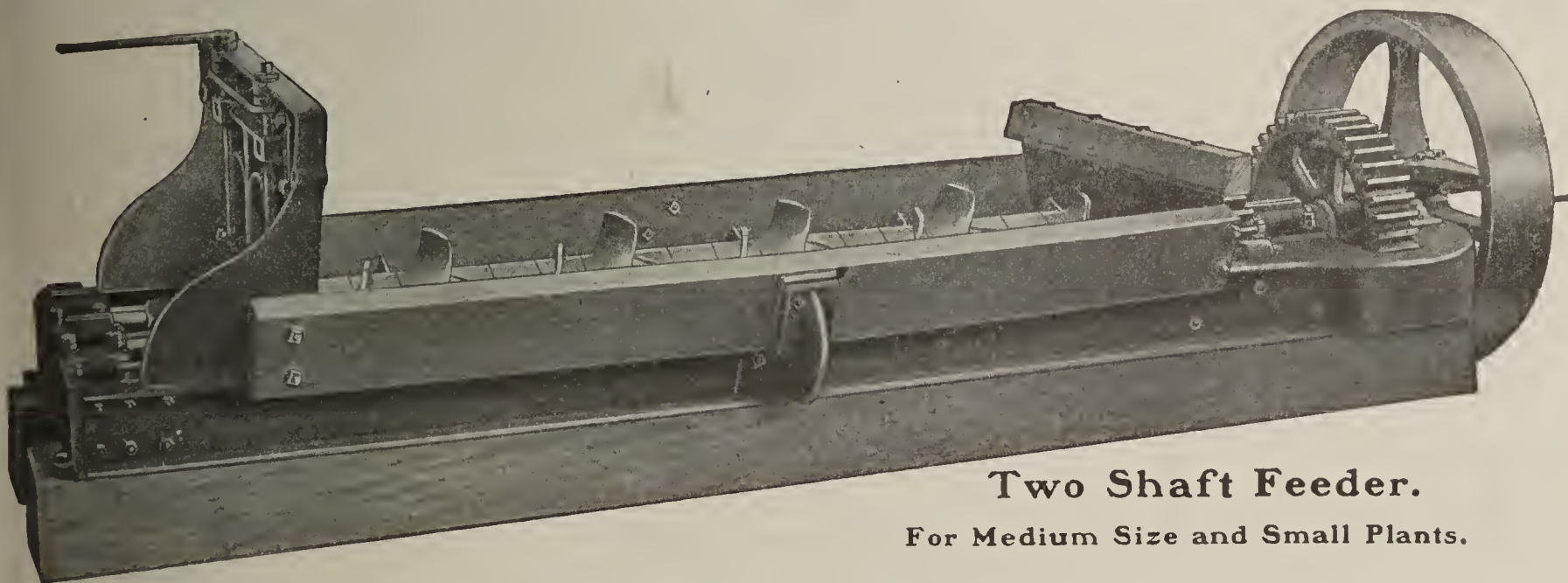


**Built With Either
Bevel or Spur Gear Drive.**

This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



Two Shaft Feeder.

For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 10,000 to 12,000 four-inch tile per day, or 15,000 to 18,000 brick, and will pug the clay up in fine shape.

Note the heavy Gears, Granulating Knives. Hopper can be built up to any height, and it will feed the clay just as you want it.

It is low in price, and no plant can afford to do without one. Write for prices.

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Madden Machinery.

ARBUCKLE & CO., Rushville, Ind.

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REMARKABLE OFFER

We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for

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“POST” SELF FILLING CLEANING FOUNTAIN PEN.



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Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



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GEN. LEW. WALLACE: The author of “Ben Hur” wrote, “I have tried every kind in the market and unhesitatingly give the preference to the “Post.”

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You will please send me THE “POST” FOUNTAIN PEN and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued, beginning with

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Name.....

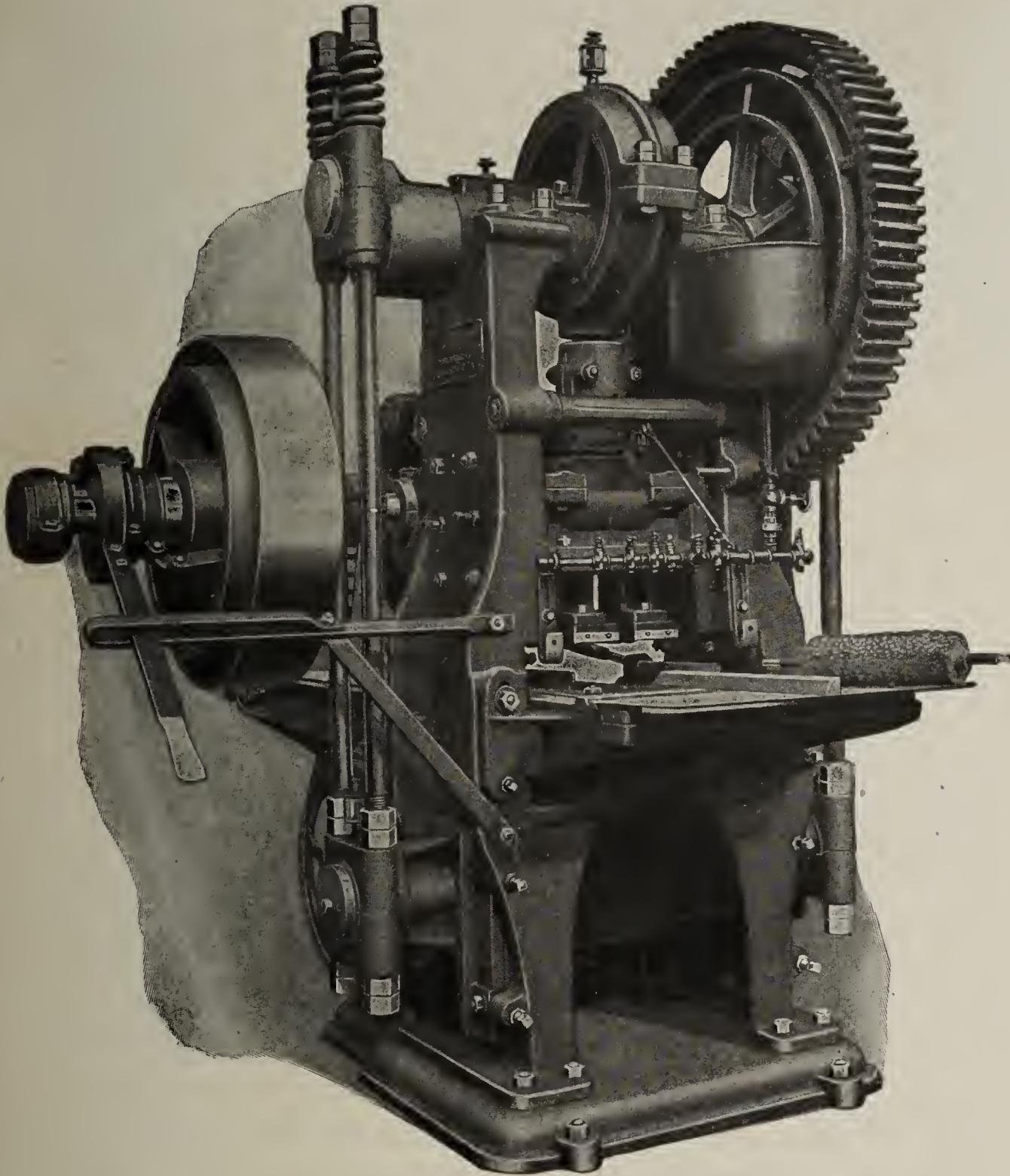
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Canton Repress=Ask Those Who Use It

Has a die of extra depth and brick are moving downward in the die while pressure is applied. Result—Smoother brick.



Capacity 20,000 to 25,000 brick in 10 hours.

Generally conceded by clayworkers to be the best repress built.

Continuous motion.

No links or toggles.

Wearing parts out of the dirt.

AUGER MACHINES, CUTTING TABLES, PUG MILLS,
DRY PANS, SCREENS, ETC.

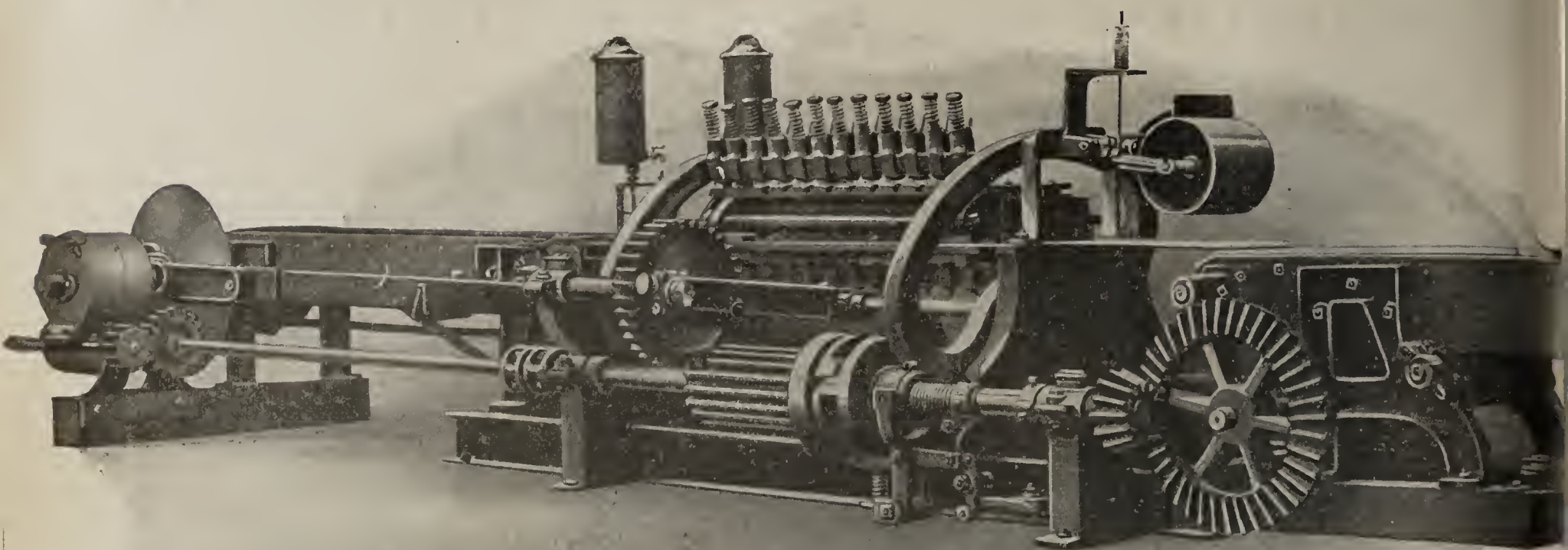
We solicit your inquiries.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

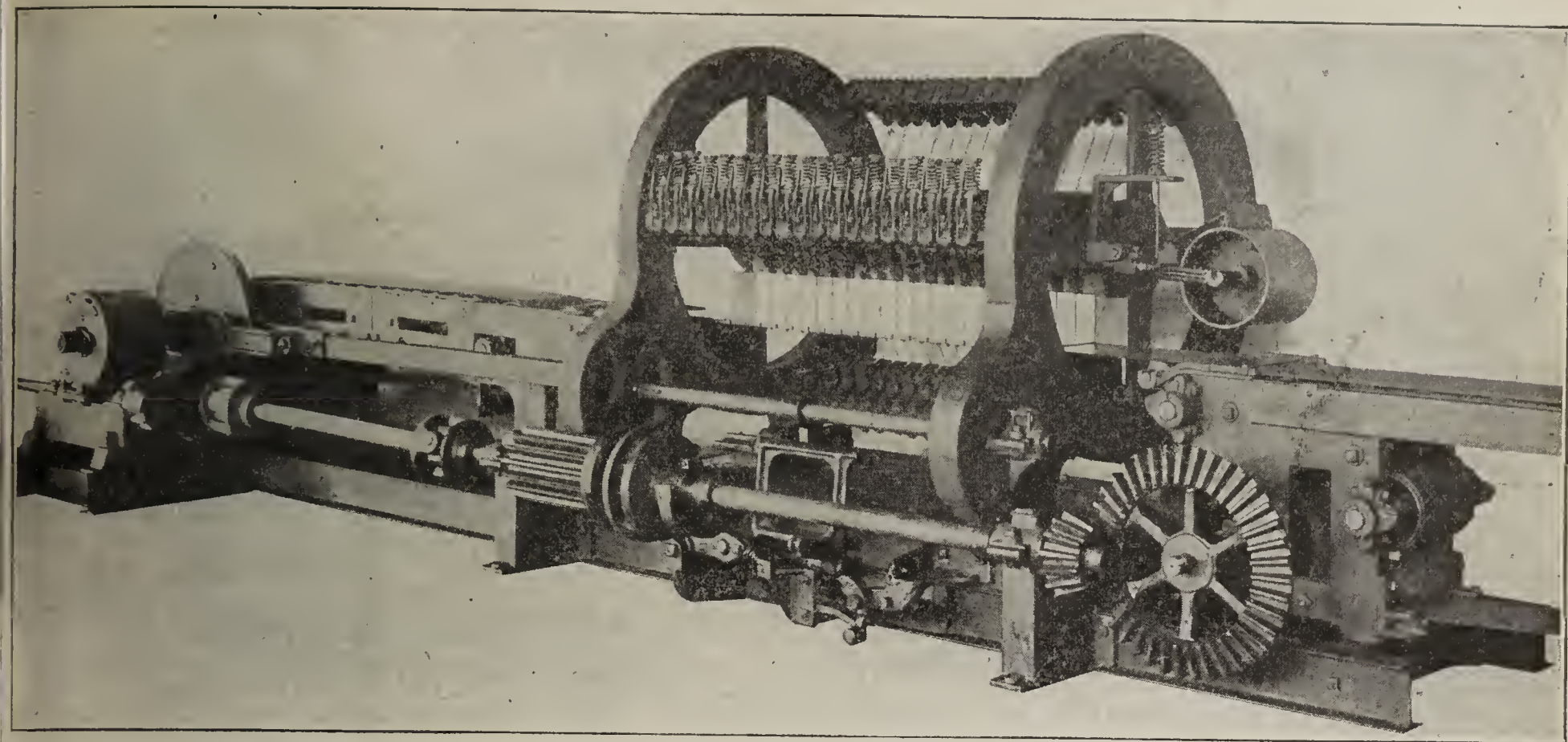
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick-machine to renew broken wires, as this gives ample time.

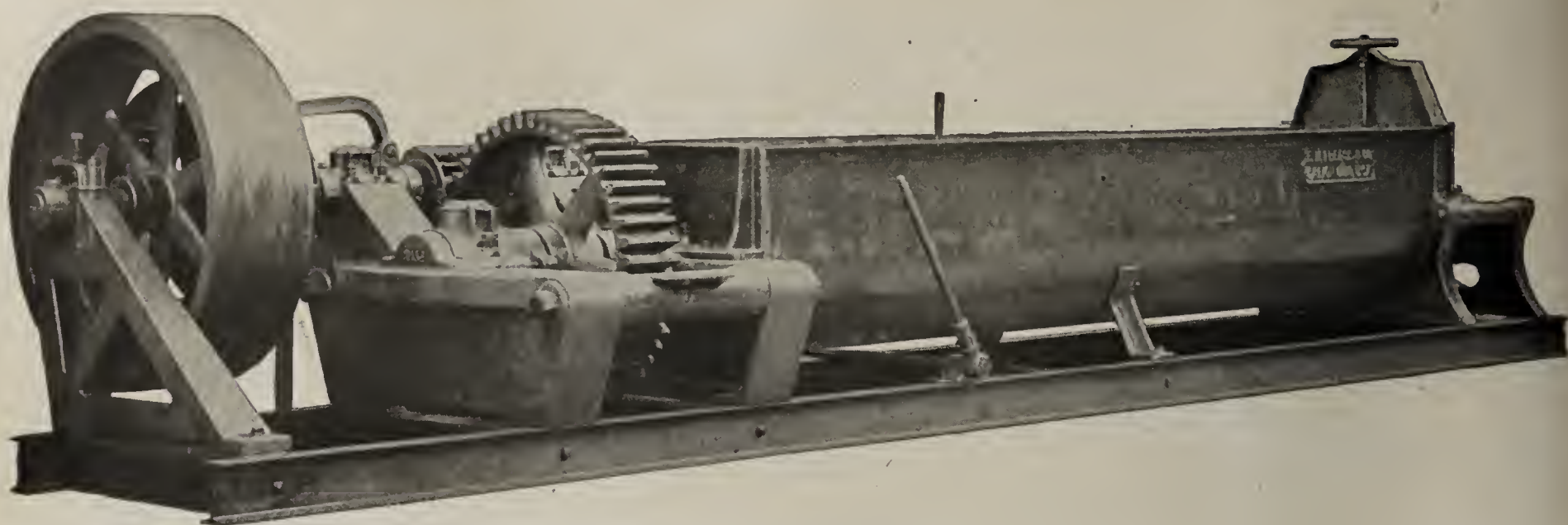
The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

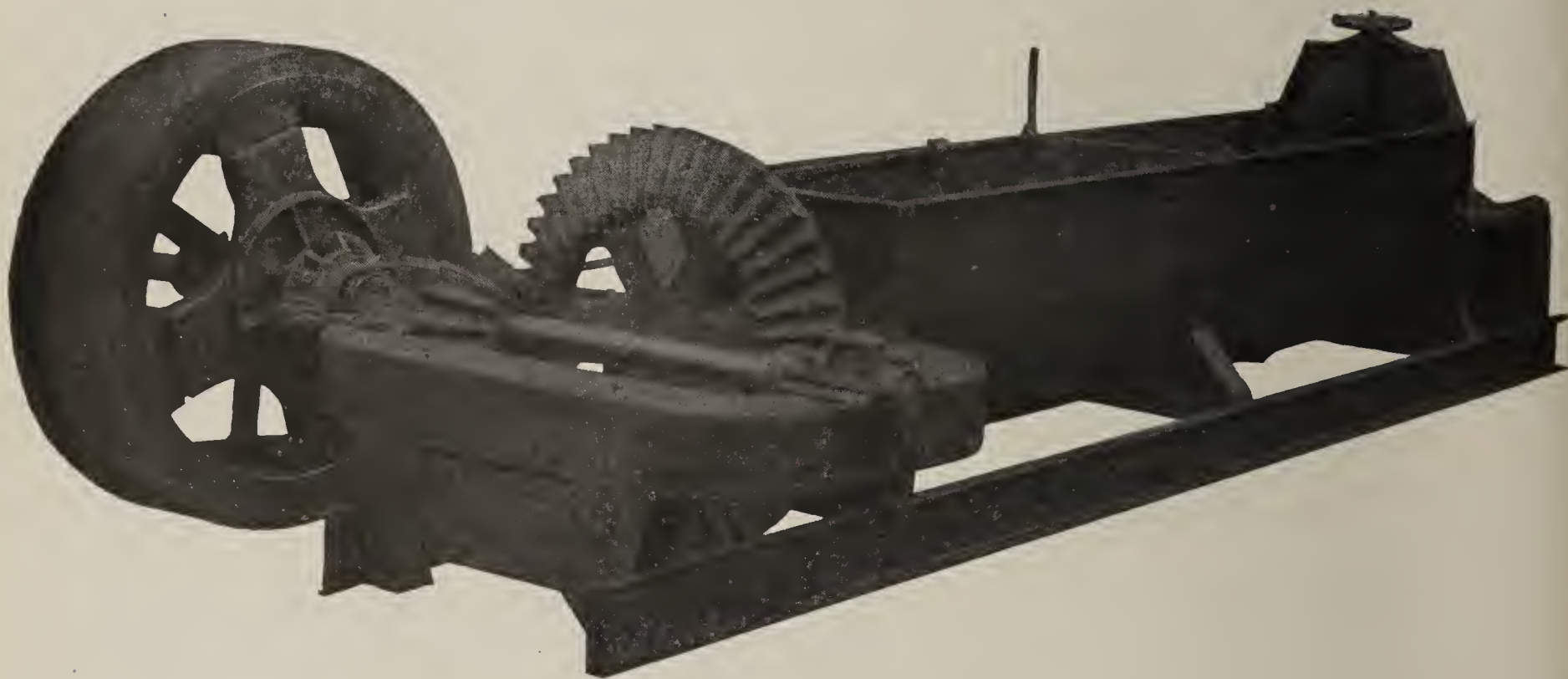
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

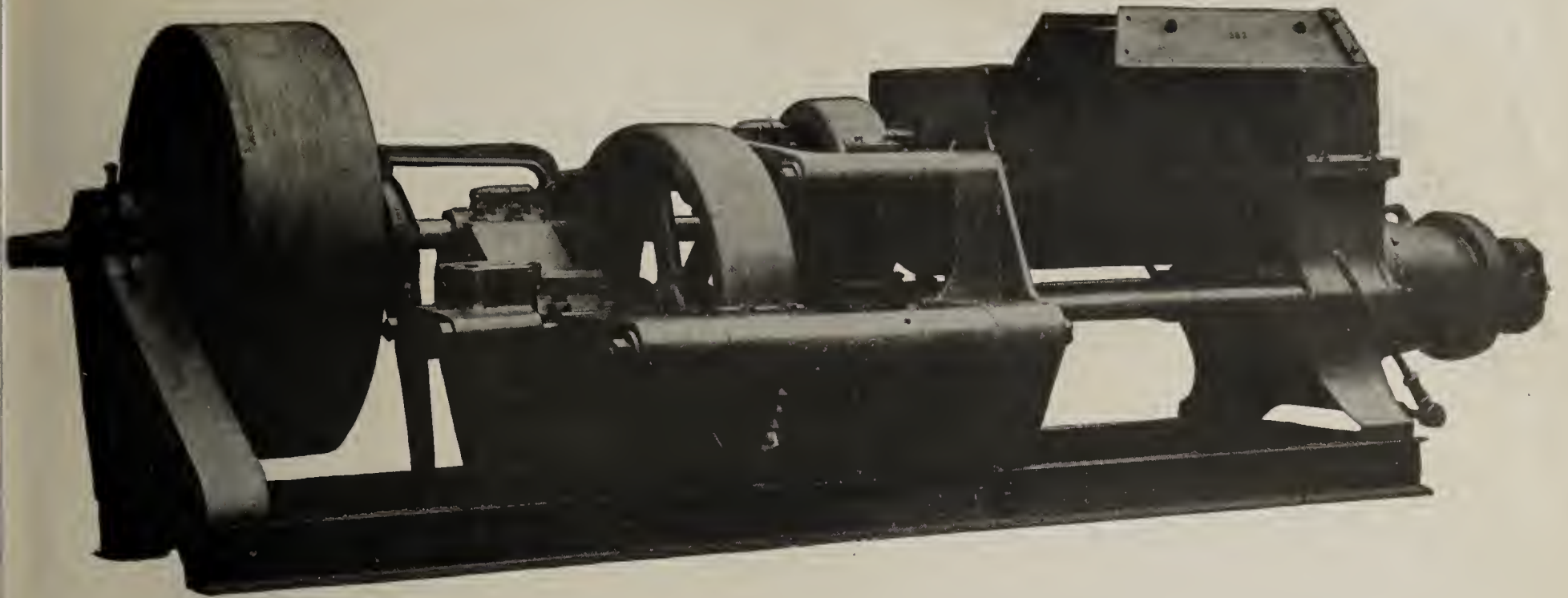


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

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STEVENSON PANS

Famous the World Over
for
Strength—Durability—Efficiency.

9 ft. iron frame

Grinding or Tempering Pan

Built for heavy duty grinding and tempering of silica, fire clay or limestone.

Frame extra heavy.

8 ft. iron frame

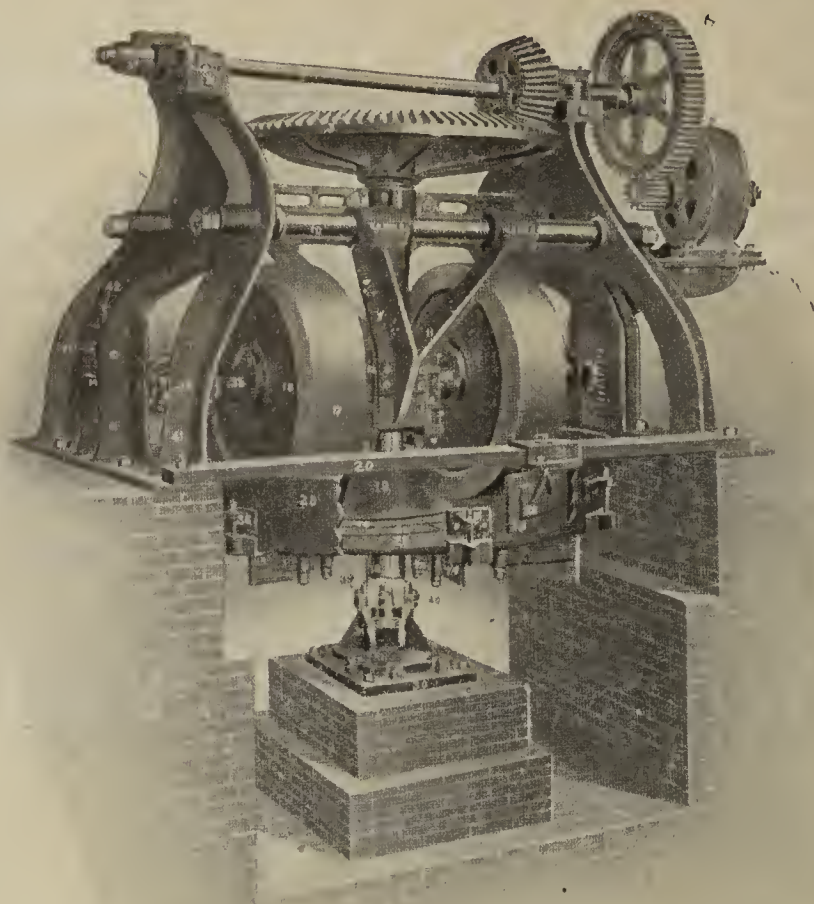
Tempering Pan

Specially adapted for tempering clay or shale, for sewer pipe, hollow ware and tile.

10 ft. iron frame

Heavy Duty Grinding Pan

One of the latest improved pans on the market. Constructed for heavy duty work and durability. Made with adjustable scraper and other improvements.



9 ft. iron frame

Grinding Pan

Pulley or Motor Drive. Rigid, and built to stand severe work.

7 ft. iron frame

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This is what is known as 7 ft. 7 $\frac{3}{4}$ in. pan, and is the same as 9 ft. pan, but reduced in width 18 ins.

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Pulley or motor drive. Thoroughly efficient and especially adapted for sand and clay. Special adjustments for line shaft. Our wet pans same style excepting solid bottom instead of screen bottom.

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For Making Large Drain Tile or Sewer Pipe.

There is money in big tile, and the largest profits are made by plants which can turn out tile up to 36 ins. diameter.

The Stevenson Press will enable you to meet all competition and to operate your plant at a profit when others are losing money. Consult us about the making of big tile.

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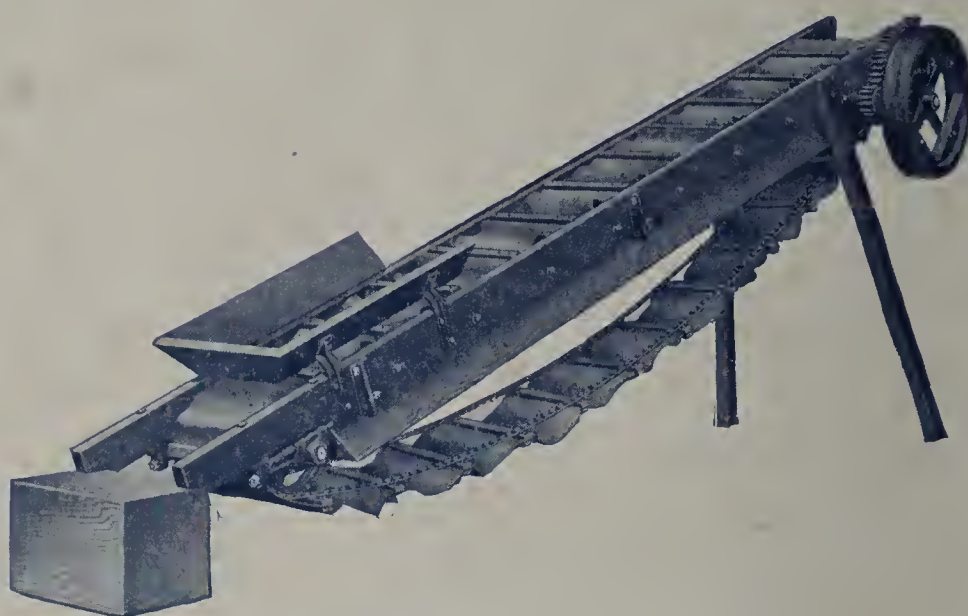
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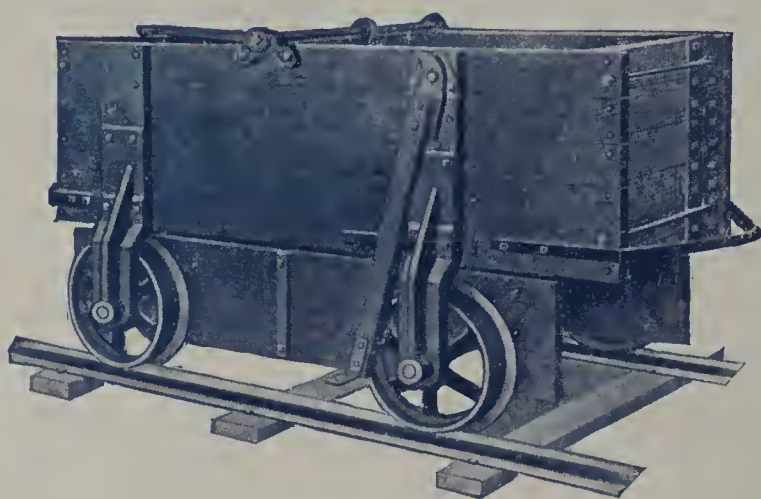
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Sprocket Chain Clay Conveyors.



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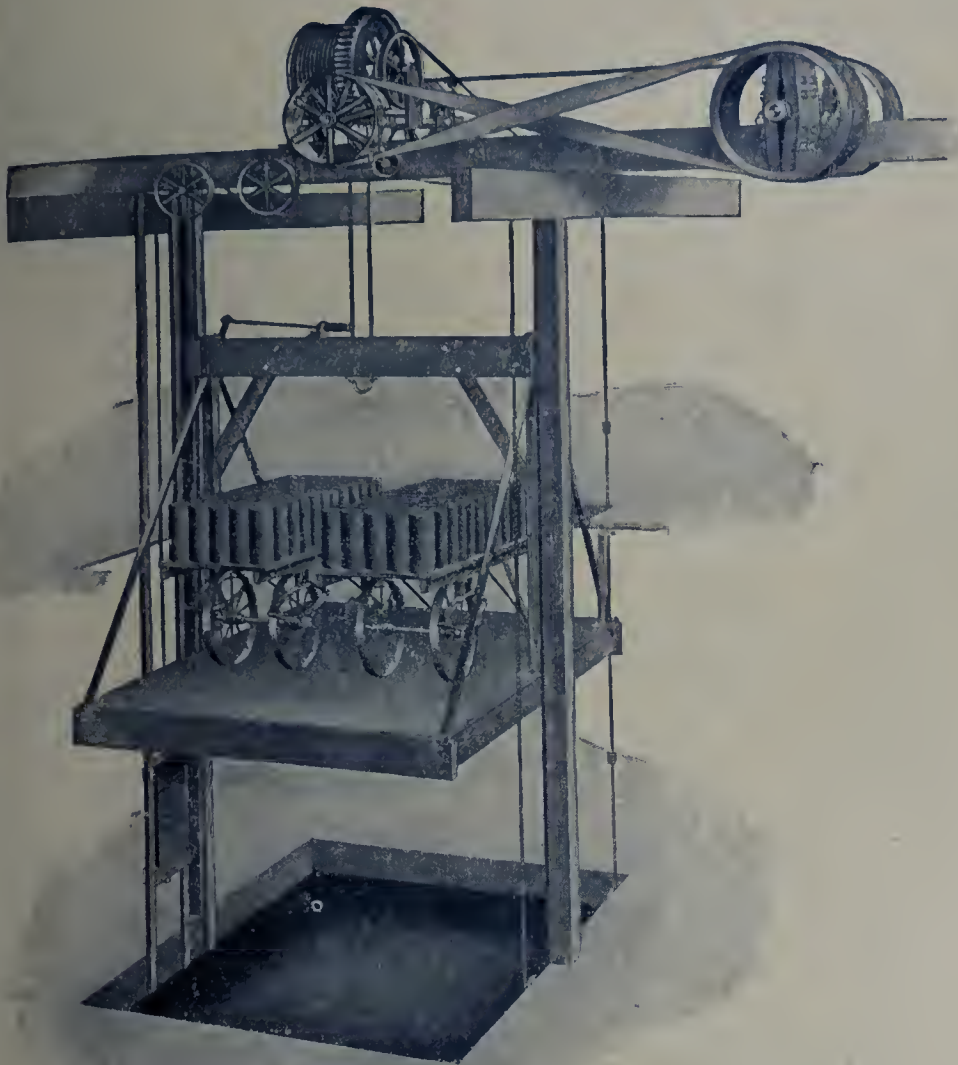


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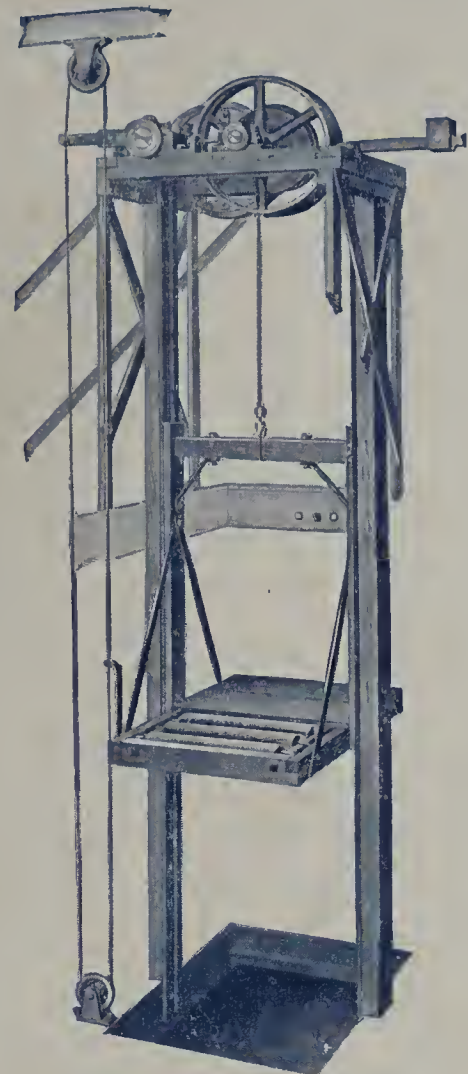
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.
THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

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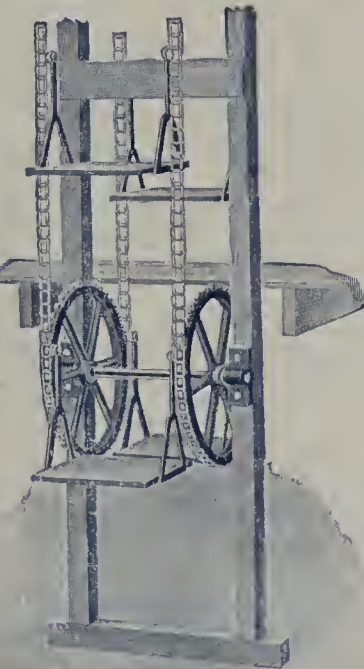
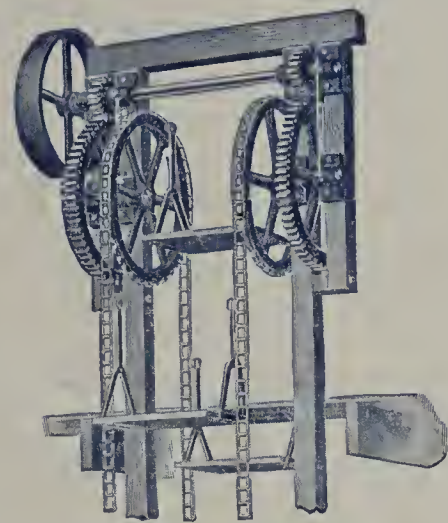


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We Guarantee
the Results
Will be
The Same
For You.

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Gentlemen:

We are in receipt of your favor of the 15th and are pleased to state that your screen which we installed last spring is doing excellent work for us. The positive nature of its screening, eliminating entirely all of the coarser particles of shale, gives our product a much more uniform texture without grinding to an extreme fineness, and, while we were assured of its work and increased capacity in wet mud, we must admit that the results have surprised us and we run right along in wet shale, the screen putting it through all right.

Yours very truly,

ADAMS BRICK CO.

By

F. W. Wood

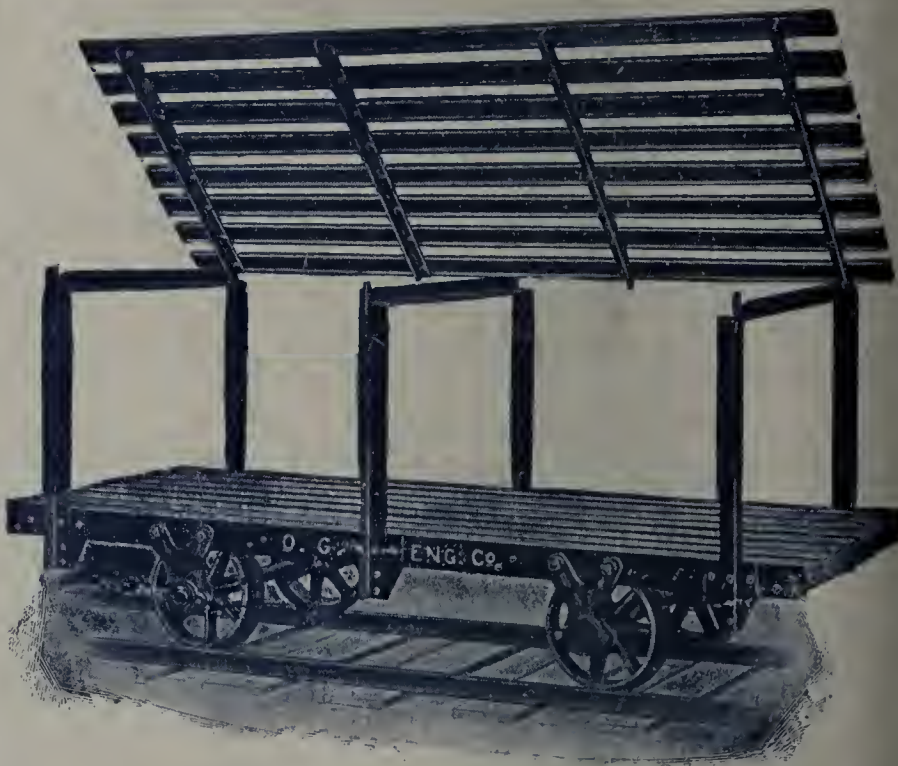
Positive
Satisfactory
Screening
Is Our
Business.

DUNLAP MFG. CO., Bloomington, Ill.

THE PEERLESS LAKEWOOD LINE



- "Lakewood" Soft Mud Rack Cars.
- "Lakewood" Single Deck Dryer Cars.
- "Lakewood" Double Deck Dryer Cars.
- "Lakewood" Three Deck Dryer Cars.
- "Lakewood" Flat Cars.
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- "Lakewood" Portable Track.
- "Lakewood" Dump Buckets.
- "Lakewood" Clay Cars.
- "Lakewood" Kiln Bands.
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Ohio Ceramic Engineering Co.
CLEVELAND, OHIO

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No. 167 DOUBLE DECK CAR.



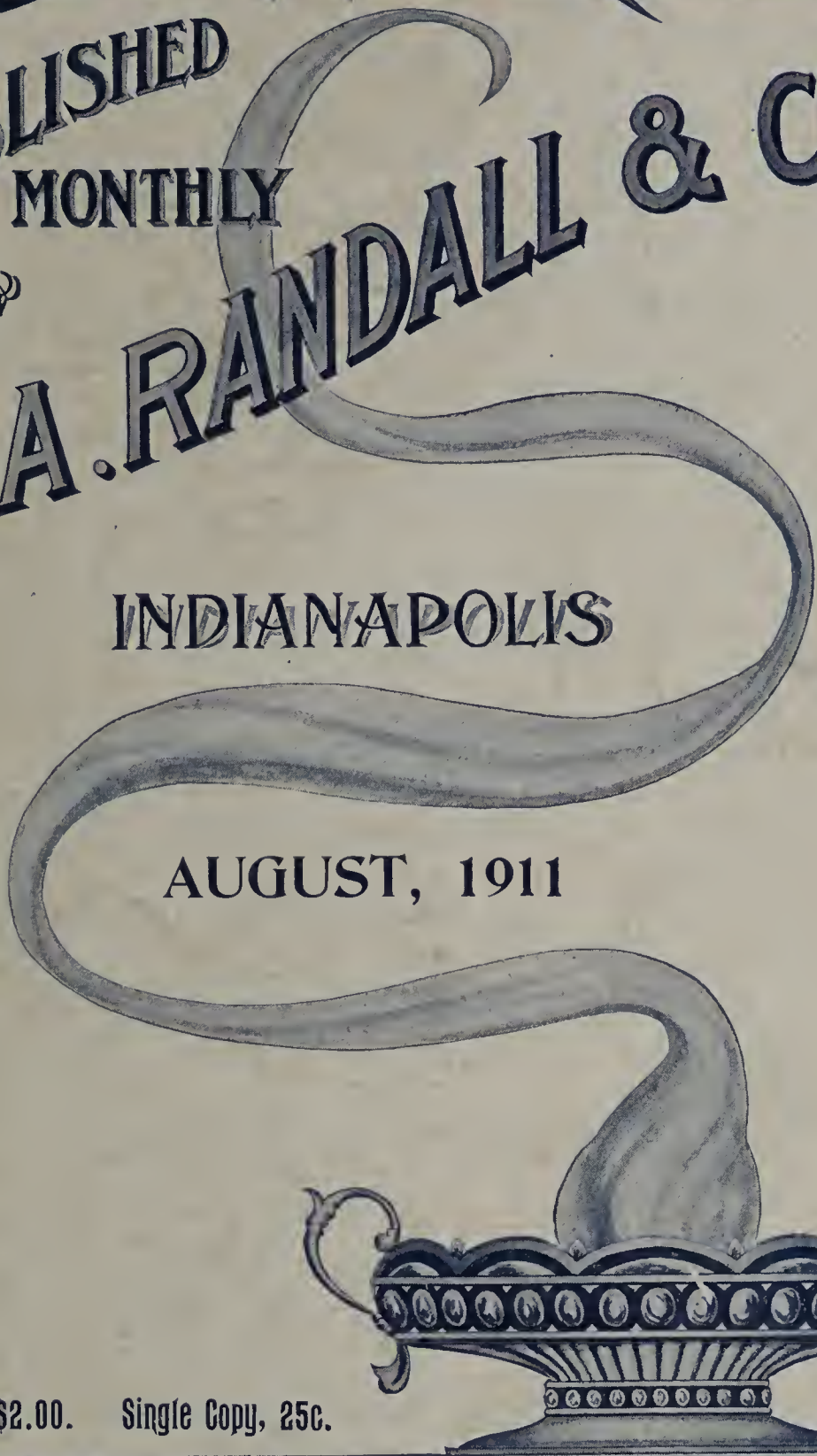
THE CLAY-WORKER

PUBLISHED
MONTHLY
BY

T. A. RANDALL & CO.

INDIANAPOLIS

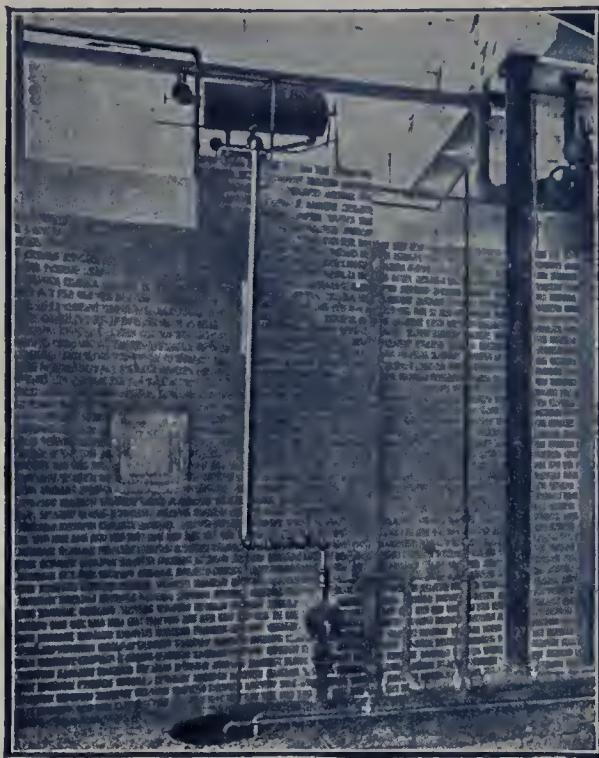
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Will keep steam drying surfaces free of condensation and hotter because of high heating surface efficiency.

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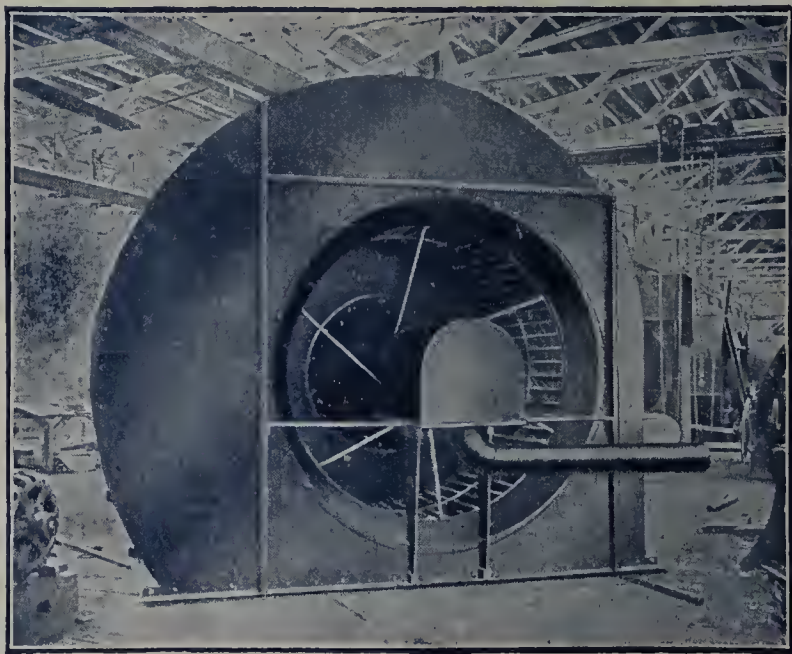
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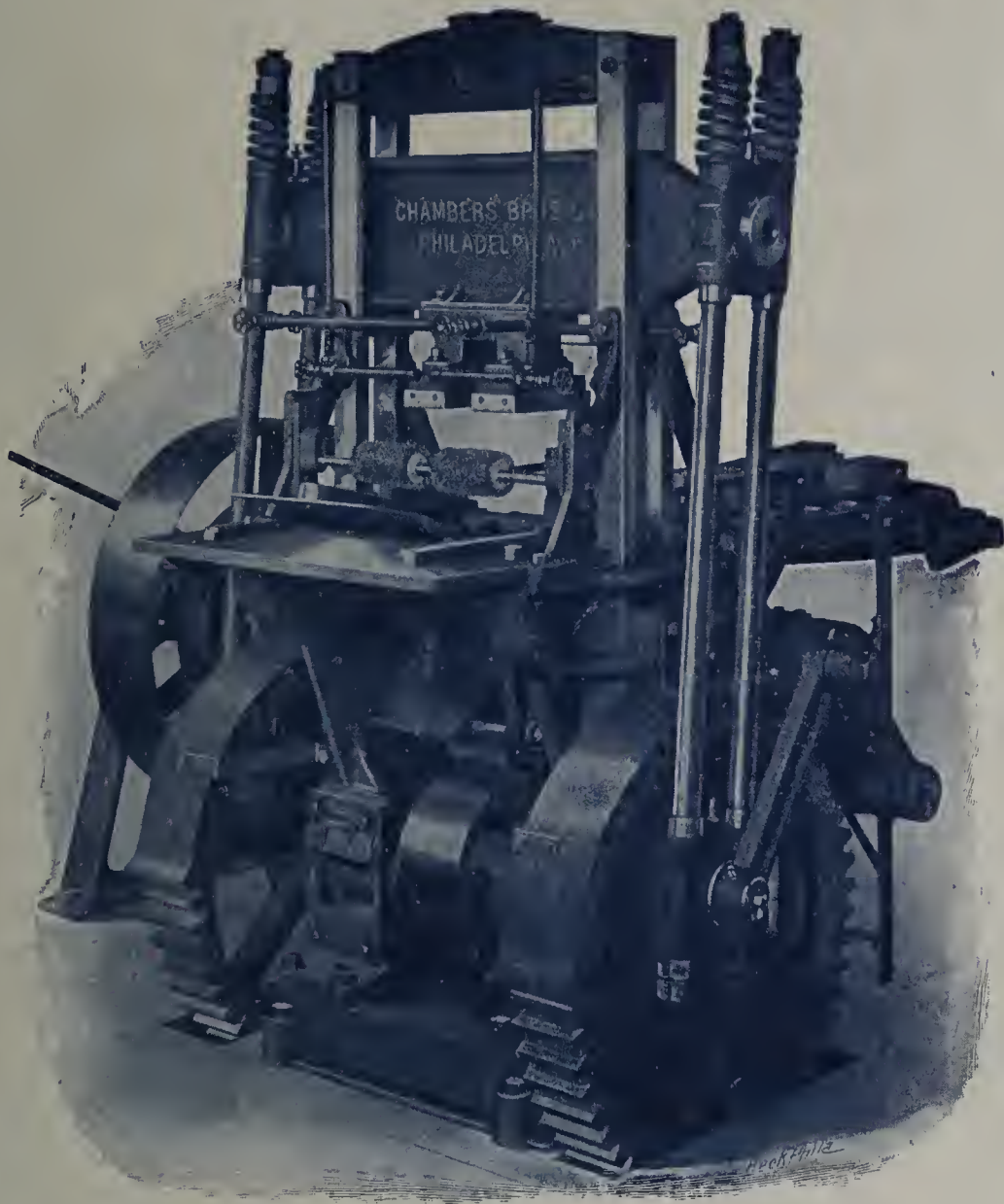


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End-Cut or Side-Cut Street Pavers CHAMBERS THE LINE MACHINES

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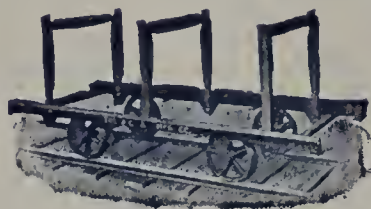
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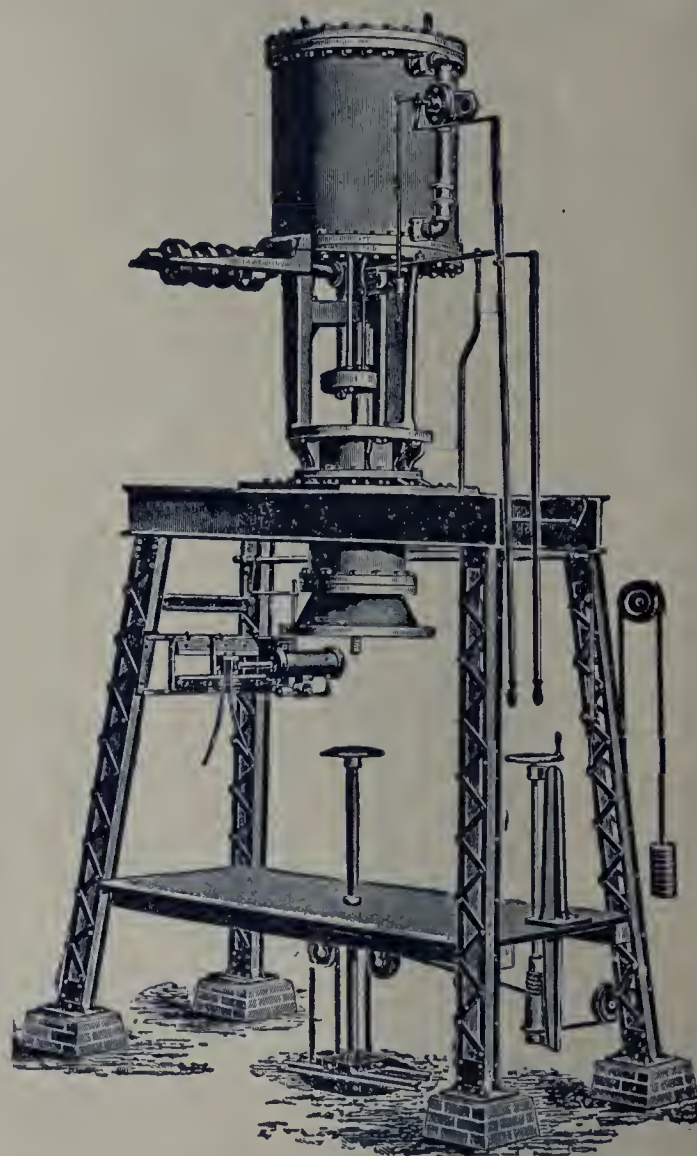
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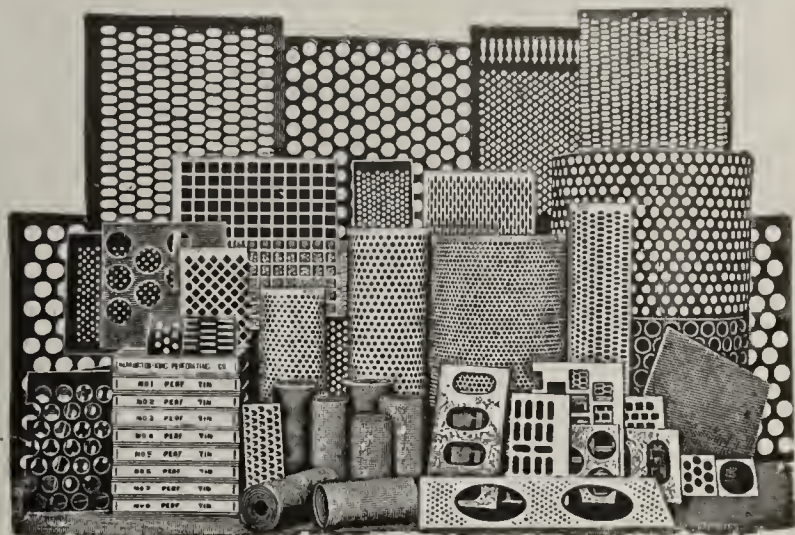
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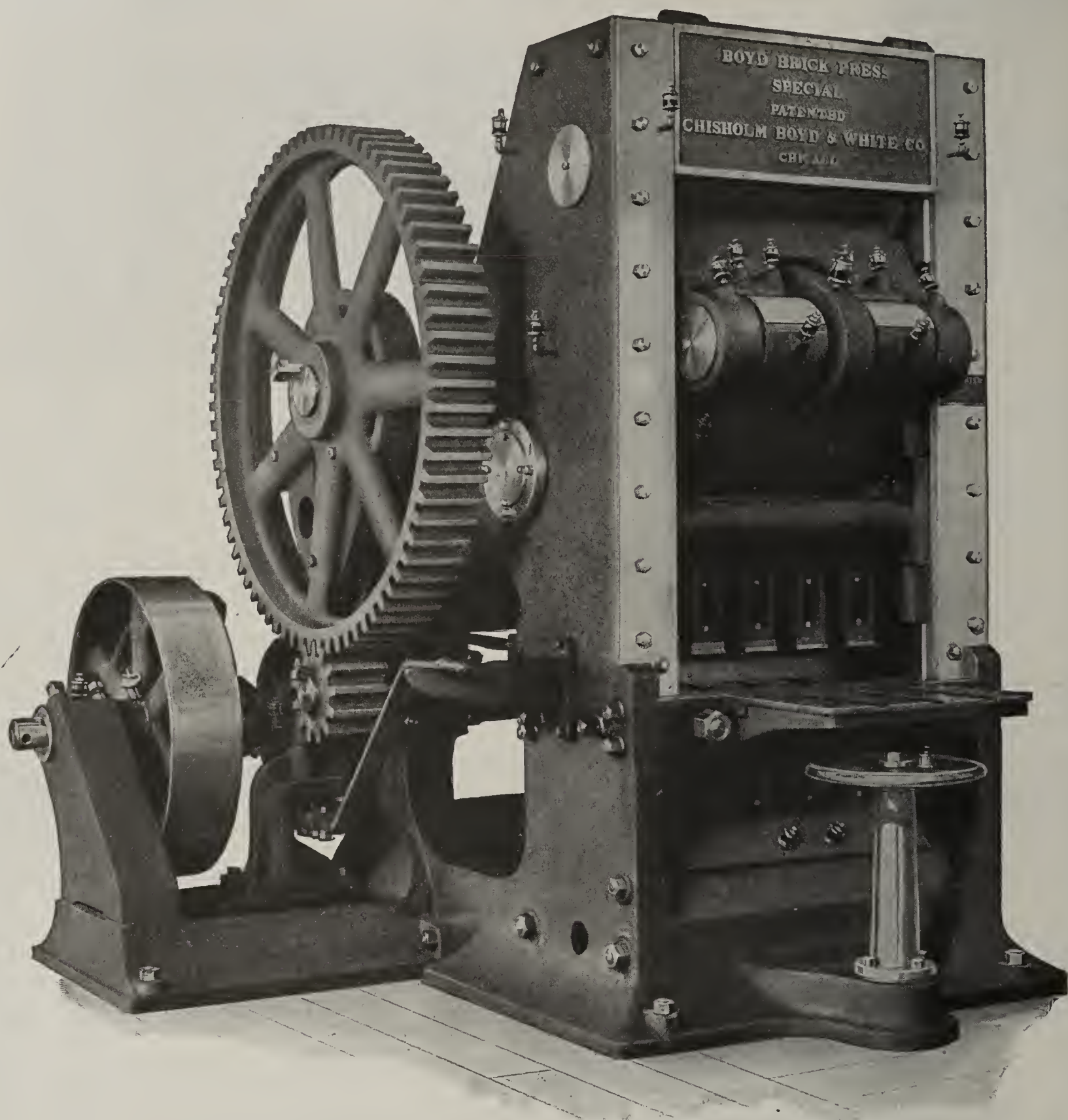


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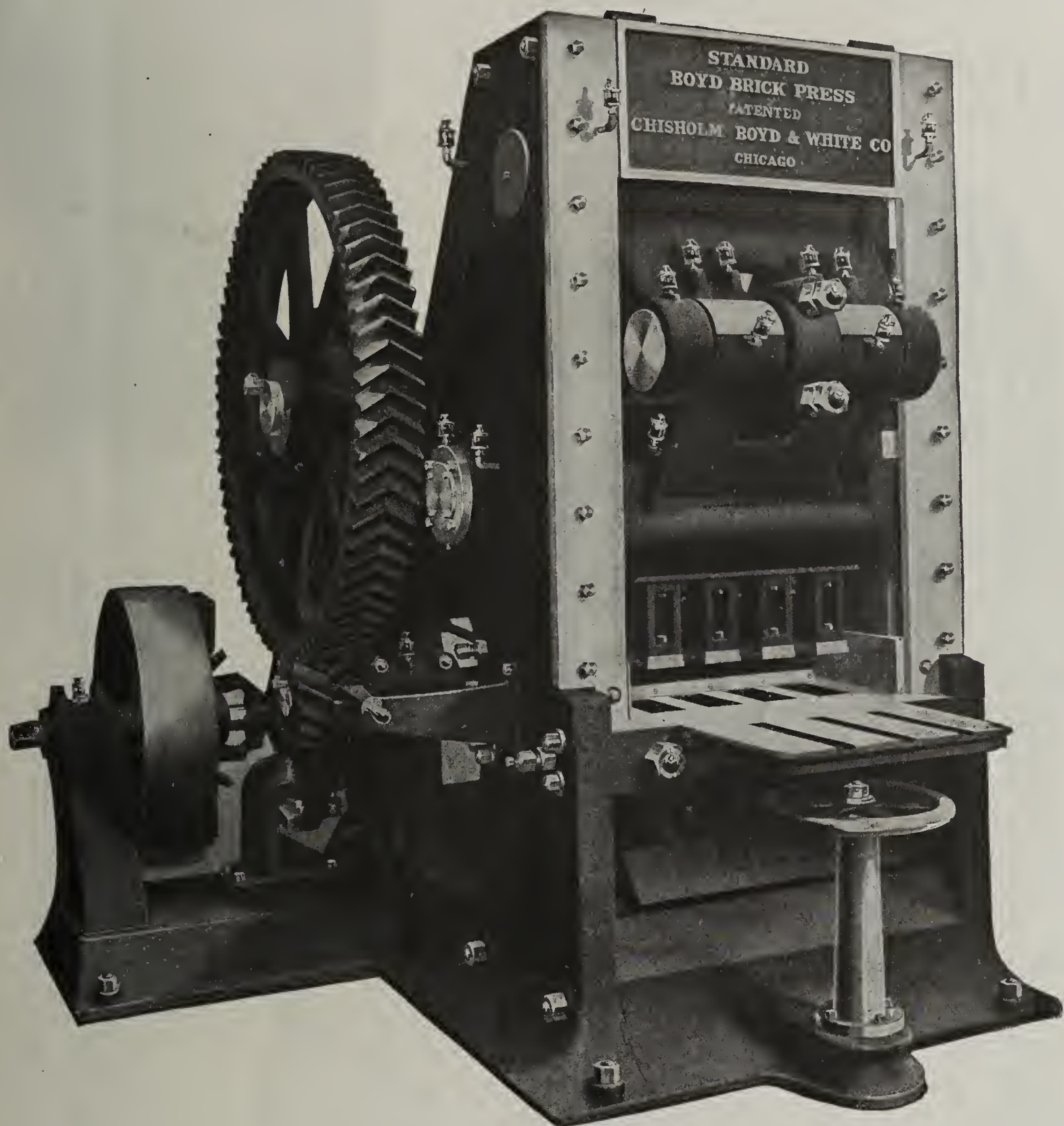
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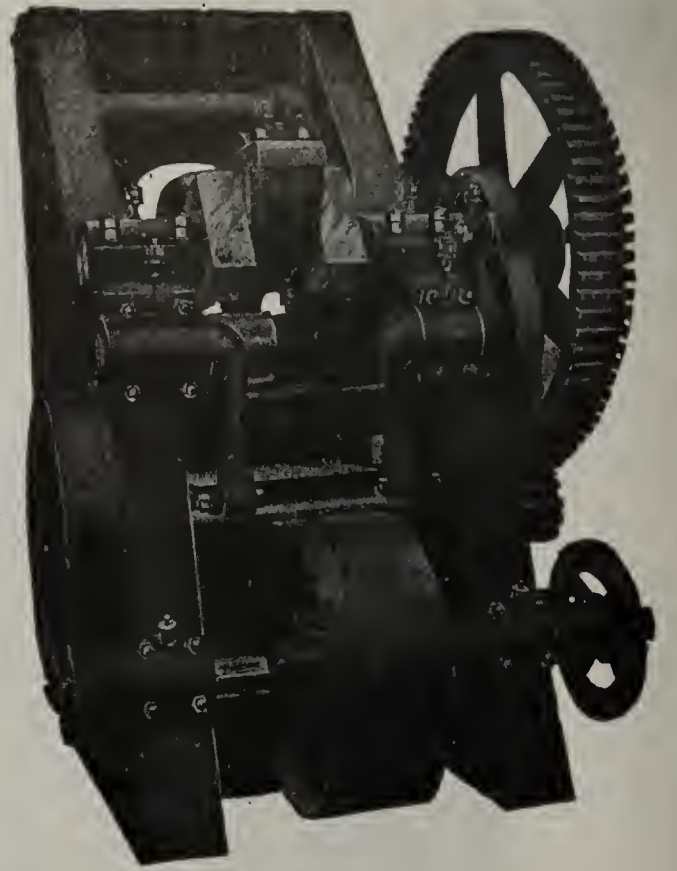
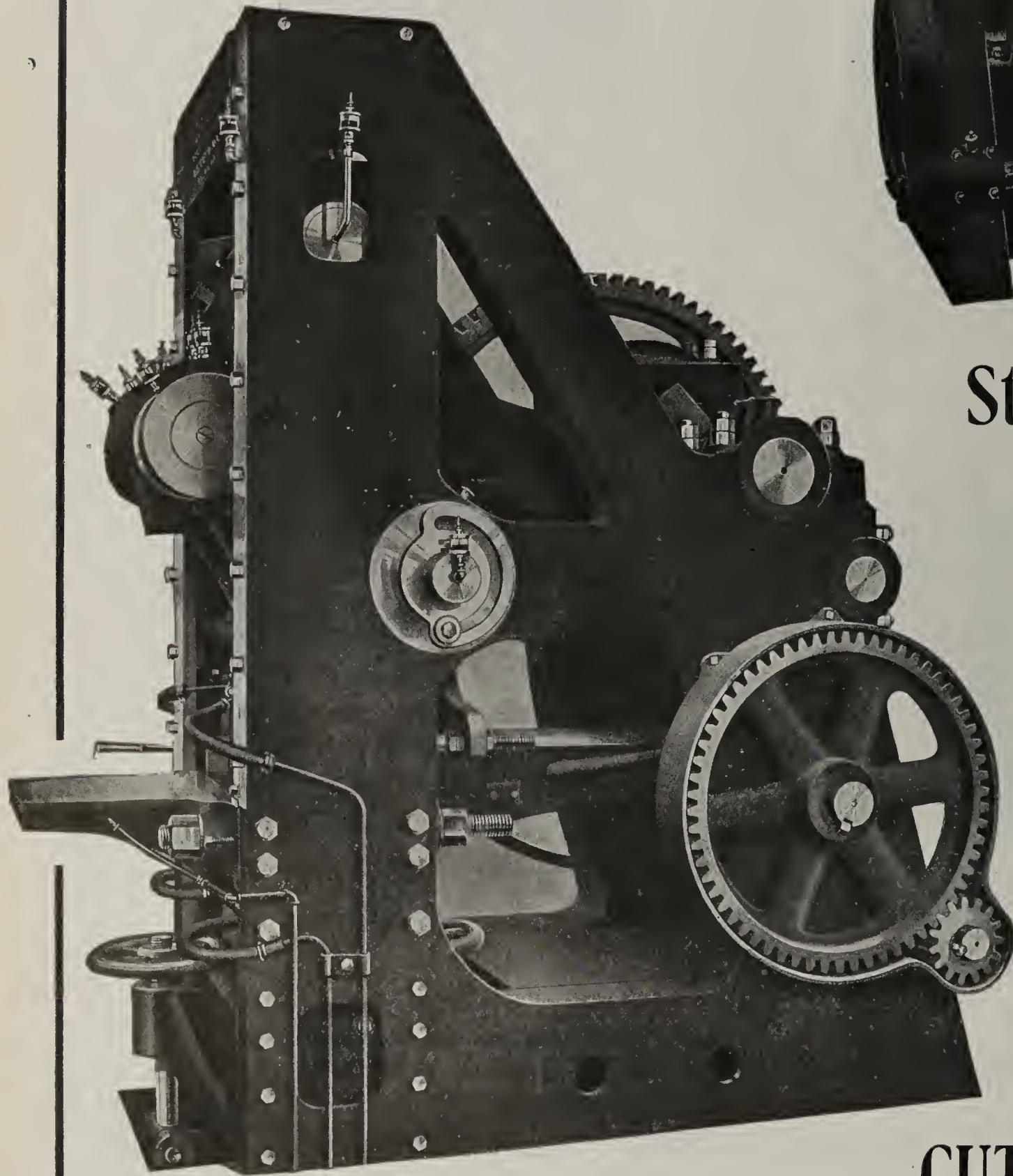
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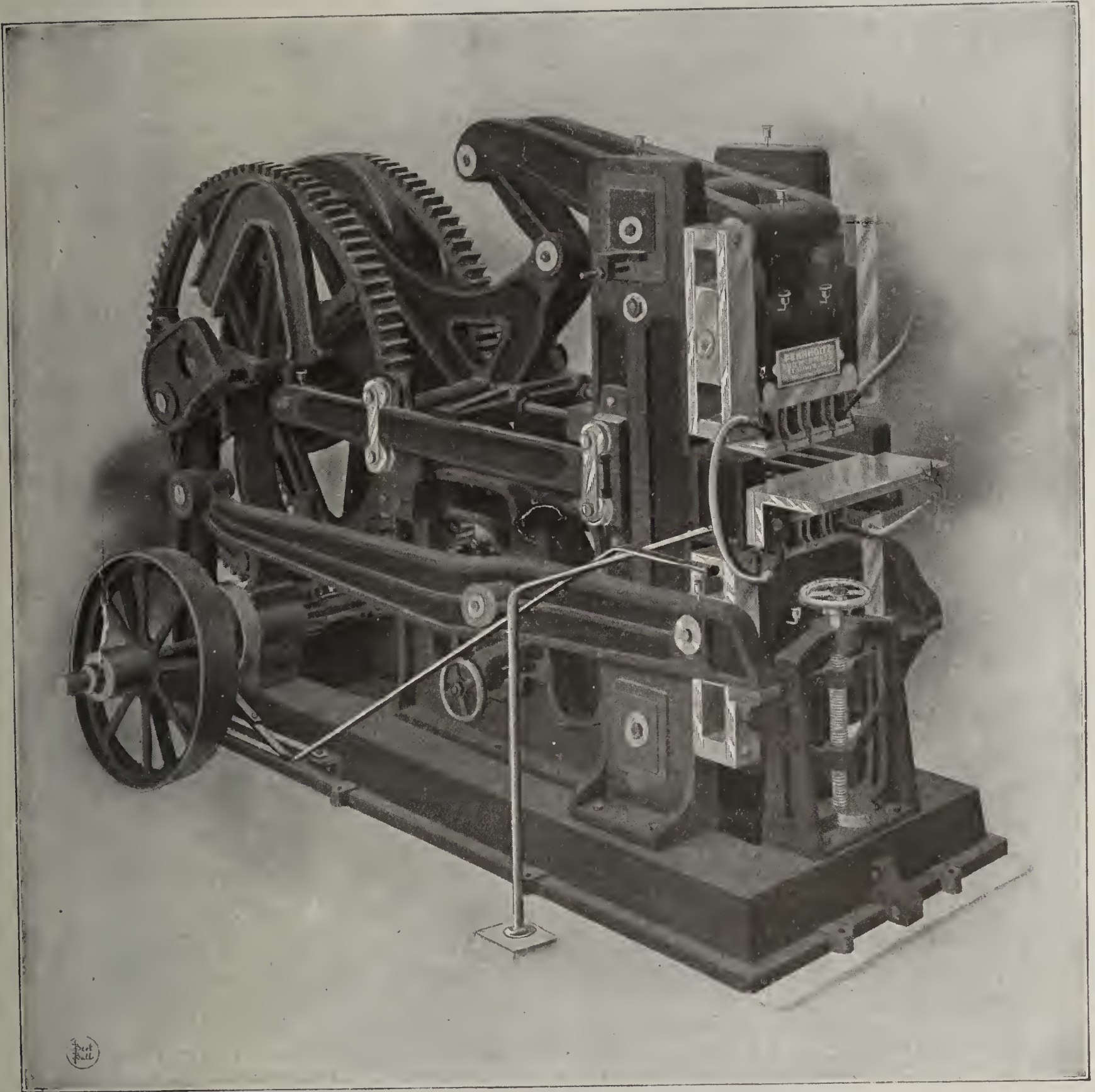
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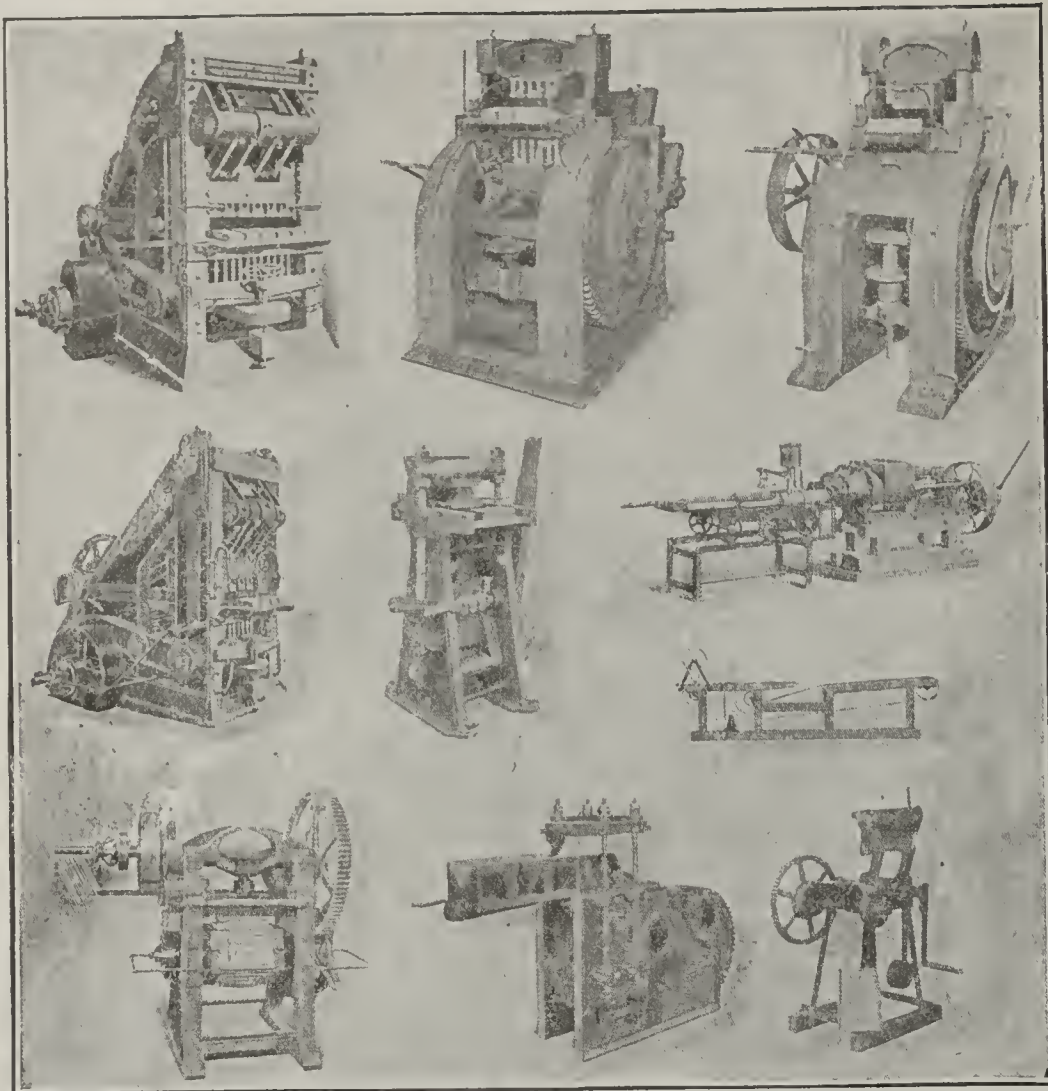
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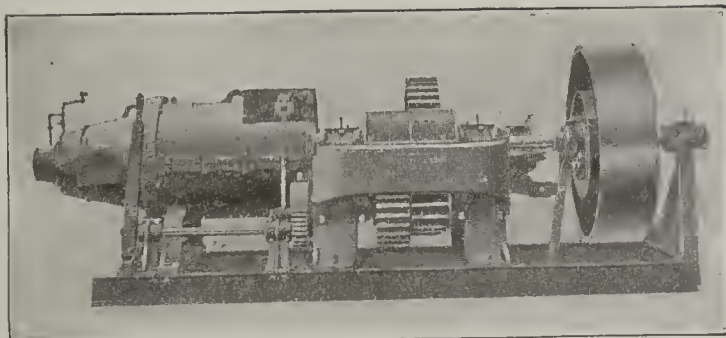
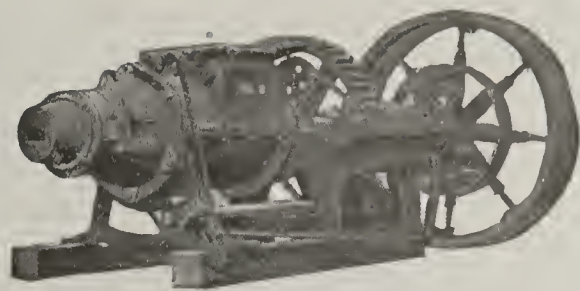
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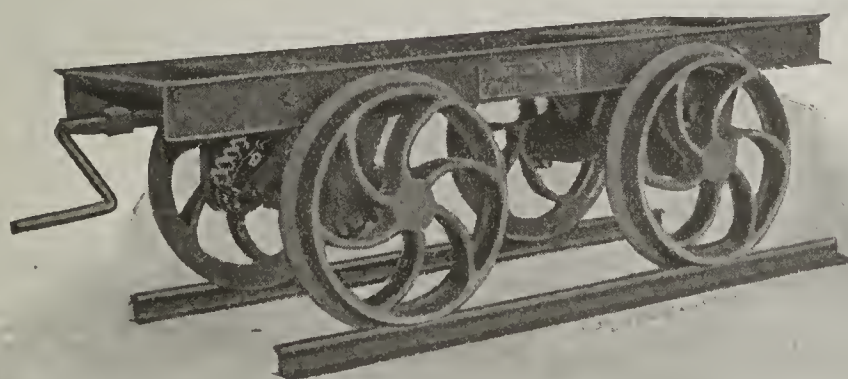
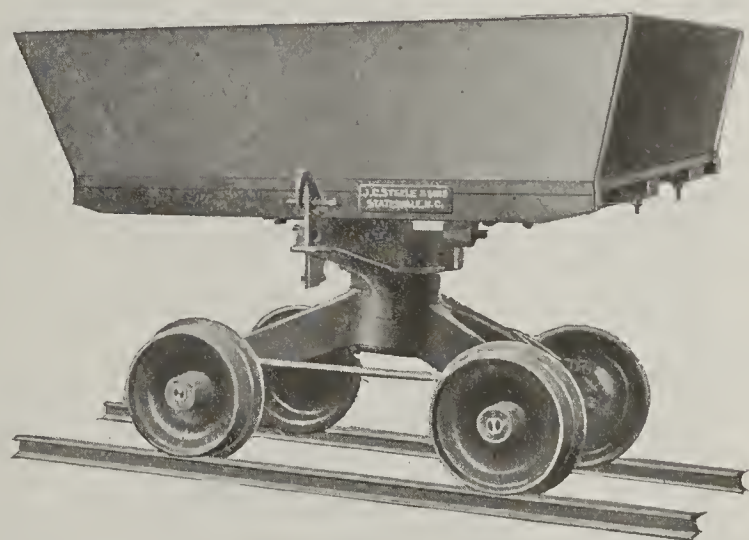
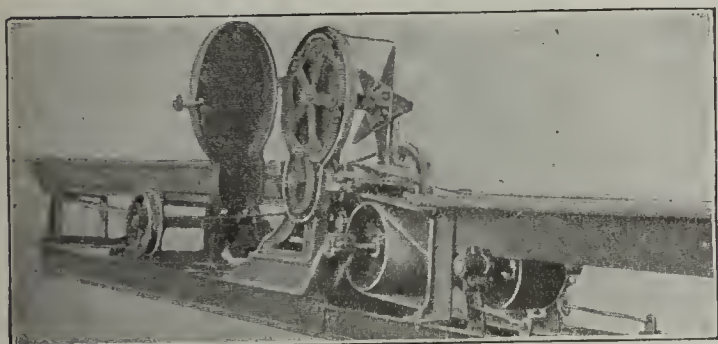
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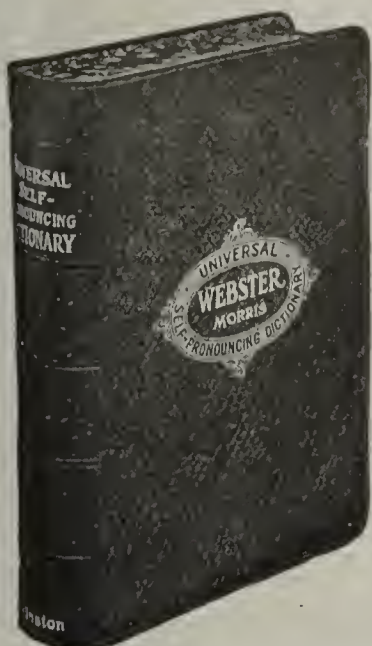
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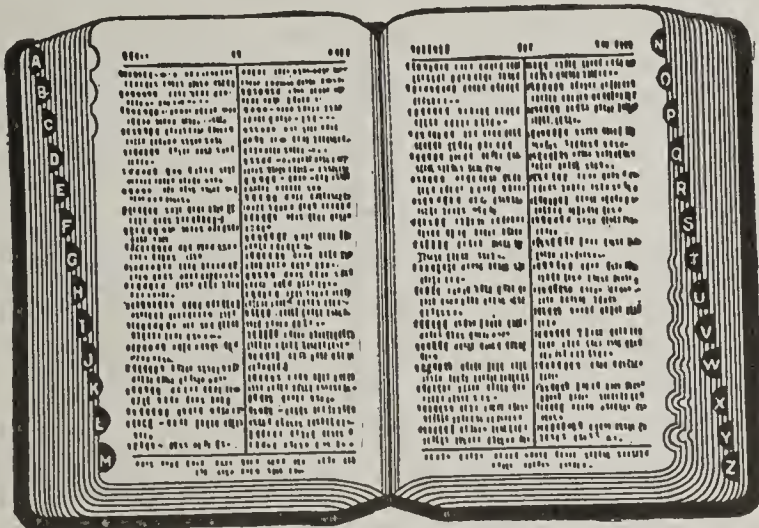
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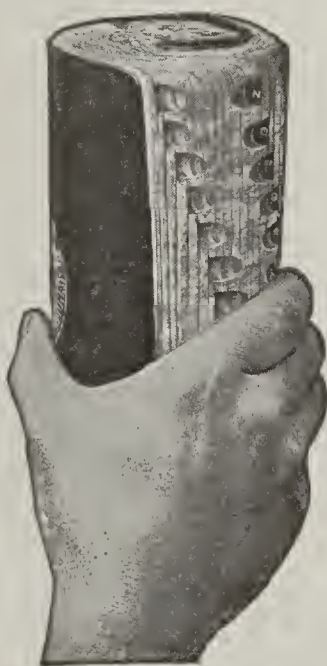
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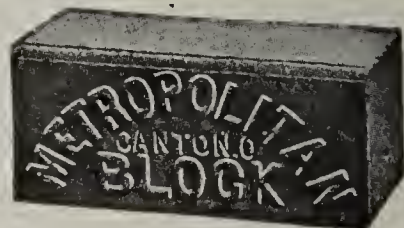
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Vol. LVI.

INDIANAPOLIS, IND., AUGUST, 1911.

No. 2.

Written for THE CLAY-WORKER.

BRICK AND TERRA COTTA BEST, SAYS UNCLE SAM.

The New Naval Training Station at North Chicago an Object Lesson in Good Building.

UNCLE SAM thinks well of clay products in general and terra cotta in particular. His opinion was sufficiently high to cause brick and terra cotta to be specified as the chief articles of construction in his magnificent new

house on the lake shore and lagoon at the foot of the bluff, terra cotta of a warm brown color really gives the keynote of the whole scheme of architecture. As one walks through the grounds he is impressed with the idea of substantial simplicity. The buildings are plain of line without being either unattractive or unduly stupendous. In a word, everything is trim without being prim, and inasmuch as it is a naval training station, perhaps the term "shipshape" could be used appropriately.

Beauty and pleasing detail have not been sacrificed, but



Main Entrance, Great Lakes Naval Training Station, North Chicago, Ill.

naval training station at North Chicago, Ill., and he has every reason to congratulate himself upon his judgment and taste, now that the station is open to receive recruits for the navy, for it has been pronounced the finest of its kind in the world.

Every one of the thirty-nine buildings which make up this model training station, is of brick construction, and in each of these buildings, every bit of ornamental work—window trim, cornices, copings and panels—is of terra cotta. From the caps on the columns of the ornamental gateway at the entrance, back through the vast grounds to the boat-

they have not been emphasized. One is conscious of no deliberate intent to produce these results. They dawn upon the vision as naturally as the trees and shrubbery. W. D. Gates, "King of Buttonholers," and president of the American Terra Cotta and Ceramic Company, gave personal supervision to the decorative features, and such results are characteristic of Gates's way of doing things. But we are digressing, for this article isn't about Gates, but concerns an exceedingly interesting piece of work with which he happens to have been connected.

To begin with, a statement of the character and purpose

of the training station may not be amiss. It is a school for the training of seamen for service in the United States Navy. It is designed for the benefit of the boys and young men of the Middle West who desire to serve their country on ship-board, although already it has recruits from Louisiana and from west of the Rockies. In general, the advantages afforded by the United States training stations at Newport, Norfolk and San Francisco, are now put within convenient reach of the youth of the mid-continent at the Great Lakes station. As yet there is not the opportunity for the short cruises aboard sea-going war vessels at the North Chicago station. No gunboat or other vessel has yet been assigned there, and indeed such permanent assignment would be almost out of the question at present because of the fact that the water is too shallow at that point, and that the nearest harbor is at Waukegan, a few miles north. It is the writer's idea, however, that the Federal government, having assigned a gun-

Commercial Club and prominent and influential citizens of Chicago raised sufficient funds for the purchase of the land, and presented it to the United States. The Government took formal possession of this tract of ground on July 1, 1905, Rear Admiral Albert Ross, U. S. N., then an officer of the rank of captain, being assigned by the Navy Department as the commandant of the station. The organization of the construction force and the work done since that time in establishing the station, has devolved upon Admiral Ross, and the results achieved reflect the greatest credit upon him. There still remain a few finishing touches to be made, but these for the most part will consist in removing from the landscape the last scars of construction work. The total cost of the station is about \$3,500,000. It will be dedicated in the fall.

It was a beautiful forenoon of latter July—one of the last of the cool days we had last month—when the writer



Entrance to Drill Hall. Mr. Gates on the Left.

boat—at present the Dubuque—to the Illinois Naval Reserves at Chicago, it might easily be stipulated that the naval training station be given the use of it at certain limited periods during the season of navigation. This ought to be practicable for the reason that the Naval Reserves make the chief use of the gunboat on Saturdays, Sundays and holidays and during the two-weeks' cruise in midsummer.

The Great Lakes station is really somewhat south of North Chicago and is reached most conveniently by the Chicago & Milwaukee electric line from Waukegan or Lake Forest. It covers a site of 182 acres lying between the tracks of the electric road and the lake shore. The reservation is a beautiful piece of ground and is admirably located. It was most favorably considered by the Government for the establishment of the Great Lakes training station, and the establishment of the school was finally assured when the

alighted from the traction car at the gateway of the Naval Training Station, armed with a letter of introduction to the admiral. All along Sheridan Road, which is the immediate western boundary of the reservation, runs an ornamental iron fence. Red brick columns, capped by terra cotta, mark the broad entrance and a brick guard house, with a broad covered veranda, is at the north of the entrance. The brick used in all the exterior work is Danville brick, supplied by Moulding Brothers.

Far to the east, along the line of the long, white driveway, arose the tall tower of the Administration building, and there, so the writer was informed by the watchman at the gate, he might hope to find the commandant. For some distance the drive is flanked by trees, but just over a bridge which crosses a deep ravine, one comes upon a quadrangle of buildings, recessed on either side of the drive behind the

line of trees so that they had been hidden from view at the gateway. These were the four main dormitories. They were practically deserted, only here and there a white uniformed figure appearing at a door or window, and presently the writer learned the reason why. Somewhere in a distant part of the grounds a band was playing a spirited air, and, pausing only to note the general effect of red-brown solidity, and an alluring detail now and again, he proceeded briskly toward the tall tower of the Administration building. Behind the line of dormitories on the north side of the drive he noted an especially attractive building, the doorway surmounted by a detail of a starry shield, half crowned with a wreath of cornucopias and outpouring fruits. This proved to be the mess hall. Still to the north was the galley with the brig or place of confinement nearby, and still farther to the north were the stables.

It could now be observed that the main driveway which,

adepts in the art of caring for their clothes, for your thoroughbred sailor can keep his clothes in press merely by proper folding and rolling in a way that would make a show of a tailor with an iron.

Turning to the left, after passing the last of the dormitories on the north side of the main drive, one comes upon a long row of buildings flanking the parade ground on the north. The first of these is the drill hall with a large entrance toward each end on the parade ground side and the grand entrance in the middle. Above this entrance the bird of freedom flaps his terra cotta wings o'er a terra cotta prow, and before the doorway are two rapid-fire guns. A constant succession of great windows on both sides of the drill hall break the solid walls and give a maximum of light. The drill hall is for use in inclement weather. It contains a lecture hall, class rooms, a small theater, a perfectly equipped gymnasium, reading and writing rooms and



Attractive Entrance to Mess Hall.

from the entrance, had seemed to lead right up to the main door of the Administration building and the flagpole before it, ended abruptly at the western edge of a large parade ground, bordered by a drive leading north and south from the main road.

The dormitories are models for sanitary arrangements, well ventilated and with excellent heating apparatus for winter use. The upper floors are fitted with hammock hooks, for the hammock is the seaman's bed in the navy, and the recruits make its acquaintance early. Scrupulous cleanliness and neatness of personal appearance, and how to sling his hammock and "stow" his bag containing the outfit of uniforms and clothing (amounting to \$60 in value) which the Government gives him at the outset, so that every article will be handy and shipshape, are the very first lessons which the young recruits are taught. And they quickly become

a postoffice. By massing large blocks of the brown mottled terra cotta above the brick walls, a somewhat more formidable appearance has been given to this building than to the others.

Next to the drill hall is the instruction building, with its two wings, and its space devoted to class rooms, workrooms, and the like, and still to the east of this is the storehouse. This brings one to the extreme east line of the parade ground. At the very mid-point of this eastern boundary is the Administration building, with the flagstaff directly in line with the center of the doorway. Back of the Administration building and extending both north and south of it, is "Officers' Town," composed of a row of pretty brick cottages, all of comfortable size, and unusually attractive in appearance.

Just beyond the northwest limit of Officers' Town rises the tall stack of the station's power plant. This plant—also

of brick construction—stands at the foot of the bluff, and furnishes heat, light, water and power to the various buildings. In connection with it there is a refrigerating and ice-making plant, and a brine pipe line leading to the mess hall cold storage rooms. A railroad trestle has been constructed from the top of the bluff to the roof of the power house over the coal bunkers, to carry the coal and other supplies. To make a site for the location of this power house and the filtration beds for the treatment of sewage, it was necessary to construct a timber crib sea wall. The construction of a pile revetment 600 feet long also was necessitated. A wagon bridge to the power house is now under process of construction.

Twelve hundred feet out in the lake a water intake has been installed, with water supply mains connecting it with the pumps and again carrying the supply to the various buildings. The "makings" of an inner basin for the use of the station's small boats—it boasts an equipment of fifty dingheys, cutters and sailing launches—fortunately were found ready to hand a bit farther along the shore, but even so, considerable dredging and construction work in timber and concrete had to be done; 60,000 cubic yards of material were removed from the site of this basin, and as Admiral Ross was building with no wasteful hand, he used the material to fit up the ravines which broke the surface of his reservation, so completely filling one of them that he was able to locate one of the buildings upon it. To maintain a channel to the inner basin, outer harbor entrance piers and crib had to be placed.

Well, if the writer had allowed his feet to ramble as aimlessly as he has this account before attempting to find the commandant, he probably would have been picked up by the watchman and landed in the guard house, if not in the brig. As it was, he proceeded with fair diligence in the direction of the administration building, prudently refraining from taking any short cuts across the parade ground. And, indeed, this restraint should give to the writer credit for a small degree of intelligence almost human, for, in spite of absence of any "keep off the grass" signs, it appears that the parade ground is sacred for the soles of marching feet, and not lightly to be desecrated by the dust-scuffling tread of any mere "cit," or ambition-lacking landlubber.

As the writer had feared, when he heard the blithe sounds of music in the distance shortly after entering the gate, he found that Admiral Ross was away in another part of the grounds. The buildings thus far described rest upon what is known as the "main plateau," and the commandant had driven over, in company with the newly-arrived chaplain, to the "detention camp" on what is known as the "receiving plateau."

Starting out again along the broad concrete walks which follow the drives, the writer passed down the south side of the parade grounds to its western boundary, but instead of turning to the right toward the junction of the main driveway, followed a curve in the road just after leaving the parade ground quadrangle. This road was still in almost its original condition. The macadam pavement having been

laid, but the work of finishing and cleaning up being still under way. At that, the road winding through the trees and flecked with the lights and shadows of the sunny morning, afforded a pleasing vista. This road, which constitutes a connecting link between the main and the receiving plateaux, crosses a deep ravine (through which flows Pettibone creek) over a concrete arched bridge of graceful curves. Just across the bridge remains a relic of the reservation's more rural days before Uncle Sam and his sea-trained disciplinarians took possession. A small farm building and an old-fashioned well-house, painted yellow, crown the top of the ascent leading up to the south plateau. The first of the official buildings to meet the eye is the receiving guard



Administration Building and Parade Grounds.



Power House and Sewer Disposal Plant.

house. To the right stands the receiving building, marking the eastern boundary of the receiving plateau.

Before this receiving building spreads a broad quadrangle—a field of several acres—adequate for the field drills, exercises and sports of the youngest of the recruits. On the north and south sides this area is bounded by the receiving dormitories—three on each side. On the west the iron fence separates it from Sheridan road. Just back of the northern row of dormitories stands the receiving galley and laundry building, where the meals are cooked and the washing done for the inmates of the six dormitories upon this plateau. The idea of the detention or receiving camp for new arrivals is typical of the care which the Government

exercises in selecting the men who are to guard the nation's honor and protect her flag, her citizens and her wealth on the high seas.

It is no easy matter to get into the naval service, even as an enlisted man, and Uncle Sam is making every effort to make the life not only attractive but reasonably profitable to those who persevere. A good common school education, certificate of good moral character and the ability to pass a reasonable but exact examination are some of the qualifications required for entrance into any of the naval training stations. In addition, however, the would-be recruit must pass a most rigid physical test and prove himself sound and clean in every way, before he can be admitted to the train-

camp just as rigidly as though he were a foreigner coming in from an unknown country and unknown conditions and were detained in quarantine. The Government takes no chances of having a man who may appear in first-class health but at the same time is within a few days of coming down with some virulent disease, mingling with the whole body of recruits at the station and inaugurating an epidemic which would be difficult to check; would nullify the work of the station for past months and put it out of commission until the epidemic had been completely routed.

The greatest care even is taken to prevent epidemics within the receiving camp. Incoming recruits are tolled off into bodies of ten each. Each of the six dormitories is

subdivided into five units, and each of the ten groups is assigned to one of these units. In this way, if a contagious disease manifests itself in any one recruit, it can at least be confined to his particular group and can scarcely spread, even to the rest of the dormitory.

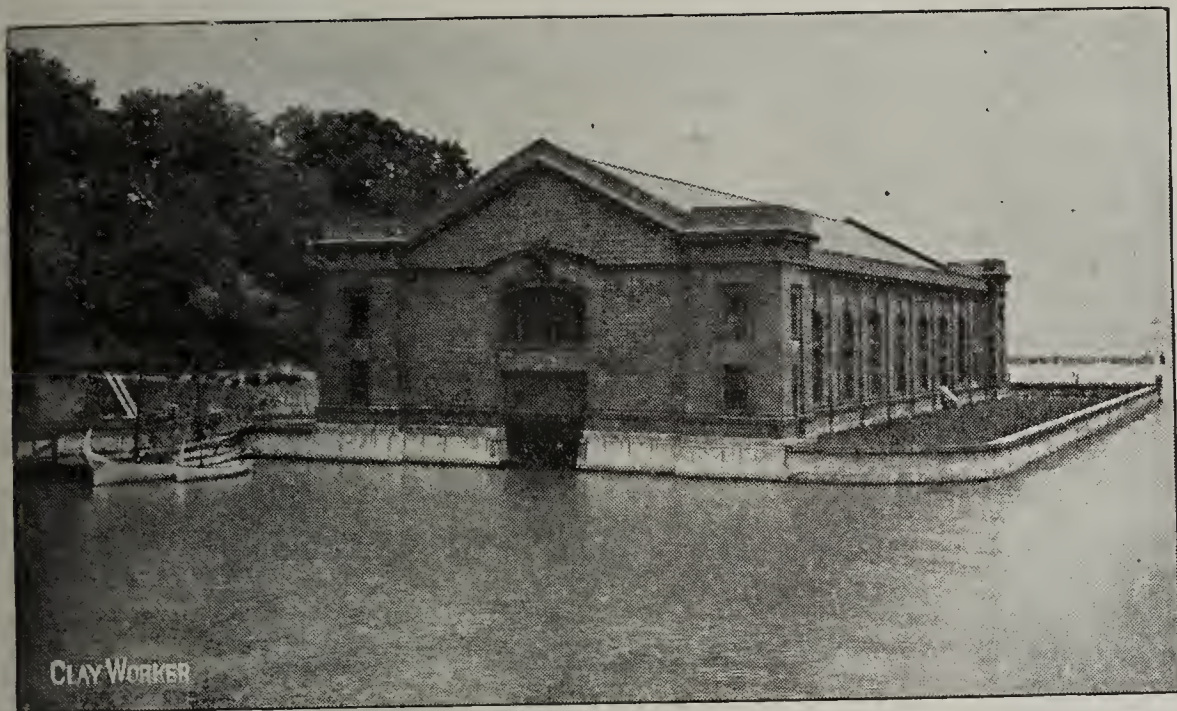
This three weeks of restraint, however, has advantages other than those strictly physical. The discipline is, for hygienic reasons, necessarily more strict, if possible, at that stage than at any other time. The work is new and consequently hard, and if a recruit has not the stamina for the life he is attempting to fit himself for, that fact develops within these first three weeks just as surely as any insidious disease germ.

The day of leaving the receiving plateau at the termination of the three weeks period, and marching over to the main plateau and being assigned to quarters in the main dormitories, is a great event in the life of the young recruit. The day of the writer's visit to the station the first company of recruits which had entered on July 1, the day of the opening, had been declared sound physically; had passed muster on other points and was to march across the ravine that afternoon. This accounted for the deserted appearance of the main dormitories. They had not yet received their first inhabitants.

The spirit of joy which pervaded the receiving plateau was evident to the writer the moment he set foot on the walk leading to the receiving building. On the steps of the nearest dormitories a group of recruits in their neat white suits were singing lustily. Out in the middle of the drill field another group were indulging in wrestling and other forms of "rough house," while the commandant and his staff were conferring in the receiving building.

Presently, opportunity was afforded the writer to meet Admiral Ross, and he was received with most kindly courtesy. The writer was invited to ride back to the Administration building with the admiral, and before leaving the receiving plateau was driven around the receiving galley just behind the northern row of receiving dormitories. Here was a great rope supported in a large square by the trunks of oak trees with loose rope ends hanging at short intervals for knot-tying drill. On the rear stoop of one of the dormitories a recruit, with his code book open before him and a little flag in each hand, was learning the rudiments of the "wig-wag" business.

On the way back to the Administration building, above the



The Boat House.



Drill Hall and Instruction Building.

ing school, even though he may have all the educational qualifications. About one man out of every eight succeeds in measuring up to all the requirements. Moreover, Uncle Sam is anxious not only to have the boys in prime condition before admitting them to his school, but desires to keep them in the best of health through their four-months' course. Otherwise they would not be in shape for service on shipboard, and this is the prime reason for the establishment of the receiving or detention camp.

Every new recruit is required to spend three weeks on the receiving plateau before he is permitted to have access to the main part of the training station. During that period his activities are restricted to the confines of the detention

tree tops to the south, the writer observed, for the first time, the terra cotta eagle surmounting the cupola of the large hospital building. This building, for the quiet of the patients, is set quite apart from the rest of the grounds.

The officers making up the staff of the station, beside the commandant, are the following: Lieutenant Commander Waldo Evans, Lieutenant Glenn O. Carter, Lieutenant John J. London, Medical Inspector James G. Field, Surgeon Ralph W. Plummer, Past Assistant Surgeon John D. Manchester, Paymaster Thomas DeF. Harris, Chaplain Frank Thompson, Civil Engineer Clinton D. Thurber, Chief Boatswain William Spicer, Boatswain Nelson R. King, Chief Machinist C. H. Gilhuley, Chief Carpenter Peter Treutlein.

From the commandant's offices, on the second floor of the main building, there was a splendid outlook over the whole main plateau to the west, and through the big east window on the stair landing on the way to these offices, a fine view across the narrow strip of "Officers' Town out onto old Lake Michigan. It was worth the trip several times over to see the station, even in a superficial way, and to anyone who knew Gates it was worth while going out there just to hear the nice things those who have been in touch with the construction work since the beginning, have to say about him.

"Gates certainly did himself proud on this job," is the verdict. From the sincere tone of the utterance there can be no doubt that the tribute is intended to be original, and, after all, it is Gates's fault that it is not. He has thrown that artistic temperament of his into too many other jobs—just to make good measure.

SCRIP.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

A Trip Up the Nile.

LULLED by the balmy summer breeze, I looked out on yellow sand flecked by the moving shadows of the palms, which formed a carpet at once entrancing, fascinating and absorbing. Long stretches of shadows led off and guided you to their originators, the great white-grey, bare trunks of the royal palms that waved their plummy tops sixty feet above.

Off over the way, beyond a little opening, an island of sunlight in an ocean of shade, was the band stand. It was filled to overflowing with the bright glitter of gaudy uniforms and the strains of music, wierd and strange, strangely wild and wierd, floated out to me as I sat there on the bench. For I was eight thousand miles from home, away in the Ezbekiah Garden in Cairo, Egypt.

What if I had to pay an entrance fee to get in? Wasn't it worth it? What if the uniformed guard at the entrance had dragged a piastre from my clutch? Was not the garden mine, and the band playing for me?

I had returned late from a trip to the pyramids and, missing my hotel luncheon, had dropped in at a little hole-in-the-wall restaurant and had eaten an international lunch. True it had no label on it, but it was unmistakably international, for I, an American, in Cairo, Egypt, had happened into a restaurant kept by a German and an Arab waiter had brought me an Irish stew! Could that combination be well beaten?

Grown reckless after this, I had gone out, paid my piastre fee at the garden, gone in under the splattered sunshine and shadow of the Ezbekiah, sat down on a bench and lit one of my last cigars.

Barefooted children, scanty as to clothing, danced over the sandy paths between flower beds radiant with bloom and heavy with the strange perfume.

I guessed that back home—one-third the way around the globe—somebody was shoveling coal and the thought added zest to my revel in the tropical sunshine.

Eight thousand miles from work and care! What a fine

perspective it gives. How much better and finer than looking so closely that they chafe your nose.

The distance is so great that worry is shut out. There's no use worrying and fretting, you're so far away. You have gotten out of the range of worry. It won't follow so far. Pleasant recollections will travel, however. They are not estopped by distance.

It is the redemption of mankind. The great provision of nature; and, while time and distance leave the disagreeable behind hidden in the mists, they leave all the good and beautiful standing out plain and distinct.

First looking at your watch and making a computation of the necessary number of hours difference in time—for you have by means of this trip succeeded in getting ahead of the folks at home, eight hours ahead of them—you look in on those at home in imagination and guess at what they are doing. You slip past all the grouchy candidates and think only of the pleasant ones. The grouchers can not intrude on you there as they might at home, but the dear ones at home come quick to your bidding and you see them in their daily tasks and your quick acting imagination catches them also in reverie thinking of you, the wanderer across the seas, and your heart beats faster and you grow better for the flight your fancy has taken way back across the salty seas, so quickly and so far, until you are suddenly ripped back over the far distance as the band flares out in unusually barbaric strains and brings you back to the Ezbekiah and the wavy shadows and the sunshine and the immediate present and its surroundings till you pinch yourself to see if it is really real or you are simply indulging in a pleasant dream. As you look about, however, the costumes reassure you. The ever present and everywhere present red fez, the women muffled up and masked with veils, and mainly dirty veils. You endorse the custom, however, most heartily from what glimpses you do get. The more they cover up the better it is. From beside you comes the smoke of a real Egyptian cigarette. You cough and wonder again what they really make them out of. They don't raise tobacco here and it don't smell like tobacco. All kinds of fuel are very expensive, so what can the paper torch be filled with, anyway? You give it up again as you so often have before and change your seat to get out of the smudge, leaving it as one of the many dark secrets of Egypt the Mysterious.

Again the blasts blare out wierder and more barbaric even than before and, looking, you note that an Arab trombone player can swallow yards of trombone just exactly as his American brother does away off across the sea. Moralizing on these traits common to both races, you file out the gate as the music stops and go back to your hotel and to Egypt refreshed by your time-annihilating trip home across the sea on the vehicle of your imagination.

GATES.

PEAT BEDS ARE REOPENED.

After lying idle for nearly a year the big peat beds of Fertile, Iowa, were opened recently when a force of men was put to work under the direction of E. E. White. The crew is able to get out about twenty tons of peat a day. The peat will be used for commercial purposes.

Peat, like many other natural resources, has not been appreciated and has been wasted by those ignorant of its value. Drainage specialists think that every marsh, swamp and bog should be drained. Several peat bogs in northern Iowa have been drained for agricultural purposes, and, after drying, have burned, leaving depressions useless for cultivation, as in some cases they were underlaid by a hard clay.

When drained, the moss of a peat bog will die and decompose in time, but even then it does not produce a good soil. Being composed mostly of vegetable matter it is deficient in the mineral elements that are required for agricultural purposes.

Written for THE CLAY-WORKER.

THE VALUE OF THE TRADE JOURNAL.

THE VALUE OF THE TRADE JOURNAL may be likened unto golden dollars in that to get the value, or what the value stands for, they must be made use of. If you were to take gold dollars, pile them away in a musty corner, bury them, or dump them outside they would not be of any material benefit. Of course, if they are carefully stored away, they form an inactive reserve benefit that might be called upon any time, but actual returns would not be received from them until they were put out in circulation.

So it is with the trade paper. No one questions its value. That is, no one who really understands what they are and what good may be obtained from them. There are many, however, who fail to realize anything like the full amount of value they should from them, because they do not use them as they should.

They don't exactly hoard them away like the miser burying his gold. If they did they might be brought to light at other times and made use of. But they are too often merely glanced over or they are rapidly scanned through and thrown aside with the good intent of taking them up at some leisure time, one of those good intents that goes to pave the way to the goat side of the hereafter.

Now and then, in after days, a man does pick up something and realizes on the value of the trade newspaper man's work—perhaps a year or two after the work has been done.

A shining instance of this came to the writer's attention not so long ago. A man came in inquiring for a certain article on a specific subject that someone had told him about.

From the nature of his inquiry, a little meditation brought to mind the thought that the article he wanted was one that had been written and printed two or three years previously.

A little search through the back files brought it to light and it was sent to him. He came in in a day or two bubbling over with enthusiasm about it, declaring that it was the finest thing of the kind he had ever seen printed and that it covered a point that he had just been involved in argument upon. He appreciated the value of it so much that he wanted to pay for it and wanted to get some extra copies of it in some form or other and manifested in a general way the spirit of a man who had found something worth while and was properly appreciative therefor.

But—and here is the point—he didn't find that thing until two or three years after it had been written. At the time it was written the writer felt that he was doing something good, that here was something that would make the boys sit up and take notice and would be appreciated by many and valued by all interested in the subject matter. Perhaps a few did catch it and realize on it at the time, but it all brought home a realization of the fact that too many recipients of the trade papers fail to realize anything like a full per cent value out of the publications, simply because they do not read them and put into use the ideas contained therein.

If a man will take his trade paper and read it carefully when it is received, he is not only likely to find ideas here and there that are worth while at the moment, but he will find many others that may come in sometime or other just as in the instance related above. Realizing this he should do one of the two things, either have his paper bound and carefully preserved for reference or else cut out the matter of particular interest and file it systematically so that any time in the future he may want information on the subject he can readily obtain it from his files.

Some people express disappointment with trade papers because every issue does not contain all the specific information they may be looking for at the time. Some want each issue of their trade paper to supply a full course of instructions for their business and almost every day there is a new man going into the business who perhaps desires information that would be merely the A, B, C's of the business to the old timer.

It should be remembered that a trade paper is not a text book, though it does contain much of the matter from which text books are made. It is better than a text book

in the feature of being up to date. Text books of a technical nature are useful things. They are compilations of formulas and rules of a general and also of a specific nature. Usually, however, by the time they are put into circulation, they are out-of-date, new ideas and new formulas having been developed.

That is where the trade paper comes in. Every month, it carries to its readers the very latest ideas. Ideas that are useful and valuable to them at the time and of which half the value will be lost if they had to wait until the same things appeared in the form of text books.

In other words, text books are often the foundation of business instruction, but the trade paper is the live-wire that keeps the readers informed of what is new and enables them thereby to keep abreast of the times and strictly up-to-date.

And the greatest worry of the trade paper editor comes from the fact that too many of his subscribers fail to realize anything like the value they should from his paper, because they neglect to read carefully and act promptly on the ideas contained therein and are negligent about taking an active part in technical and business discussions that may be going on.

ATTRACTIVE USE FOR TILE.

HERE AND THERE the country over some "flatiron" corner has been relieved of its severity by the insertion of an ornamental slab of tile, but it has remained for a Cincinnati grocer to make this more attractive still.



Modern Pump at "Corner" Grocery.

Set within the bricks that build the wall or corner of the store is a faucet communicating to an ice water arrangement. Only those who have been very thirsty of a hot summer's day can appreciate what a nice cold glass of water means to the pedestrian. As he drinks he, of course, halts to look about him, and if, perchance, the eye should light on specials, bargains and the like in the windows—why, what more natural than he step in and buy?

Glazing Sewer Pipe.—Only strong, refractory clays that will stand a high temperature are fitted for salt glazing. Though the process is simple, a number of experiments will doubtless be necessary before a satisfactory result is obtained. When the sewer pipe has been fired and the kiln is at its highest heat and the fire holes are bright and clear, a small shovelful of coarse salt is thrown into each fire hole. Some minutes afterwards the fire boxes are banked up with ashes or covered with tiles. In about an hour the process is repeated, and a trial taken from the kiln will show how the glazing is progressing. The salting is again repeated, if needed, and when the trial shows a satisfactory glaze the process is stopped. The kiln is then given a final fire to clear it and allowed to cool, which takes from twenty-four to thirty-six hours.—Building World Z., 1910.

HOW A BRICK ROAD SHOULD BE BUILT.

By WILL P. BLAIR.

THE BRICK ROAD is coming for all excessively used highways without question. While more expensive in first cost, they are not so in the end. The bugbear of the high cost often stands in the way, but it would largely disappear when one considers that the chief cost attending any and every road improvement goes to the grading, bridging, drainage, etc.—that the whole difference in the first cost lies simply in the difference of cost of the wearing surface. The economic advantage that brick furnishes lies in their well-known durability. It is just now, therefore, of great advantage to the general public who use and pay for these roads, to know the detail of manner and method of construction, with as much reason as one wishes to know why this or that in the construction of his wagon or automobile. It is

bility of the ice obstructing the water, as often happens with lengthy drains, stopping the flow of water altogether.

The top of the curb shall be flush with the top of the pavement, so that the water will run off the pavement with even distribution at the lower edge, and therefore not be liable to destroy the berme. After excavating to the required depth, care should be taken to compress the sub-foundation, rolling with a roller not exceeding five tons in weight. The surface should be made to conform to that of the finished street. The base should now be put in of concrete, using Portland cement, one part to eight of gravel or broken stone and sand. The gravel and broken stone should have enough of the smaller sizes which with the sand will fill the voids and assure such a mixture after the water is applied that can



Over the Hills and Far Away on a Perfect Brick Roadway.

the advantage that appeals for favor, so right methods should persuade their use.

In order to better understand the suggestions here offered, a cross-section is here given by way of illustration. See Figures 1 and 2.

It will be noticed that the improved portion, including the ditch, occupies a width of forty-seven (47) feet, so that at least fifty (50) feet right-of-way is required for a like road.

To assist drainage and avoid danger of heaving by frost, the concrete curb is made in form so that the base shall rest upon a sub-base of gravel, broken stone or cinders.

For drainage, the road bed in most soils, a small tile, laid parallel with the curb with "T" outlets at intervals of every ten feet, will answer; if, however, the soil is of such character that the water, by capillary attraction, fills to the uttermost, then, to avoid frost action incident to our more northern climate, it is necessary to tile the road bed alternatively, as shown in Figure 4.

Drainage is thereby assured quickly, avoiding the possi-

readily be brought to a smooth surface, conforming to the grade of the finished street.

Unless made smooth, the next step, that of preparing the sand bed and providing for a space along the curb for the expansion cushion, is scarcely possible. The sand should be spread by the aid of a template, and compressed to a uniform cushion by a hand roller weighing 300 to 350 pounds. This cushion should be uniformly two (2) inches in thickness and thoroughly compressed. The support of the wearing surface will then be uniform under each brick, giving sufficient relief from the vibrations caused by the impact of travel, so that the cement filler, subsequently applied, will not shatter, yet be a support that will greatly resist the weight of any load and prevent the filler bond from breaking and the brick from chipping. The expansion cushion should be put in last of all, but provision therefor should follow the completion of the sand bed by placing a board along the curb, at least an inch in thickness for a fourteen-foot roadway, and thicker for a wider road. This board may be made into two strips as

whole surface, and in case the work is subjected to a hot summer sun, an occasional sprinkling, sufficient to dampen the sand, should be followed for two or three days. Grouting thus finished must remain absolutely free from disturbance or traffic of any kind for a period of ten days at least.

After this comes the last operation in finishing the street, that of removing the expansion board along the curb and filling the space so as to allow for the expansion. For this purpose a pitch or asphaltum mixture that will retain the greatest elasticity during low temperature should be used. This will often prevent expansion cracks, even by low temperature, and unquestionably prevent them during seasons of high temperature. An illustration of this kind of road is here actually given, from a photograph of the same.

With many roads, even put to excessive use, a less width for the paved portion will be found entirely sufficient. It will be noticed that in the type here given it is provided for a seven-foot graded track alongside the paved portion. If a road of less width is chosen, the graded earth portion should be at least seven or eight feet in width, and the paved portion not less than nine feet.

Roads built in accordance with the directions here given will be found to meet the following requirements in a most extraordinary degree:

Economy,
Satisfaction in use,
Durability.

THE EFFECT OF PRELIMINARY HEATING TREATMENT UPON THE DRYING OF CLAYS.

By A. V. BLEININGER.

Reprint from Bulletin of the Bureau of Standards, Vol. 7, No. 2.

IV. Difficultly Drying Clays.

(b) Drying Shrinkage.—In determining the drying shrinkage of the clays they were made up with water to "plastic" consistency, which, in spite of its apparent indefiniteness, is a condition fairly sharply defined in the hands of an experienced operator. Owing to the fact that there exist no other means of maintaining a constant consistency, it was necessary to depend solely upon the judgment of the manipulator. In some preliminary experiments, however, it was shown that the water content representing good working quality could be checked for the same clay with satisfactory accuracy since at approximately the proper working consistency the clays are quite sensitive to a deficiency or excess of water. This property varies somewhat with different materials, very plastic clays being less sensitive to variations in water content than those higher in nonplastic matter. After having been allowed to stand over water for 24 hours the clays were molded by hand into approximately cylindrical test pieces which were at once weighed and their volume determined. The weighing was done in closed tin cylinders to prevent loss by evaporation. The volume of each cylinder was determined by immersion in petroleum making use of a narrow-necked flask and obtaining the volume of liquid displaced by means of a burette calibrated to 0.1 cc which permitted of easily reading to 0.05 cc. The weight of the clay cylinders varied between 20 and 25 grams and the volumes from 12 to 22 cc. After the determination of weight and volume the test pieces were dried at 60° till the weight was constant and finally at 100°. The dry specimens were then weighed and immersed in melted paraffine at a sufficiently high temperature so that the liquid penetrated into the interior, but dripped off completely on removing the piece from the bath. When cool the cylinders were placed in petroleum for several hours and the volume determined as before.

In Table III the volume shrinkage of the clays in terms of the dry volume of the cylinder and of the true volume of the clay as well as the linear shrinkage in terms of the wet length are compiled. For purposes of comparison the shrinkage referred to the true clay volume is to be preferred owing to the variable factor of the pore space which depends upon the character of the clay, the method of manipulation, etc.

The shrinkage expressed in terms of the real clay volume is readily calculated from the relation:

$$s = \frac{d(v_1 - v_2)}{w} \text{ where—}$$

s = volume shrinkage in terms of the true clay volume.
 d = specific gravity of powdered dry clay.

v_1 = volume of clay cylinder in the wet state.
 v_2 = volume of clay cylinder in the dried state.
 w = weight of the dried cylinder in grams.

TABLE III.
Shrinkage of Various Clays.

No. of clay.	Specific gravity of powdered dry clay.	Vol. shrinkage in per cent of volume of dry test piece.	Vol. shrinkage in per cent of true clay volume.	Linear shrinkage in per cent of the wet length.
1	2.451	68.57	99.80	15.97
2	2.551	23.40	30.30	6.77
3	2.770	38.10	60.73	10.20
4	2.596	34.50	54.80	9.41
5	2.577	48.19	61.96	12.28
6	2.510	36.80	60.10	9.92
7	2.580	36.20	49.00	9.79
8	2.603	30.30	41.85	8.44
9	2.784	16.90	25.80	5.07
10	2.476	21.05	34.80	6.17
11	2.575	32.20	49.00	8.89
12	2.680	37.86	51.09	10.15
13	2.768	38.00	49.05	10.18
14	2.645	27.30	42.65	7.72

The specific gravity of the clays was determined by means of the pycnometer with the usual precautions as regards exhaustion of the air and correcting for temperature.

The linear shrinkage was calculated from the condensation in volume.

The clays examined, with the exception of three, the Highland fire clay, the Albany slip clay, and the English china clay, belong to the more difficultly drying materials when made up into heavier products. The clay from Fort Pierre, N. Dak., is in a class of its own, and it appears to be impossible to dry it under any conditions.

(c) Mechanical Analysis.—The mechanical analysis as practiced by agricultural and ceramic investigators consists in the separation of grains of certain arbitrary size limits by means of sieves and further separation by means of sedimentation, elutriation or centrifugal action, water being used as the medium of flotation. For the purpose of the ceramist the Schulze apparatus, in which the separation of the grain is effected by the method of elutriation, is commonly used and meets the technical requirements owing to the simplicity and convenience of its arrangement. It consists of three tin-lined copper cans with conical bottoms, 2, 5, and 6 15-16 inches in diameter, respectively, through which water is allowed to flow at a constant rate, 176 cc per minute. It is readily seen that this results in the greatest velocity in the narrowest and

the lowest in the widest can. With the diameters of the cans and the volume of water given, the largest particles settle in can No. 1, averaging about 0.0577 mm diameter, the next smaller in No. 2, averaging about 0.0354 mm, while in No. 3, the average size approximates 0.0167 mm. Particles still finer, about ± 0.005 mm, are carried off by the overflow.

The average size represents the microscopic measurement of 50 particles of each sediment and is the arithmetical mean. In this connection the difficulty of obtaining the true mean diameter is fully realized, but for the work in question this method has been preferred to the method of mean integrals, since it was not desired to calculate a surface factor. After the water escaping from the third can appears to be clear the cans are emptied by siphoning down to the conical bottom. The water and clay in this part of the cans is washed out, evaporated to dryness, and weighed. The amount of the finest particles is obtained by difference. Before being placed in the elutriating apparatus the sample of the dry clay, the amount of which is usually 50 grams, is made up with water to form a thin slip, deflocculated by the addition of caustic soda or sodium oxalate according to the nature of the clay and mechanically shaken for one hour. The clay suspension is then passed through a series of small conical sieves, telescoped together, ranging from 20 to 120 mesh.

TABLE IV.

No. of clay	Residue left on sieves in per cent by weight of dry clay						Sediments left in can, in per cent by weight of dry clay			Per cent by weight carried off by overflow	Kind and amount of reagent employed per 50 grams of clay	
	20 mesh	40 mesh	60 mesh	80 mesh	100 mesh	120 mesh	Total residues on sieves	Can No. 1	Can No. 2			Can No. 3
1							2.32	0.35	0.39	1.12	95.52	1 c c $\frac{N}{10}$ NaOH
2	Trace	11.75	7.03	4.10	5.30	0.77	28.98	14.74	11.79	3.95	40.57	200 c c $\frac{N}{10}$ Na ₂ C ₂ O ₄
3							Trace	0.02	0.24	0.43	99.31	80 c c $\frac{N}{10}$ NaOH
4							1.17	2.83	8.28	2.01	85.71	500 c c $\frac{N}{10}$ NaOH
5											99.00	
6	0.05	0.18	2.93	2.60	5.35	0.85	11.96	13.65	19.07	5.14	50.18	50 c c $\frac{N}{10}$ NaOH
7	0.04	0.06	0.04	0.04	0.04	0.02	0.24	0.21	1.04	0.96	97.31	75 c c $\frac{N}{10}$ NaOH
8	0.61	1.49	1.74	0.63	0.55	0.11	5.13	3.15	34.50	9.72	47.50	100 c c $\frac{N}{10}$ NaOH
9	0.02	0.02	0.04				0.08	0.24	6.34	8.74	84.60	30 c c $\frac{N}{10}$ NaOH
10						0.02	0.02	0.02	10.90	9.52	79.54	30 c c $\frac{N}{10}$ NaOH
11	0.33	0.66	0.35	0.16	0.27	0.04	1.81	2.28	34.09	10.69	51.13	100 c c $\frac{N}{10}$ NaOH
12	0.64	0.98	1.24	1.10	3.54	0.24	7.74	14.30	23.08	7.06	47.82	180 c c $\frac{N}{10}$ Na ₂ C ₂ O ₄
13	1.54	1.83	2.86	0.96	2.22	0.18	9.59	5.66	8.54	8.24	67.97	
14	0.14	0.28	0.46	0.34	0.46	0.04	1.72	0.98	8.03	9.03	80.24	75 c c $\frac{N}{10}$ NaOH

After washing and drying the residues on each sieve are weighed. The material which passes the 120-mesh sieve is collected and introduced into the elutriating apparatus.

The water flowing through the cans is taken from the tap, but is filtered through beds of sand and charcoal. Its temperature is kept constant by heating to a certain temperature and regulation by means of a thermostat. The separation of the sediments is considered successful when the residues dry down without cracking. If the latter occurs, some of the clay matter has been retained, and the test is repeated, the clay sample being deflocculated more thoroughly or another reagent is employed such as sodium oxalate. In extreme cases the deflocculating solution is dropped slowly into the first can for a number of hours. Certain precautions must be observed in the operation of the elutriating apparatus, such as to start with a reduced flow of water until the first can appears to be comparatively clear when the current is brought to the standard velocity. The time required for the elutriation varies from 10 to 24 hours, according to the nature of the clay. When adjusted the device needs practically no attention.

The results of the mechanical analyses of the clays examined are compiled in Table IV.

In all of this work the assumption has been made, necessarily, that all the particles are spherical in shape, which of

course is not true. Again, the surface factor thus calculated can make no claim to scientific accuracy, owing to the fact that it is difficult to obtain the average sizes of the grains represented by the various sediments, and practically impossible to determine the mean dimension of the particles carried off by the overflow with any degree of correctness. Owing to the fineness of the material floated off its surface valuation constitutes the greater part of the total surface factor. Furthermore, many of the apparent grains are aggregates of still finer material, and it is almost absurd to speak of an average size for the clayey matter. The material carried off contains practically all of the plastic clay substance and in addition the finest particles of granular matter.

In comparing the clays as to their drying behavior the amount of overflow material expressed in per cent. is used as the basis of comparison. Generally speaking, therefore, the statement might be made that clays should dry the more difficultly the finer grained they are, the more matter is washed out of them at the low velocity maintained in the third can of the Schulze elutriating apparatus, assuming that the clay substance is of the same character in all of them. Since the latter assumption, however, is inadmissible, the above generalization holds only in a limited sense, in comparing clays of one kind. Still further modifications are made necessary by the size factor of the granular matter, as has already been pointed out elsewhere.

Similarly, a statement to the effect that clays showing the greatest shrinkage are most difficult to dry can not be ac-

TABLE V.
Drying Factors.

Clay No.	1	2	3	4	5	6	7
A. Fraction carried off by overflow	0.955	0.406	0.993	0.857	0.990	0.502	0.973
B. Drying shrinkage in per cent of true clay volume	99.80	30.30	60.73	54.80	61.96	60.10	49.00
Factor A×B	95.31	12.30	60.30	46.96	61.38	30.17	47.67

Clay No.	8	9	10	11	12	13	14
A. Fraction carried off by overflow	0.475	0.846	0.795	0.511	0.478	0.680	0.802
B. Drying shrinkage in per cent of true clay volume	41.85	25.80	34.80	49.00	51.09	49.05	42.65
Factor A×B	19.90	20.83	27.67	25.04	24.43	33.35	34.17

cepted without qualification for the same reasons applying to the question of fineness. Granted that the greatest volume shrinkage results in the greatest strain upon the clay structure, the fact remains that clays differ widely in tensile strength and hence in the ability to meet these stresses.

If in spite of these objections an attempt is made to differentiate between the clays as to their relative difficulty of drying, it is evident that such a classification may serve only as a general guide. This approximation was obtained by multiplying the drying shrinkage expressed in terms of the true clay volume by the fraction carried off in the overflow of the Schulze apparatus. From this definition it appears that the higher the numerical value thus obtained the more difficult should the clay dry other things being equal. The drying factors thus calculated are collected in Table V.

(To be Continued.)

ANCIENT KILN DISINTERRED.

A pottery kiln, of unknown age, has been discovered on the farm of George Pingree, living north of Pomona, Kan. The kiln was found when the men plowing in the field turned up a number of pieces of pottery. No pottery of value has been exhumed, most of the finds being small pieces, such as bowls and jars. The old kiln is thought to date far back of the time when the Sac and Fox Indians roamed over the ground. The earliest settlers who filed into that neighborhood when the land was first opened, remember no kiln among the Indians there, which gives rise to the belief that it was used by some people of an earlier age.—Exchange.

ART POTTERY PUT TO PRACTICAL USES.

Some Remarkable Accomplishments in Glazes and Their Application to Pottery Lamps—The Recent Exhibit in New York.

(Reprint from July Issue *The Decorative Furnisher*.)

OF ALL THE arts and trades practiced by man throughout the ages, to none is there so much of interest attached as to that of the ceramist. Basing his investigations upon the science of chemistry, but limited therein, in that he may use only the constituents of the clay with which he works and with the colors he applies, he adds to his art the mysticism of the fire, and brings forth results rivaling in beauty even the works of nature. Practiced since ancient times, in spite of its age, the art has lost none of its original fascination, but has rather grown in interest with the advancement of scientific research. This is doubtless due largely to the absence of a general knowledge of the subject. The art of the ancients has been lost and the achievements of more modern potters have been kept solemnly secret, dying more often with the discoverer. As the manufacture of steel, once the secret of its originators, has now become the property of general science, so modern chemistry will ultimately disclose the secret of the potter to those who care to read. That day, however, has not yet come and the investigator must still advance step by step as did his predecessors. His possibilities are as wide as were theirs and if by chance he arrive at some result equal or greater, his, no less, is the credit.

Thus the accomplishment in glazes, demonstrated by a



Pottery Lamp with Glass Insertion.

collection of art pottery lamps recently exhibited in New York City, were the result of nine years of investigation and research and are acknowledged by experts to be without question the greatest departure in that field ever taken. Intended primarily as a description of this beautiful collection, this article would fall far short of its mark were it not to describe the wonderful discoveries in glazes which had made their preparation possible.

There are hundreds of glazes, mirror, matte, lustre, crystalline and flambeau, ranging from sombre tones to high colors, each one an original discovery in itself, and all well adapted for use on the pottery shapes which they adorn.

The matte glazes are in different shades of browns, yel-

lows, blues, blacks and greens, the most noticeable of the greens being the cucumber matte. Great care has been taken in selecting names for these as well as for other glazes. Thus the *café au lait* is a chocolate color of fashionable shade; the mission matte, a brown black glaze resembling the finish of fumed oaks or mission furniture; the *Verte antique*, a green of rich shade; the *Alice blue*, a pale shade extremely attractive; and the mustard, an orange yellow glaze.

The mirror glazes are in almost every conceivable color both in mono- and multi-chrome, among them Chinese blue, described as "appearing dripping wet as if just lifted from water"; blue of the sky, the azure blue of a cloudless day;



Pottery Lamp with Inset Crystals.

mirrored green, an apple green with a high gloss; smoke green; elephant's breath; cat's eye; black; yellow; brown, and many others.

The flambeau glazes are the same in color as the mirror glazes with the addition of a flambeau effect.

Undoubtedly the greatest attainment of all is an extinct Chinese glaze, the *famille rose*, practically not one piece of which has even been produced since the art was lost in China between the Ming and Tartar dynasties in 1722. "Inspiration for the artistic in pottery is derived almost exclusively from the ancient Chinese, and the closer the present day potter approaches its perfection, the nearer he reaches the pinnacle of ceramic art." The fabulous prices asked for real old Chinese specimens place them almost beyond our reach, and we must therefore depend upon the modern potter for its present day prototype. *Famille rose* is equal in every respect to the old Chinese and is made in true rose, peach bloom, apple blossom, ashes of roses, and matte.

Although the Chinese were masters of the glaze, it is left to modern ceramists to develop the crystal effects. No object or record thereof having come down to us, it is not believed that they even knew of these effects. Crystal glazes are ceramic curios, only appreciated by those interested in the industry and only a few enthusiastic chemists have been able to produce a specimen. The number is limited and their manufacture has never been made a commercial proposition. Their particular value lies in the difficulty with which they

are gotten, much depending upon the fire, and no two pieces ever being duplicated. Different colored crystals appear on different colored matrices, such as a dark blue crystal with a light blue matrix or a light blue crystal with a dark blue matrix. A lustre crystal on a slate or mauve color is known as leopard skin. The crystals vary in shape, having a star, streak, dust or other effect.

A distinctive feature of the new lamp is that base, stem and shade are of pottery, each made to match the other and having the appearance of one solid piece. With the use of the above glazes in their many colors and shades, and a wide variety of shapes, the results obtainable are delightful and exceptionally beautiful.

The shades are made solid, reflecting the light downward, or sections are cut out and filled with art glass, jewels, crystals, or stained glass, throwing the light outward. The glass may be in a single piece or leaded. The introduction of this feature adds another element of variety and permits of a wider differentiation in style.

The shapes are largely of conventional design, some have been derived from old Chinese specimens, and one is of odd

on vases for cut flowers, blossom cups for sprigs of cherry blossom or orchids, rose bowls, coffee sets, desk sets, ink stands, ash trays, whisky sets, beer mugs, candle holders, clocks and a variety of objects to which the use of art pottery is applicable.

THE FIREPROOFING QUESTION.

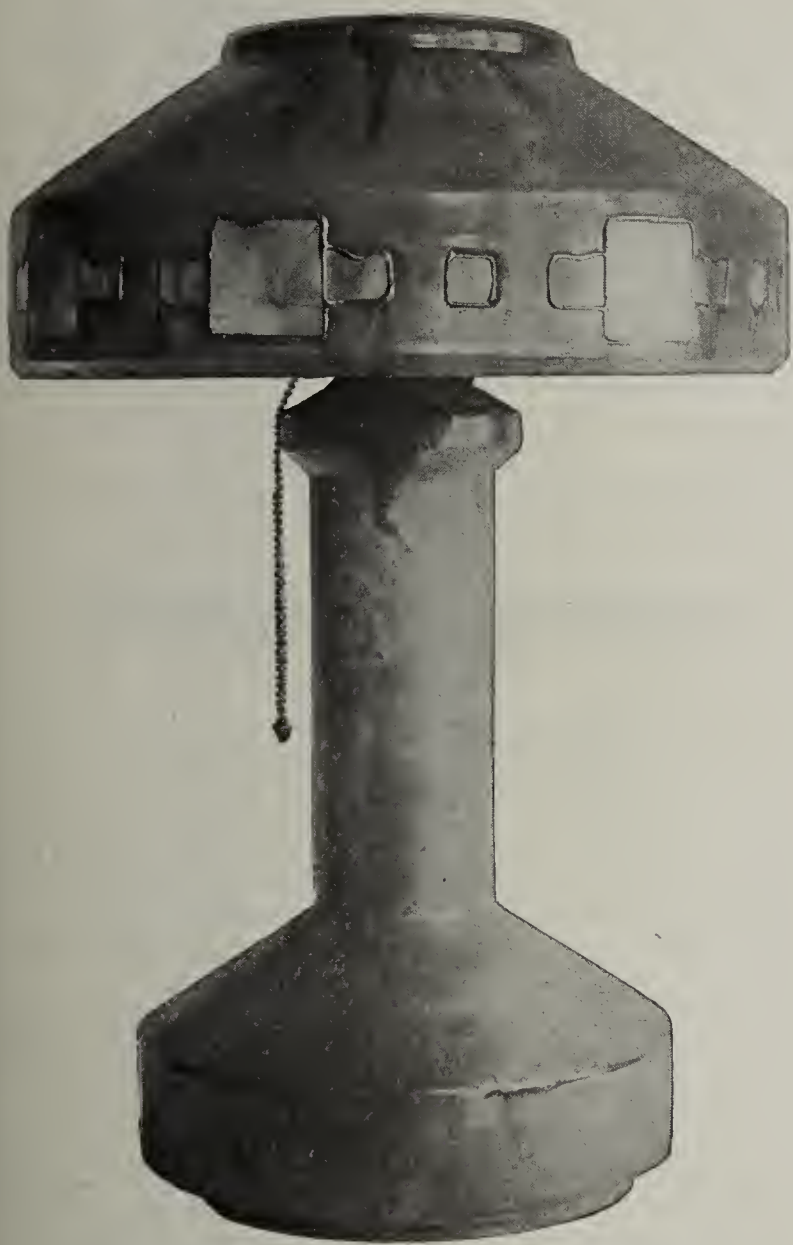
CLAY INTERESTS are watching closely the controversy in the New York Board of Aldermen over the fireproofing question. New York's new building code is before the aldermen for consideration and the provisions relating to fireproofing are causing no end of difficulty. The principals in the contest so far are the National Fireproofing Co., of Perth Amboy, N. J., against the entire concrete field. This includes the National Portland Cement Manufacturers' Association, some of the Licensees' Association of New York, the steel-concrete construction companies and some large engineering interests. All these are engaged in a united effort to force Chairman W. P. Kennealley, of the building committee, to concede the broader use of reinforced concrete in New York building operations, and they are doing this in spite of the fact that every building collapse so far this year has been caused by the use of concrete. It is not very long ago that an apartment in West Seventy-eighth street collapsed and a number of men were killed in the ruins. Concrete was very extensively used in this construction.

So far, the pleas of concrete men have availed them little. It was said in Mayor Gaynor's office that it is not likely the committee will be permitted to do anything unfair in the way of allowing a monopoly to either one side or the other. Mayor Gaynor has engaged experts to advise him upon the technical features of the code, and will watch both sides in the controversy very closely.

The mayor has sent a note to the committee advising them that he will not approve any code that gives advantage to one type of fireproofing over another, unless there are good scientific reasons for doing so. This announcement made the hollow tile manufacturers jubilant and brought from the concrete interests an effort to conduct a test of the fire-resisting qualities of both concrete and hollow tile at no expense to the city. As this is written, the offer has not been accepted.

It is nearly three years since this controversy over fireproofing began. Mayor McClellan ordered experts to make a thorough test of both types of fireproofing material and then held up the code because he was informed that unfair tactics had been used in the examinations. All through Mayor Gaynor's term, thus far, the building code has been a menace, exerting considerable influence upon the building interests. So long as it hangs fire, neither concrete men nor hollow tile manufacturers can know whether their product will be allowed or not. It has been something of a factor in reducing the amount of building done in New York this season. It is quite probable that the passage of the code, whether or not it allows the use of concrete, will be followed by a revival of building operations which will restore old time prosperous conditions.

When the controversy began, the clay interests were, to a certain extent, caught napping. Had it not been for the efforts put forth by the National Fireproofing Company, it is quite probable that concrete would have been admitted to use in a most dangerous degree. Experience has demonstrated that the use of concrete in the tall buildings erected in New York is attended with more or less danger. Numerous collapses have occurred and many conservative operators are of the opinion that its use should be restricted, if not entirely forbidden, until it has been placed upon a more satisfactory and permanent basis. For high buildings it produces an element of danger that should receive more consideration than has as yet been bestowed upon it. If the experts employed by Mayor Gaynor succeed in placing the two methods of fireproofing upon an equitable basis they will receive the thanks of builders everywhere.

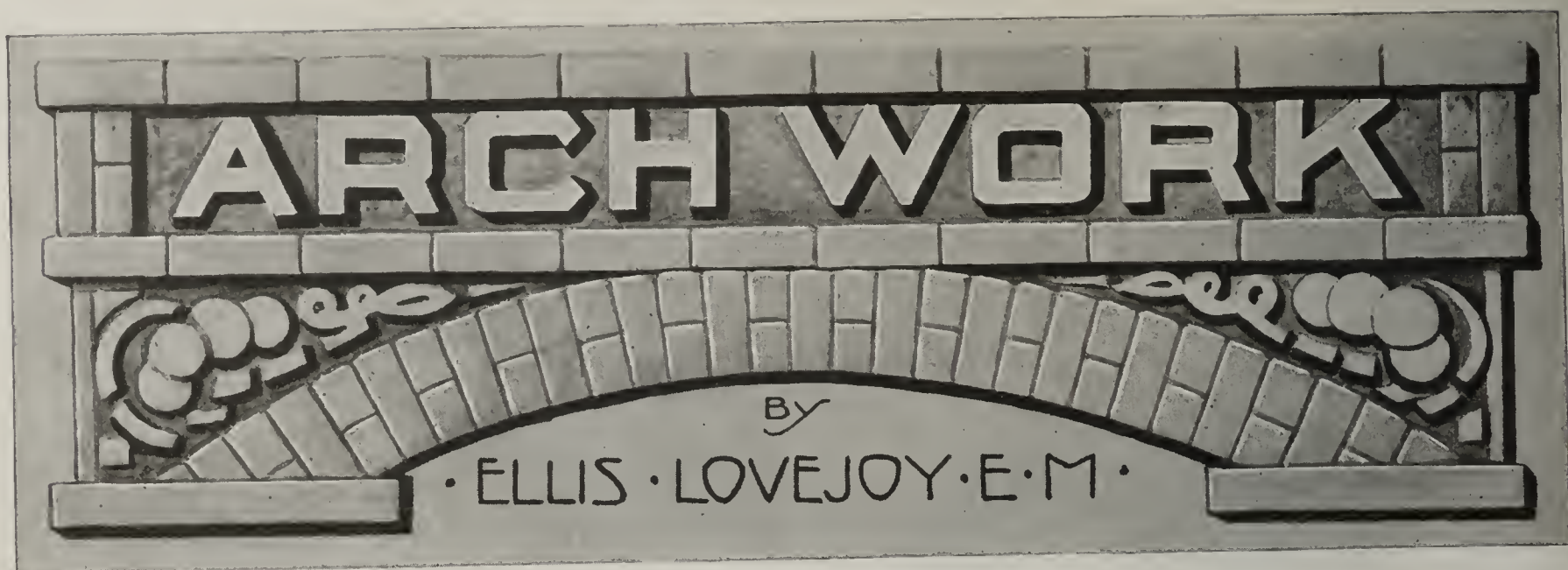


Pottery Lamp with Leaded Glass Effect.

Turkish form. All are made free hand on the potter's wheel and burned in the same kilns with cooking dishes and common utensils. Adapted for electric fixtures, the attachment is from the bottom and together with the globe is invisible. The cut-off is by a miniature button at the base. One of the best ceramic experts of Germany is engaged in the preparation of the lamps.

Besides the many qualities of color, glaze and shape, mention should be made of their high value for decorative purposes. The skillful blending of color is such as will harmonize with any decorative scheme from cold mahogany or mission to the luxurious furnishing of white and gold.

In addition to art lamps use is made of the many glazes



FOURTH PAPER.

Cutting and Grinding.

WE NOW COME to the cutting and grinding. The patterns for this work will depend upon what method is used in the work and need no description. They may be made of sheet metal, of thin lumber, perhaps of stiff paper, and one machine for cutting green bricks requires no patterns but uses instead a scale drawing which can be made from the full sized drawing, or, perhaps, from the plan drawings.

The methods of grinding and cutting depend upon the process by which the bricks are made.

Arches from dry press bricks are usually made by cutting and grinding on a rubbing disc the burned bricks, and we will consider these first.

We found it advantageous to mark the bricks to the pattern, then with a broad chisel cut the bricks to the pattern line. By properly tilting the chisel the cut can be made to dip into the brick, thus greatly reducing the grinding work and the time of doing it. Especially is this necessary in flat arches since each brick is a different shape and size, that unless there are a great many arches it does not pay to set the grinding boxes for them and they are best ground by hand.

Many manufacturers, however, prefer to cover the wheel with the brick boxes set to the proper size and do all the work in this way. It is often a question of hardness. If the bricks are very hard, the work on the wheel will be very slow unless the bricks are first clipped.

Grinding Disc.

The usual grinding wheel is a flat disc five to six feet in diameter with vertical shaft resting in step box, and driven by mitre gear.

The details of this machine are of no importance since it is a standard machine and can be bought from several manufacturers of machinery.

The disc should not be less than three inches thick and should be depressed around the center as shown in sketch No. 14. We can not get bricks up to the center shaft and without the center disc a shoulder forms which is continually crowding out and the wheel gets into bad shaps. With the depressed center, the bricks can fully cover the grinding surface and there is some chance to keep the surface fairly level if the workmen are careful.

Over the disc a gridiron framework is placed and attached to the frame of the machine.

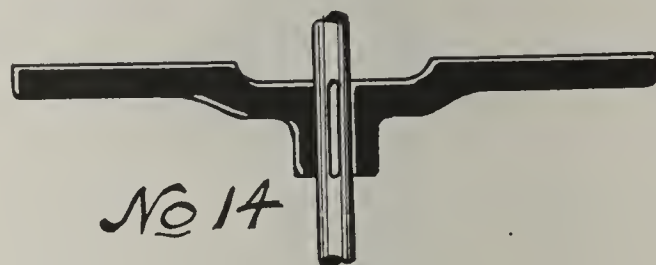
The bars forming this gridiron are spaced to receive the grinding boxes and they serve as guides to hold up the

boxes when the bricks are ground down to the proper shape.

The boxes are made in several patterns, with set screws and adjustable lugs, which can be set so that any degree of wedge or arch can be ground without attention on the part of the operator except to remove the bricks and put in new ones, as the grinding of each is completed.

It was our custom to grind a single brick by hand to the exact size desired as shown by the pattern from the drawing. This would be placed on the wheel and a grinding box slipped over it, and the screens and lugs of the box adjusted to the brick and to the supporting guides. We could thus adjust the box to any part of the wheel in case the wheel was not worn level, and several boxes each adjusted differently could be used on the same shape, the only thing necessary being to place the box at the point for which it was adjusted.

A simple box without adjustable screws, except those



necessary to clamp the bricks in the box, consists of a rectangular frame with handles at the ends.

These handles will rest on the gridiron support when the grinding is sufficient for the shape desired.

On a table, guides are set up upon which the handles will rest in placing the bricks for grinding, but in this instance the boxes are inverted.

A pattern just the size and shape of the part of the brick that is to be cut away is made and this is tacked to the table under the inverted box. When a brick is dropped into the box it will project just the amount of the pattern under it, which is the amount that will be ground off when the handles will touch the gridiron bars and the grinding ceases.

The height of the gridiron above the wheel, and the height of the frames on the table must be adjusted to the position of the handles on the ends of the grinding box, which is easily done, and once done does not need to be changed. As the wheel wears, the under pattern to regulate the depth of the cut must be made thicker.

In such an arrangement it is more important that the surface of the wheel be kept level—it should be kept level in any case, but we rarely find one that is.

Abrasives.

The abrasive used is a sharp glass sand which is fed with water on the center of the disc and is thrown to the

outer rim by centrifugal force, passing under the grinding bricks in its passage from center to circumference.

Sometimes the sand is placed in a hopper and fed down by the stream of water, but such method is very irregular and wasteful, and requires considerable attention.

At times the sand will be insufficient and the grinding will be very slow, causing lost time, and at other times the flow of sand will be excessive and a large part of it will run to waste.

The proper method is to use a small feeder which can be set to deliver any amount desired which will feed the sand into a trough from which it will be washed down upon the disc by the stream of water.

Crushed steel is used as an abrasive and it has decided advantages over the sand and costs less per thousand bricks ground. A circular trough is placed around the disc which catches all the wash. The trough is graded to carry all the material to one side where it empties into a depression in the trough forming a well. The steel, being heavy, quickly settles to the bottom, while the lighter material runs away in an overflow. A double "S" spout hung at the center vertically and rotating, dips up the steel which, on the up stroke, flows to the axis of the spout, and the axis being hollow and extending to the center of the grinding disc, delivers the steel at that point, thus completing the circuit. The steel is used over and over until completely worn out, and from time to time additional steel must be added to supply the loss. The same scheme is not applicable to sand because the sand is practically the same weight as the ground bricks and will run away in the overflow, and the two can not readily be separated.

Granulated carborundum has been suggested as an abrasive, but it would have the same objection as the sand, and if not used until worn out, the cost would be excessive.

Carborundum Wheel.

The carborundum wheel, however, is becoming an important factor in clayworking industries, and in many plants replaces the grinding disc entirely.

An ordinary emery wheel is of little value in this work, but a coarse grit carborundum wheel will cut the hardest brick very rapidly.

Vitrified and semi-vitrified clay products, which the market now largely demands, are harder than tempered steel and as hard as quartz, and the process of grinding them on the grinding disc is very slow and expensive, which has made necessary the adoption of the carborundum wheel. No description of the carborundum wheel is necessary—it being a simple carborundum wheel on an arbor, either single or double.

The wheel should be covered with a hood connected with suction fan to take away the dust and make the work more sanitary. So far as we know, mechanical rigs for holding the bricks, as in the use of the grinding disc, have not been introduced, but there is no reason why such rigs could not be developed. As a rule the vitrified products are made by the stiff mud process, and the arch bricks are cut from the soft blanks, and the only grinding required is touching up the burned product and grinding an occasional piece in an emergency, so that the occasion for mechanical grinding rigs is not imperative.

Packing the Arches.

We consider the packing of the arches an important feature. It is one thing to mark the bricks and pack them, rejoicing that the work is done and off our hands, without regard to the difficulties which the contractor may have in sorting them out and in working out the Chinese block puzzle which the assortment represents, but it is quite a different thing to have the bricks so packed that there can be no confusion at the building. We believe that the latter method is the most profitable in the end.

We prefer boxes to barrels and would make them with

handles to insure more careful treatment by freight handlers and teamsters. The handles are a hint in regard to the proper method of handling the boxes and the hint is usually accepted.

Barrels are convenient for packing circular arch bricks and any arches in which there are few patterns but can not be used where it is desired to pack the bricks in arch form which we believe desirable to do.

Circular arch bricks should be marked with the pattern number and the arch letter, and each box or barrel should have an inside and an outside tag showing the number of bricks, the pattern numbers, and the arch letter, and an office list must be sent to the contractor showing the contents of each package.

Bricks that have become wet in grinding should be dried out before packing, else the packing straw will mold and stain the bricks which, in dry pressed bricks at least, can not be readily cleaned off. If the bricks are not perfectly dry the faces should be protected from the packing straw by wrapping paper, and we consider this protection of the faces a good plan in any case because the boxes are often left out in the weather at the building and become soaked with water before being used.

We would lay out flat arches, piers, flat top segments, and any special work involving a great number of patterns, in arch form and so place them in the boxes, which should be made of the proper size to take the arch.

If the flat arches are small two can be placed in each box, one facing the other, but if large, the arch should be doubled on itself in the center and so placed in the box. We would use wrapping paper between the bricks as a cushion and after the complete arch or half arch is in, wedge it up tightly with straw. The face should be laid up in the bottom course, then covered with paper, and the top arch laid face down. This requires boxes nine to ten inches deep, which is a convenient depth to pack since it takes just two courses.

We usually construct boxes to hold the equivalent of fifty standard bricks, which two men can handle conveniently.

In packing flat arches, etc., as above described, it is evident that the soffit bricks must be packed separately where the depth of the soffit is greater than four inches, but the contractor will have no trouble in filling in the blanks with the properly marked bricks, when he has the larger part of the arch laid out to start with.

(To be continued.)

POOR CONCRETE CAUSES TROUBLE AT ST. PAUL.

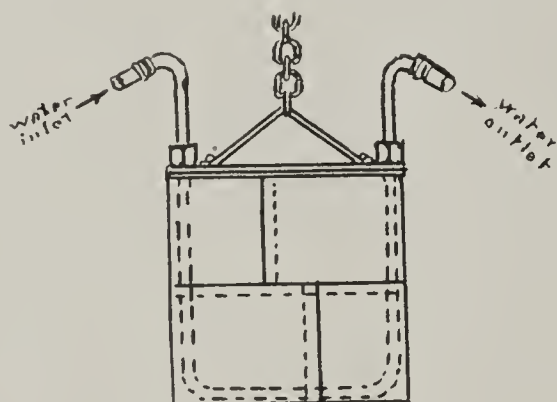
Building Inspector Van Ornum, of St. Paul, Minn., has taken a shot at cement foundations under wall dwellings—not as such, but because his forces have been finding walls put in by careless contractors which are sadly under the requirements. The ordinance requires concrete foundation walls shall be composed of one part of cement to three of sand and six of broken rock or gravel, but it has been found quite frequently that a mix of one of cement, seven or eight of sand and one of gravel had to answer. The inspector considers this sort of a wall unsafe, and will condemn any such that he may find. This is but another instance of how uncertain the concrete proposition may be in the hands of a reckless or thrifty contractor. Foundation walls of concrete are presumed to be all right, but they will not submit to having the cement skinned out of the job and then produce a wall that will do good work. With such an uncertain line as a mixture of the character named would give, would be almost certain to allow unequal stress through a dwelling, causing settlement cracks to show in the plaster, throw doors out of line and twist finishing work to the general discredit of the work. A built-in sideboard which happened to rest over an especially weak place in the foundation wall, unless the supporting timbers or frame were strong enough to carry the strain, which they should not be required to do, might easily be sagged and strained, its mirrors cracked and otherwise thrown out of true.



The Drying of Clays.—Wet clays are dried before being ground in rotary dryers. When the brickyard has much exhaust steam it might be advantageous to put in a steam dryer for drying the clay. A rotary dryer which has a steam cylinder in which either live or exhaust steam can be used, is often used for the drying of clays.—Tonind. Z. No. 149, 1910.

Calcining of Feldspar.—Under ordinary circumstances feldspar is not calcined, as it only adds to the cost, and does not improve the quality of the material. The only advantage the calcining will give is in the grinding. The best method for calcining is in saggers at a temperature between cones 09 and 1. When the temperature runs higher, the feldspar will commence to flux, and this makes grinding harder.—Keramische Rundschau No. 19, 1911.

A Fireclay Kiln Damper.—Of the many devices used in the brickyards for dampers, there are only a few which give satisfaction. The damper usually gets too hot, and will



Water Cooled Damper.

warp. In order to overcome this trouble a water cooling system can be arranged in the damper, which will keep the same from warping. The water is carried through iron pipe, which is moulded into the fire slabs, which are used for this damper. Of the one side the connections are made for the inlet of the water, which will discharge from the other end after having circulated through the damper.—Tonind Z. No. 58, 1911.

Crude Oil Firing.—The calories of heat in good coal amount to about 8,500 heat units, while that of crude oil is over 11,000. Crude oil burns completely, while with coal it is different. The main points in favor of crude oil are the great saving in fuel, the saving in labor, small cost of installation. Further, the heat remains more uniform, and the regulation of the heat is more exact.—Keramische Rundschau No. 20, 1911.

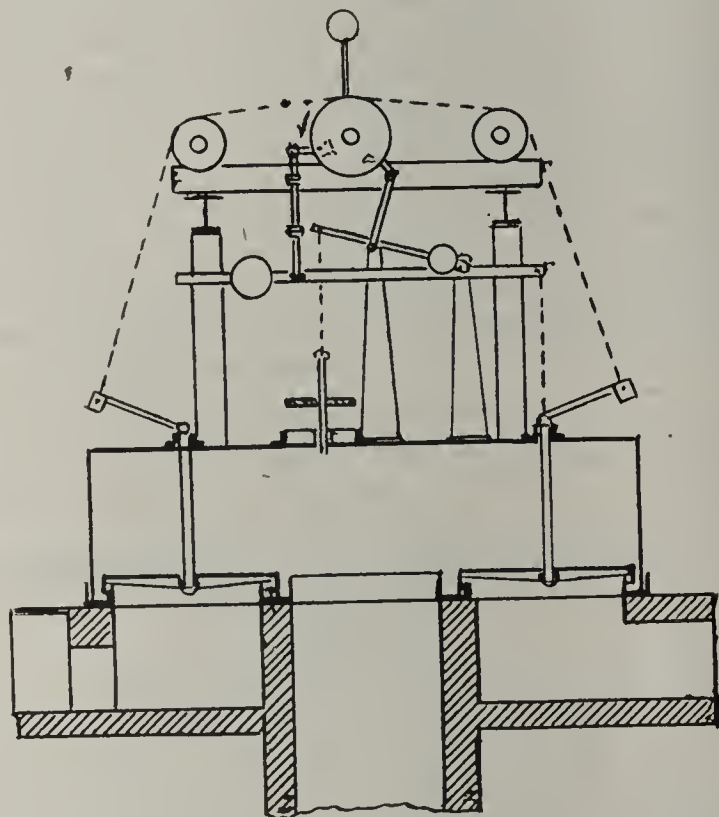
Calcareous Clays.—The lime contents of a clay do not play any important part in an auger machine. The only thing which should be watched is the setting of the knives in order that the clay column will not run too short. Clays with 4 per cent. of lime are considered very valuable. The small contents of lime will add to vitrification. With the increase of lime the clay becomes less valuable. With 15 to 20 per cent. of lime the clay can only be used for ordinary common brick. With such a high percentage of lime great care should be taken in the burning. It is advisable that calcareous clays

should always be ground as fine as possible. In order to counteract any slacking of the lime in the brick after they come from the kiln it is advisable to soak the brick with water in order to make the lime action ineffective.—Deut. Topf. & Z. Z. No. 104, 1910.

Brickmakers School in Sweden.—The Swedish brickmakers school at Svedala closed its seventh year with eleven students, of which three were from Norway and one from Denmark. The brickyards take a very great interest in this school, and have donated prizes for the students graduating with highest honors.—Tonind Z. No. 56, 1911.

In Memoriam of Prof. Dr. Wm. Michaelis.—Dr. Wm. Michaelis, the well-known chemist, died at the age of seventy-one on May 14 last. Dr. Michaelis was the father of the sand-lime brick industry, and while he made a specialty of cement investigation, his works and writings in the clay industry will make his name long to be remembered in the ceramic industry.

A Doppel Acting Damper Arrangement.—In the gas fired kilns the raising and lowering of dampers causes a great deal



"Doppel" Acting Damper.

of trouble. The illustration shows an arrangement by which one damper can be lowered while the other damper will be raised. The arrangement has been patented by Hugo Knoblauch under German numbers 231,450 and 231,451.—Sprechsaal No. 17, 1911.

Monument for Theodore Deck.—The town of Gebweiler in Pfalz, where Theodore Deck was born, will erect a monument in its city park to the memory of this great ceramic man. From pottery apprentice in his native town, he worked himself up to the high position of director of the French National Porcelain Factory at Sevres. His native city will honor his memory in an appropriate manner.—Keramische Rundschau No. 21, 1911.

Groszalmeroder Clay as Glasspot Clay.—Groszalmeroder clay has a world name for its qualities in connection with glass pots. Much of this clay is used in this country in connection with our native American clays. A few remarks taken from Sprechsaal will indicate the handling of this clay. "The best glass pots are those made in which this clay is used alone. In glass pots in which several clays are mixed the quality of the pots is far below the ones which were made entirely of this clay. For glass pots and blocks a mixture of

two parts of raw clay and three parts of burnt clay will give a good body. For brick three parts of raw clay, four parts of burnt clay and two parts of grog is often used. For the raw clay a sixteen-mesh screen is used, for the calcined clay an eight-mesh and for the grog a thirteen-mesh screen."—Sprechsaal No. 41, 1910.

Brick Import to Russia.—The Swedish brickmakers of the Frederistad district have exported over two million brick already this season to Russia. On May 25, a steamer left for St. Petersburg with half a million brick. A few days later a steamer left for Archangel with nearly a million brick, and, according to the orders on hand, nearly a half million brick will be transported to the different cities in and along the coast of Finland.—Lerindustrien No. 12, 1911.

Automatic Belt Arrangement.—When different kinds of clays are used for the making of clay products, the mixing of these clays properly becomes a great problem. There are several different devices on the market, but they all have

FIG 1

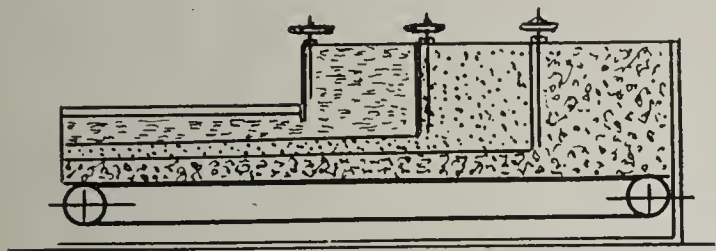


FIG 2

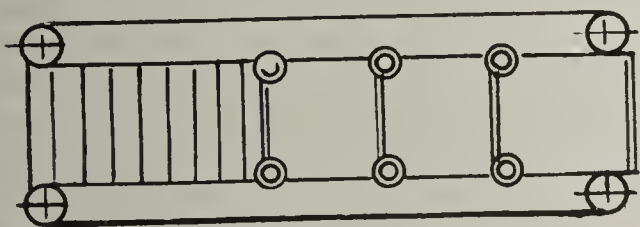
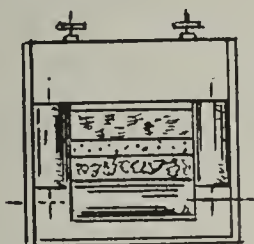


FIG 3



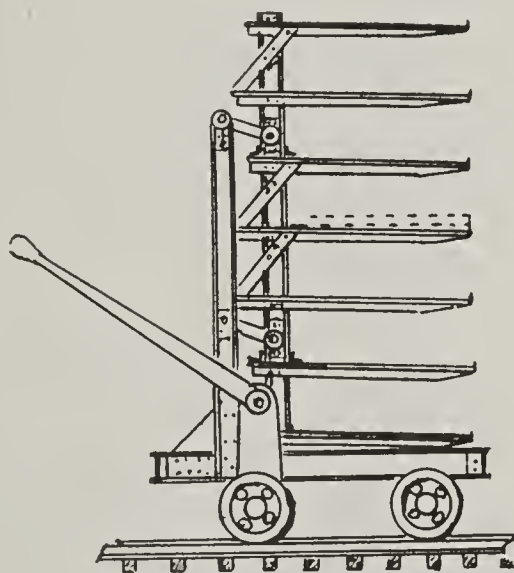
shown some drawback. The cut herewith illustrated shows a continuous belt on which is mounted a mixing box, divided into three compartments which are regulated by a sliding door arrangement. As the material moves on the lower layer with the belt, they will carry the material from the second compartment also forward, and when the combination of the two materials reaches the third material to be mixed, it will carry this forward also, and the end of the belt will discharge and mix the three materials in their proper proportions.—Deut. Topf. & Z. Z. No. 36, 1911.

The Glazing of Sewer Pipe.—When sewer pipe shows white effervescence after being piled on the yard for some time, there has been used too much salt when the pipes were glazed. In order to overcome this trouble, the amount of salt should be lessened every time the kiln is fired, until the proper amount of salt has been determined with which a kiln should be fired. Salt will vaporize more easily in reducing atmosphere, and a smoky fire should mostly be used when salting is in process. Sometimes the salt is mixed with

iron oxide mineral and coal dust. This will give the pipe a black glaze. To obtain a bright glaze it is necessary to finish the kiln, throw two shovels of salt on the fire, and close up all the doors. Leave the draft on the stack until all the white glaze vapor has disappeared, then close off the damper also, and the kiln will give good bright glazed pipe.—Tonind Z. No. 62, 1911.

Glaze Compositions.—To make a slip glaze which will burn red at a temperature of cone C9-010 is an impossibility. The use of slipglaze is not practiced below cone 1. Slip glazes, while they may appear red in the raw state, never burn that color, but always burn brown, or yellow or green. Red glazes are made with pink stain, and from 5 to 10% is sufficient. To make a soft glaze which will mature between cone 010 and 09 is made as follows: Frit flint, 100 parts; borax, 115 parts; boracic acid, 24 parts; magnesia, 8.4 parts; marble dust, 20 parts, and kaolin, 25 parts. In the glaze use 121 parts of the frit, flint 44 parts, feldspar 110 parts, marble 20 parts, kaolin 25 parts. The frit mixture is ground together, and placed in sagger and burn in the safest part of the kiln. After the frit is burned, it is ground fine again and the mixture is used for glaze purposes.—Keramische Rundschau No. 15, 1911.

Car for Brick Pallets.—In order to carry brick pallets to their different racks, Thiele & Maiwald have obtained a German patent under number 233,717 for the arrangement



Car for Brick Pallets.

of a steel car, by which a lever can be used for the raising and lowering of the arms which will hold the brick pallets.—Tonind Z. No. 59, 1911.

Clay Dredging.—At the annual convention of the Swiss manufacturers of clay, lime and plaster, Mr. Hirt read a paper on the economical handling of clay with a dredging machine. He gave a description of the different systems in use in the various clay plants, and stated that the deep dredger on the brick yards of Vetter Brothers in Muhlacker dredges 45 feet deep, and has a capacity of from 400 to 525 cubic yards per day. The power for this machine was electric. Regarding the cost of dredging clay he gives the following figures. With a capacity of 80 cubic yards a day, the interest on the capital is 9.20 francs.

One man for handling the dig-	
ger and motor	5.00 francs
Changing of the track	4.50 "
Repair and upkeep	2.00 "
Oils and supplies	1.50 "
Electric current and power..	5.90 "

Total28.10 francs (\$5.62)

The cost per cubic yard would be, therefore, about 7 cents per yard. The price usually paid for hand digging and handling is 15 cents per yard, so that it appears to be more economical in case the clay is so situated that it can be handled with a dredging machine.—Deut. Topf. & Z. Z. No. 30, 1911.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

We are about to erect new kilns, can you give us any information on the draft problem through your columns?

ANSWER.—Draft is the generally unstable and variable power that governs combustion, carries the produced heat to the place where it is to perform its duties and then is carried out into the atmosphere. Draft is the key which controls the lock that governs good burning; *ibide*—draft can make or break a brick plant. Draft is a power that is dependent upon the height and area of the stack, the temperature of the atmosphere and the escaping chimney gases and their relative densities as well and the friction offered to the traveling gases. The force of the draft is equal to the difference between the weight of the column of hot gases inside of the chimney and the weight of a column of the external air of the same height.

The intensity or velocity of the draft varies as the square root of the height and it is used as a determining factor for draft value. Take, for instance, a stack of 50 feet high. The factor of the same would be 7.07. The popular belief that doubling the height of a stack doubles the draft velocity is easily disproven, as the square root of 100 is 10 or only an increase of 41.44% over the velocity developed by a 50-foot stack. In good chimney construction for brick kilns a 50-foot stack can safely carry about 25 feet more, which then would only give an increased draft factor of 22.48% for an increased height of 50%. Experiments in Europe have established a friction calculation factor of two inches diminution in the area value of stacks; that is, a stack when covered with a ring or cover extending inwardly two inches all around from its inside boundary, gave the same draft power or draft value as when no ring was used and the explanation given was that the two inches cover or ring dead space was a compensation for frictional resistance of the stack in that the dead air acted as a frictionless cushion.

The following calculations show the area value of different size stacks occasioned by the said two-inch dead space:

6 ft. sq.,	5184 sq. in. loss, about 560 sq. in. or 10.8%
5 ft. sq.,	3600 sq. in. loss, about 464 sq. in. or 13.0%
4 ft. sq.,	2304 sq. in. loss, about 368 sq. in. or 16.0%
3 ft. sq.,	1296 sq. in. loss, about 272 sq. in. or 21.0%
2 ft. sq.,	576 sq. in. loss, about 176 sq. in. or 30.0%

It is shown that although four 2-foot square stacks have the same interior area as one 4 feet, yet the effectiveness of the four 2-foot stacks is less by 14% than if only one 4-foot stack had been used. Furthermore, the draft power depends also upon the differential weights of the atmospheric temperature, and the temperature of the hot gases leaving the chimney. It would take considerable time to make all detail calculation, hence will give only results. The theoretical draft for a chimney or stack 100 feet high, internal temperature of 500 degrees F., and external atmosphere at 0 degrees F., 60 degrees F., 80 degrees F., and 100 degrees F., will have, respectively, .829 inches, .639 inches, .586 inches, .534 inches draft on the water gauges, or if we take static at 60 degrees F. as a unit, then at 80 degrees F. the draft would be decreased 8.3 per cent. At 100 degrees the draft would be decreased 16.5 per cent and at 0 degrees F. the draft would be increased 29.7 per cent.

The figures cited show the variability of stack draft depending on the then existing atmospheric conditions and temperature. It is well to bear in mind that about 80 per cent. of above calculated theoretical draft can be taken as a practical standard in a great number of cases. However, correctly calculated tables serve well for comparison and

they are generally based on standard conditions, that is, standard air pressure of 14.7 pounds per square inch or an equivalent barometric pressure of 29.92 inches. As barometric reading and air pressure vary in sympathy, it is perhaps of service to give a simple rule for calculating air pressure from barometric reading.

Rule—Multiply barometric pressure in inches by 0.4908 equals pressure of air in pounds per square inch. Hence at 28.00 inch barometric the air pressure would be 28 times 0.4908 equals 13.74 pounds per square inch. Care should be taken that stacks are large enough to take care of the volume and also the weight of combustion gases and all other vapor or gases that may have to be carried away.

As an example of the possible variation of condition, the following may be cited: If we take one pound of a certain coal burned with the theoretical amount of air, for a standard, we would then have the following approximate theoretical temperatures of combustion as follows:

1	time	theoretical air, about 5000 degrees F.
1½	times	theoretical air, about 3500 degrees F.
2	times	theoretical air, about 2680 degrees F.
3	times	theoretical air, about 1810 degrees F.

and so on. It can be readily seen that the air quantity is an important factor in controlling the arising temperatures and the weights and volumess of combustion gases as well as proper or sufficient stack power must be present to take care of all of these arising conditions. I spoke of other gases, referring in this case more particularly to carbonic acid gas that comes from calcerous clays during burning. Carbonic acid gas or carbon dioxide, as it is named by some, weighs 0.12 pounds per cubic foot as against air only 0.08, or one pound of air occupies a space of 12.38 cubic feet, whilst carbonic acid gas only a volume of 8.152 cubic feet, but figuring either way the stack power must be sufficient to take care of the extra weight and volume as these quantities are auxiliary to the ordinary products of combustion. The stack power must be especially taken care of in continuous kilns as they sometimes operate with seven or eight times the theoretical amount of air.

The next element which enters into the draft problem is the expansion of the gases in the combustion chamber, for for each degree of heat added the gas expands 0.002038, or for 1800 degrees additional temperature the volume would then be 1800 by 0.002038 equals 3.6684 plus 1, equals 4.6684 times the original volume. This expansion, in a way, causes a back pressure against the grate surface and in a measure retards the ingress of air through the grate bars. The smaller size the solid fuel, the smaller should the respective openings be in the grate surface. The smaller the fuel the tighter the fuel may pack on the grates and thereby also cut down the rate of flow of air through the grates.

As an illustration of the retarding influence of draft by grate and fuel resistance, will submit the following, based on a fuel consumption of ten pounds and twenty pounds fuel per square foot of grate per hour:

	Draft force required in inches for	10 lbs.	20 lbs.
Bituminous coal, run of mine		.045	.10
Bituminous coal, slack		.070	.15
Semi-bituminous, run of mine		.075	.20
Chain grate for bituminous coal		.090	.24
Anthracite pea		.115	.445
No. 1 anthracite buckwheat		.230	.66
No. 2 anthracite buckwheat		.390	1.23

It is shown very clearly that the finer the coal the greater the resistance of the fuel on the grate surface.

Since an air pressure of 14.76 pounds per square inch

at normal barometric pressure supports a column of water 1 inch square and 34 feet high (34 by 12 equals 480 inches), therefore one inch of water would equal a pressure of $(1476 \div 480)$ 0.036 pounds per square inch and by multiplying inches of water draft by 0.036 would give the pressure in pounds.

The next part of the problem that confronts us is the setting of the brick, in that too tight setting causes too much friction and retards the movement of the heat and too open setting does not hinder or impede the flow of the combustion gases sufficiently to allow a proper and adequate absorption of heat by the wares to be burnt. At the 1909 convention of the N. B. M. A. the writer presented a paper on "Draft Governed By Setting" and shall cite two conditions from this paper.

A=setting 5 on 2 or 30 on 12.
B=setting 11 on 4 or 33 on 12.

As in B there are three more brick set on 12 than in A, consequently thereby the flue space is cut down 10 per cent, therefore increased draft capacity must be provided for, if speed must be kept up. For further information on this setting problem the reader is referred to February, 1909, issue of THE CLAY-WORKER.

So far this paper has only dealt with variable stack draft, but it may not be amiss to go a little into fan or mechanical draft which, in clay craft, is applied either as forced or induced draft. The beauty about fan draft is its reliability, in being independent of atmospheric conditions. But fan draft, per se, does not eliminate combustion troubles at all times. Proper installation and manipulation are just as important as when using stack draft. I am aware of a plant using force draft, and the smoke nuisance is worse than when they formerly used ordinary draft. I also recollect a plant having a continuous kiln, where a fan draft had to be installed before the kiln proved a success, as the variable stack draft at times caused serious damage.

Personally, the writer prefers induced fan draft because the mechanism is close to the end where the spent heat gases pass out. A species of draft is also caused on the injector principle where oil or gas is used under pressure. The velocity of the entering steam caused a suction that prevents the fire from blowing out and thereby creates a pressure in the kiln that will force the combustion products out to the stack.

The writer recalls a plant where gas under an average pressure of fifteen pounds had been used and when burning with coal had been tried, the stack power was found deficient. Also at another plant where gas was changed to oil, the oil burning proved a failure owing to insufficient stack power. With all these explanations in mind, it is very reasonable to state that stack power is a very important factor in the successful operation of clayworking industries and the customary guesswork should not be tolerated.

The old-time saying that "we will make everything big enough because we can damper to suit," is a wrong policy and should be cut out, as extra and unnecessary sizes add extra cost and expense. A good kiln constructor should and can figure on the amount of ware to be set in the kiln, the amount of coal to be burned per hour, per square foot of grate surface, governing the speed of burning, and the required temperatures, the proper setting, and last, but not least, the correct stack power for proper draft, otherwise everything gone before may prove worthless.

NEWS ITEM.

Mr. F. B. DeGress, for over ten years New York district manager of the Crocker-Wheeler Company, has resigned from that company to assume the position of general sales manager of the Pulsometer Company, 17 Battery Place, New York City. Besides looking after the sales end of the busi-

ness Mr. DeGress is also carrying on a series of experiments with a view to improving certain features of the pulsometer in order to make it suitable for general pumping work in power plants, industrial establishments, etc., so that it may become as popular for this class of work as it is in the general contracting field, where it is now so well known.

HOLLOW BLOCK SILO.

A VITRIFIED CLAY block silo built upon Meadowview Farm, owned by A. P. Grout, near Winchester, Ill., in September, 1909, was immediately filled with ensilage and has proved a wonderful success since that time, showing no cracks.

This silo is 12 feet inside diameter, 40 feet high and has a capacity for 100 tons of ensilage. The bottom is 8 feet in the ground upon 10 inches of cement, which was poured in a hole fifteen feet in diameter. Thirty-eight blocks are required for one course, and fifty-three courses will carry it to a height of 40 feet. This calls for, after deducting eight blocks for each of the six openings, 1,996 blocks.

Hollow spaces in the blocks and the spaces between were



Vitrified Clay Block Silo.

filled with concrete and slightly tamped to fill all crevices. The silo was reinforced with two No. 9 galvanized wires placed in the grooves left for the purpose in the top of each course, and these wires are connected by short wires of the same size securely fastened to the horizontal wires above and below at a number of places. The openings are 24 x 36 inches. In making this silo seventy sacks of cement were used. No cost was kept of sand and gravel, as they were obtained from a creek bed on the farm. The blocks cost Mr. Grout ten cents each, f. o. b. White Hall, from the White Hall Sewer Pipe and Stoneware Company of White Hall, Ill. The inner surface is hard and smooth and impervious to moisture and acids.

Mr. Grout is prominent in the work of the Illinois Farmers' Institute, and that organization, which is interested in the promotion of silos, together with other phases of scientific agriculture, will urge upon the farmers of the State the use of the cheaply constructed and perfectly satisfactory vitrified clay block silo.

S. P. RING.



IRRIGATED LANDS IN THE RIO GRANDE VALLEY
SAVED BY DRAINAGE.

(Continued from July Issue.)

"It is said that in some localities the subsoil is sandy for 50 feet in depth and water will readily pass downward to that depth. In other localities, however, a layer of heavy clay is encountered at from 8 to 12 feet below the surface, preventing the downward passage of water. The rise of ground water is caused by putting more water into the ground than the subsoil will carry away. Nearly all subsoils will allow a flow of water, but in some cases the material composing them may be so compact that the water moves very slowly, and for all practical purposes a storage reservoir is formed. This is especially true where waves of highly impervious clay or ridges of shale or rock occur in such a manner as to cut off the underground flow. If the strata of subsoil are composed of a porous material, and are continuous, the underground flow may be considerable. In some cases where there is a good slope to both the soil and layers of subsoil, and where the latter is of sand or gravel formation and where irrigation water is used judiciously, land may be cultivated indefinitely without the ground water rising enough to cause injury to crops. But such cases are rare, since seepage waters from canals or higher lying, more pervious irrigated lands, or an excessive use of irrigation water, usually supply a greater amount than will pass off through the subsoil. If this is the case the ground water will rise slowly but surely unless artificial drainage be supplied. The subsoil should be considered as a natural drain, and if it is deficient, assistance must be rendered by providing artificial means.

"A careful study of the situation in the Pecos valley at Barstow, Texas, shows that the permanent water table was originally 20 to 30 feet below the surface, while, after 12 or 14 years of irrigation, ground water had in some instances risen to and run off over the surface, making a system of extensive outlet ditches necessary.

"A Farmers' Bulletin of this department gives two instances of land which, under favorable conditions, filled with ground water to such an extent that it had to be abandoned. One instance cited is in the Bear river valley, Boxelder county, Utah, where the valley lands have varying slopes, with the heaviest ones near the hills and the lightest near the river. The soils range from a sandy loam to a clay, and are very deep. The cuts of the Bear and Malade rivers are from 50 to 100 feet deep, and it was thought would afford excellent drainage, but in spite of the seemingly favorable conditions many of the lower lands were affected by the rise of ground water and alkali soon after the water was turned on. Another instance noted was in Emery county, Utah, where the soil is an alluvial sandy loam, in which was found a layer of shale. This layer was sometimes found at or near the surface and sometimes several feet deep. Immediately below the shale, however, is an open, broken layer of about the same material which, it was thought, would afford excellent drainage, but within a few years after the beginning of irrigation wet spots and alkali began to appear and soon whole farms had to be abandoned.

"It is the history of irrigated land that nearly all of it sooner or later fills with water and has to be drained. Numerous other cases could be named, but it is not necessary.

"It is well known that the heavy clay soils of the Rio

Grande delta soon fill with ground water, and there are numerous instances where the lighter soils along the resaca banks have become filled and the alkali concentrated so that no vegetation whatever will grow.

"In all the lighter soils seepage water will pass freely, and a large amount may be expected to and does pass into the ground. It is reported by reliable officials that in some cases their canals lose over 50 per cent. of the water between the river and the farms. Add to this the excessive amount of irrigation water applied, and it is easily conceivable that even the deepest soils will fill up. Actual current meter measurement has shown that in some cases in the Pecos valley over two feet of water have been applied in one irrigation, and in the lower Rio Grande delta 10 inches per irrigation have been applied about every 10 days. If the voids of the soil be assumed as 33 per cent. then 1 foot of water applied will fill 6 feet of soil. Considering all this, together with the fact that the average annual rainfall is 28 inches and the maximum 60 inches, it is safe to predict that a large percentage, if not all, of the lands in the lower Rio Grande valley will in time fill up with water to such an extent that drainage will be necessary.

Methods of Reclaiming.

"Similia similibus curantur.

"The hair of the dog will cure the bite. (Evils of irrigation waters cured by water of drainage.)

"The popular cry of 'Back to the land,' has come at a time when more than ever before reclamation of waste lands, both rid and marsh, are being given careful consideration, both by government experts and private parties. Arid lands that have been once reclaimed by irrigation and again lost by the rise of ground water in the soils and by excessive deposits of alkali, as a result of the action of irrigation waters, are not to be abandoned. Patient, systematic study of the conditions of each individual case have disclosed methods that promise to re-reclaim these lands, and drainage has been found to be the solution of both the alkali and ground water difficulties. For the removal of alkali flooding and underdrainage has proven the most successful method yet tried. This water will dissolve and carry out with it a certain amount of the salt present, and if enough water can be forced through, the soluble salts can in time be leached out.

"In this method of reclamation it is desirable to put the drains deep enough to hold the water table down 4½ or 5 feet below the surface in order that evaporation may not draw readily from it. It has been found by the engineers of this office that when the water table is held down 4½ or 5 feet below the surface evaporation takes place very slowly and that under all ordinary circumstances the judicious use of irrigation water and a reasonable amount of cultivation will prevent any serious rise of the alkali. As previously stated, if more water is put downward through the soil than is allowed to come up through it by evaporation there need be no fear of alkali concentrating in harmful quantities."

A summary of the conclusions of the Government expert show:

1. There is not an excessive amount of alkali in the most of the lower Rio Grande valley soils if it is kept distributed, but if allowed to become concentrated by seepage and evaporation there is sufficient in nearly all of the soils to prevent plant growth.

2. The usual methods of irrigation farming tend to concentrate the alkali at the surface. When the soil becomes filled with ground water to within 3 or 4 feet of the surface, alkali is concentrated very rapidly. In general, the allowable alkali content for a heavy clay soil is less than for a sandy one.

3. The Rio Grande water is a good irrigation water. Any large amount of alkali concentrated by its use will necessarily come from the soil.

4. It is very probable that in time the soils of the lower Rio Grande valley will fill up with ground water near enough to the surface to cause the alkali to concentrate in harmful quantities, and that extensive drainage works will be required.

5. Any soil that is porous enough to allow the ready pas-

sage of water can be reclaimed. Sandy or loam soils can be reclaimed cheaper than heavy clay soils.

6. In general, the lateral drains should be made of parallel lines of tile running down the maximum slope, with perhaps an intercepting line if the soil is porous and the water comes from a canal. It should be remembered that an intercepting ditch must be laid to such a grade that there is less resistance to the flow of water in it than through the soil in the direction of the maximum slope.

7. It should be borne in mind that thorough drainage does not mean a ditch one or two feet deep, choked with weeds and debris, but that it means outlet ditches six to seven feet deep, with laterals $4\frac{1}{2}$ to 5 feet deep, and at such distance apart that they will remove the water from the soil faster than it is drawn up by evaporation.

Written for THE CLAY-WORKER.

TILE DRAINAGE IN TEXAS.

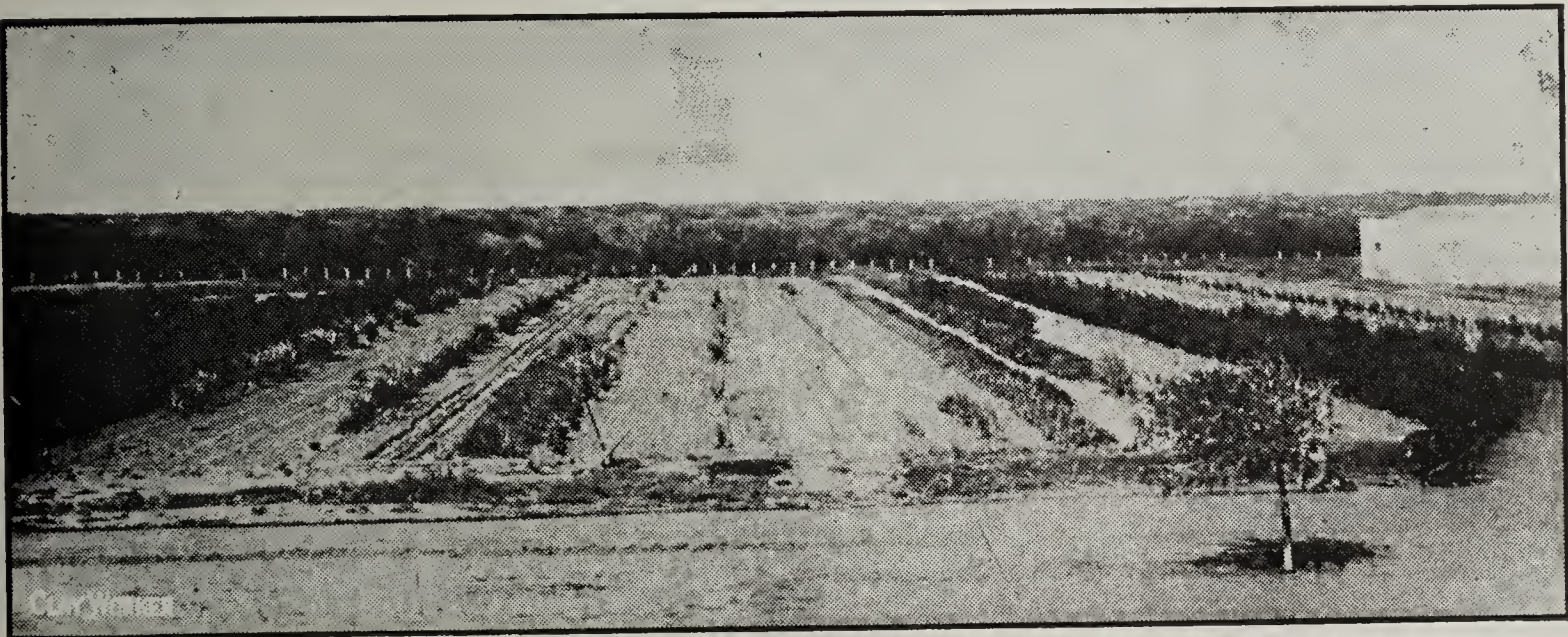
BY W. D. HORNADAY.

IN RECOGNITION of the importance of drainage to the lower valley of the Rio Grande, where great irrigation projects have been established during the last few years, the United States Department of Agriculture has decided to

practiced. Crops are grown exclusively by irrigation and the excess of water brings to the surface the salts that are in the soil and unless drainage is practiced the land may be seriously damaged. Upon some of the sugar plantations, as well as other farms where tile is used for drainage, splendid results have been accomplished and it is possible that through the work of Mr. Hall and his practical suggestions to the land owners there will be a great impetus given to this class of drainage.

There are approximately 600,000 acres of land on the American side of the river that are available for irrigation and which in time must be brought under drainage systems. Already large drainage districts have been created and bonds issued for the construction of the main ditch systems of carrying off the flood waters, but this work does not involve the sub-irrigation that, according to Mr. Elliott, is necessary for the land in order to obtain the proper results. Mr. Elliott declares that the agricultural possibilities of the valley are immense; that the soil is of marvelous richness, and that the problem of drainage there is no greater than that in most other parts of the country where work of this character is practiced.

Tile drainage has also been introduced in other parts of South Texas and the opportunities for tile manufacturers are increasing. In the vicinity of Houston, considerable drainage of this kind is now being done. The federal govern-



A Part of the Government Gardens at Fort Brown, Texas, Where Tile Drainage is Used.

station a drainage engineer at the South Texas gardens, which are located upon the old Fort Brown military reservation. The federal government has already done considerable preliminary investigation of the drainage needs and possibilities of the valley territory and has found that the matter is one of such great importance that the locating of an engineer there permanently is advisable. J. Hall, who has had much experience in drainage work for the government in different parts of the country, has been detailed for the new position here.

C. G. Elliott, of Washington, D. C., chief of drainage investigations for the United States Department of Agriculture, has recently completed an investigation of the lands in the lower Rio Grande valley as well as in the other parts of South Texas, and it was on his recommendation that an engineer was given a permanent detail for that section. During his visit to the valley territory, Mr. Elliott devoted considerable time to investigating the results that had been accomplished upon land where tile drainage has been established.

This type of drainage is a comparatively new thing for South Texas and its operation has been watched with no little interest by the farmers and others who are active in the development of the former wilderness. Conditions in the valley are different from most sections where tile drainage is

ment will also locate one of its drainage experts, in the person of A. Kipp, at Houston and he will devote his time and energies to promoting the drainage of land in that district.

BIG ADVERTISING CAMPAIGN.

The Brickmakers of the country should be on the lookout for the advertisement headed "LEARN ABOUT BRICK," which will appear in the following September magazines:

Saturday Evening Post.
Everybody's Magazine.
McClure's.
Good Housekeeping.
Craftsman.
Country Life in America.
Suburban Life.
Literary Digest.
Cosmopolitan (dated October).

This advertisement will appear also in the same magazines for October, and it is the plan of The Building Brick Association of America, which is doing this advertising, to continue these ads through the fall.

There is no doubt that this advertisement will bring a great deal of business to the Brickmaker and Dealer, particularly to members of this Association to whom Weekly Bulletins are sent, giving the name, address, etc., of each inquirer.

MECHANICAL AIDS TO SUCCESS IN MANUFACTURE.

MODERN THINKERS tell us that the day of large achievements is waning and that the sun of mechanical and scientific progress is growing dim in the west. We are told that the future will witness the evolution of mind development, the awakening of occult research and the broadening of intelligence concerning the possibilities of hypnotic and telepathic phenomena.

These subjects are speculative and interesting to those who have the time and inclination to devote to their study. The modern man and his ancestry whose whole thought, ability and effort have been, perforce, concentrated on the task of procuring daily bread, has little mental or physical

bring to himself and humanity. Legitimate desire for and proper employment of wealth are commendable, destructive only when they degrade and stultify the natural impulses of moral natures.

After all, it is interesting and amazing what man has accomplished under the stress of competition and the eagerness for supremacy in this age of commercialism. The perfection of labor-saving devices, the employment of ingenious short cuts to results, the swift adoption of whatever offers to bridge the gap between poverty and opulence, all stand as evidence of the trend of our time.

The effort to supplant the human laborer is a marked



Modern Method of Conveying Brick by Means of a Mathews Gravity Carrier.

reserve with which to cope with matters immaterial and irrelevant.

How to get the dollar, and how to get it the easiest and quickest way, is the effort and study of all civilized nations of men. It is the universal incentive back of all achievement. Honesty, morality and justice have been submerged in this tremendous tide of human strife for the accumulation of wealth. How amusing must be the situation as a whole to the lover of the ideal—the very few who have kept their raiment white and unsullied in this mad race for place in the Kingdom of Mammon. What genuine pity is inspired when he views the physical wrecks who have gained their souls' desires and are left powerless to enjoy life, bereft of happiness and contentment.

Money is not filthy lucre, nor is wealth a curse, only when they blind an individual to the blessings they may

characteristic of modern manufacturing methods, and it is impossible to lay before the individual comprehension how successful these efforts have become.

No conceivable line of production has escaped the introduction of mechanical aids to hasten output and lessen operating expense. Even the lowly brick carrier and his wheelbarrow have had to give way to a simple device for handling brick and tile. It consists of ball-bearing rollers set in steel frames of four and eight-foot lengths coupled together to form a line of any desired length adjusted to a slight grade, over which brick travel by their own weight. This simple device has solved a perplexing problem for manufacturers of brick and is being eagerly adopted in all parts of the country. Through the courtesy of the Mathews Gravity Carrier Company, St. Paul, Minn., we are permitted to show illustrations of the gravity brick carrier at work. We do this, believing that our readers have a natural interest

in anything which will have the effect of simplifying their present method of handling their product.

We might illustrate many more simple and inexpensive devices for securing factory economy in all lines of production, but space will not permit.

The only thought we wish to leave with our readers is this: This is still an age of progress, and there are still new things under the sun, and the law of the survival of the fittest has not been repealed. The successful man—the one who survives—is he who best fits himself to cope with the great enemy of factory production—operating expense.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



R. R. RICHARDSON, secretary of the Building Trades Credit Corporation, is authority for the statement that there has been an increase in building up to the present time this year, as compared with the same period of 1910. This seems to the brick people to be impos-

sible, as their sales do not show an increase, and, in fact, show a considerable decrease, at the same time the totals, which he says come from the office of the superintendent of buildings, may be correct. It is a well-known fact that the number of flat buildings, apartment houses, etc., which use the most brick, are very much below a year ago, but there has been a good many large office buildings, and then enter largely into the volume of business in dollars and cents without making use of many brick, brick being confined to facing purposes. This may account for the difference in the totals and the difference in brick used.

The Kansas City brick plants are not nearly so busy as they were a year ago. Last year all the plants of the Kansas City Hydraulic Pressed Brick Company were in full operation up to this time, and not only made use of all their own teams for delivery but hired all they could get. This year but two plants are in operation and it keeps them hustling to get enough business to keep their own teams at work. The same conditions apply to other plants here, with the exceptions of the Lyle Brick Company, which seems to find a ready demand for the product of both yards, and Flanagan Brothers, who use the bulk of the brick from their plant in carrying out the operations of the construction company in which they are interested.

Some of the brick jobbers are reporting a good business at very close prices, and others are reporting a very light business for the first half of the year. It seems evident that the brick market has been worked for all there was in it, and that while prices have been held down to near the cost of production, a good many brick have been sold, both from the city plants and from the Kansas plants.

The fact that about half the plants in the Kansas gas field are now closed down, when they should be in full operation, shows that they could not find a sale for their output at prices that would give a profit, and this speaks plainer than anything else of prevailing conditions.

Paving brick are lighter in demand than they have been in years, and this is caused largely by the citizens deferring paving contracts that had been contemplated for this year.

There is little question but what the continued dry weather here has had a considerable effect upon the brick consumption. The territory around this city within a radius of about fifty to seventy-five miles is still very dry, although the main part of the trade territory has had plenty of rain of late. Where the rain has been sufficient the jobbers here are reporting good sales at this time, showing that the local dealers are getting some business. On the other hand some localities which are very dry are having a demand for brick with which to wall up wells which are being dug. The dry weather has forced many people to dig new wells, and where the brick dealers were alive to the situation they have succeeded in having brick used for the walls, thus making business for themselves instead of the rock quarries.

Business down in Oklahoma is reported to be much improved, as that state has been favored with some good rains

of late, and there is a fine prospect for a cotton crop. This has caused building operations to look up.

The Eadie Building Supply Company reports that notwithstanding the poor demand for brick it was able to make delivery of 300,000 more brick in June than were delivered in the same month of last year. July has not yet been figured up.

Alfred E. Dickey, of the W. S. Dickey Clay Manufacturing Company, who made his home in Deepwater, Mo., and had charge of their plant at that point, was run over by a new locomotive they were running from the plant out to the clay pits, and instantly killed. He was riding on the running board and must have been jolted off. The body was brought to Kansas City for burial. Mr. Dickey was one of the experts of this big company in the manufacture of tiling of the various kinds.

K. A. W.

Written for THE CLAY-WORKER.

LOUISVILLE BRICK NEWS.



LOUISVILLE SEEMS to be in the midst of one of the biggest building booms in the history of the city. At least, this is the opinion of some of the leading real estate men, and though they are natural boosters and optimists and are likely to put bright color into a situation of this kind, there is considerable evidence around town to support their claims that Louisville is doing more building now than ever before.

For two or three years there has been extensive building in the suburbs and all through the residence sections and a reasonable amount of big downtown buildings, but this year there is more than the usual number of big undertakings downtown.

One of the leading real estate men figures that there is \$6,500,000 worth of building operations either going on right now or provided for that will be started soon. He lists twenty-three big buildings now under way and to be started soon, including the new city hospital to cost \$1,000,000; the Watterson Hotel, \$750,000; the Tyler Hotel, \$300,000; New Y. M. C. A. Building, \$400,000; the Courier-Journal and Times great newspaper building, \$750,000, and many others that figure up into the quarter million.

In addition to these there is in prospect a new ten-story apartment building near Fourth and Broadway, a new Chamber of Commerce Building, and it is said that there will be another new business building downtown.

Anyway, there is more than the usual quantity of building going on in Louisville and perhaps more doing in the way of using building brick than paving, though there is some paving.

The local brick people report from fairly busy to extremely busy. A. Dumesnil, of the Hydraulic Brick Co., the largest producers here, says that they are fairly busy and running right along steady with a good demand that promises to take care of their entire output.

M. J. Bannon, who is interested in the brick business in three ways, the sewer pipe, the paving brick, and building brick, says that they are managing to keep busy all the time, but trade is not particularly exciting. They have a pretty good demand for sewer pipe, enough to keep the plant going steadily. There is some paving and also a fairly good demand for building brick, but even though there is lots of talk of building booms and things of that kind, he says there is really no heavy tax on their producing capacity to supply the needs.

A. Hillenbrand, out in the west end, reports that business is fine with them and that they are sold for 1½ million ahead of their present stock. Naturally they are as busy as bees.

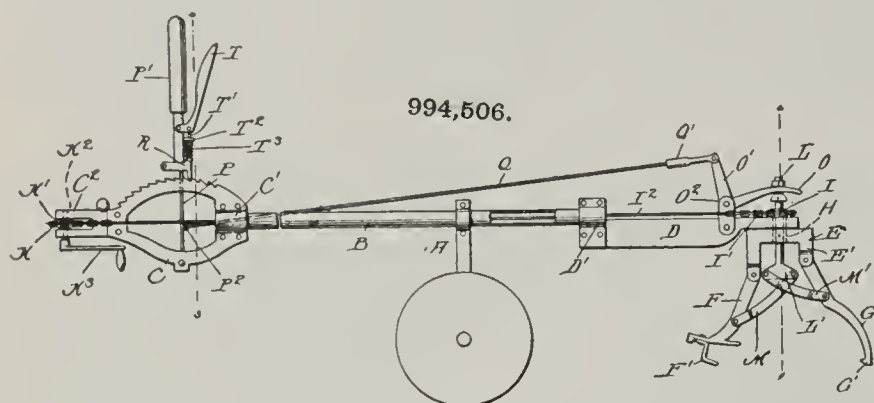
T. Bishop, of the Southern Brick & Tile Co., has been lately displaying some of the real progressive and brick booster spirit by building a new brick office out at their plant. Speaking of business, he says, "We seem to be getting our fair share of orders out of the present building boom in Louisville. We have all the orders we can take care of now and it looks like enough in sight to insure running at full capacity all the season."

C. O. L.

RECENT PATENTS.

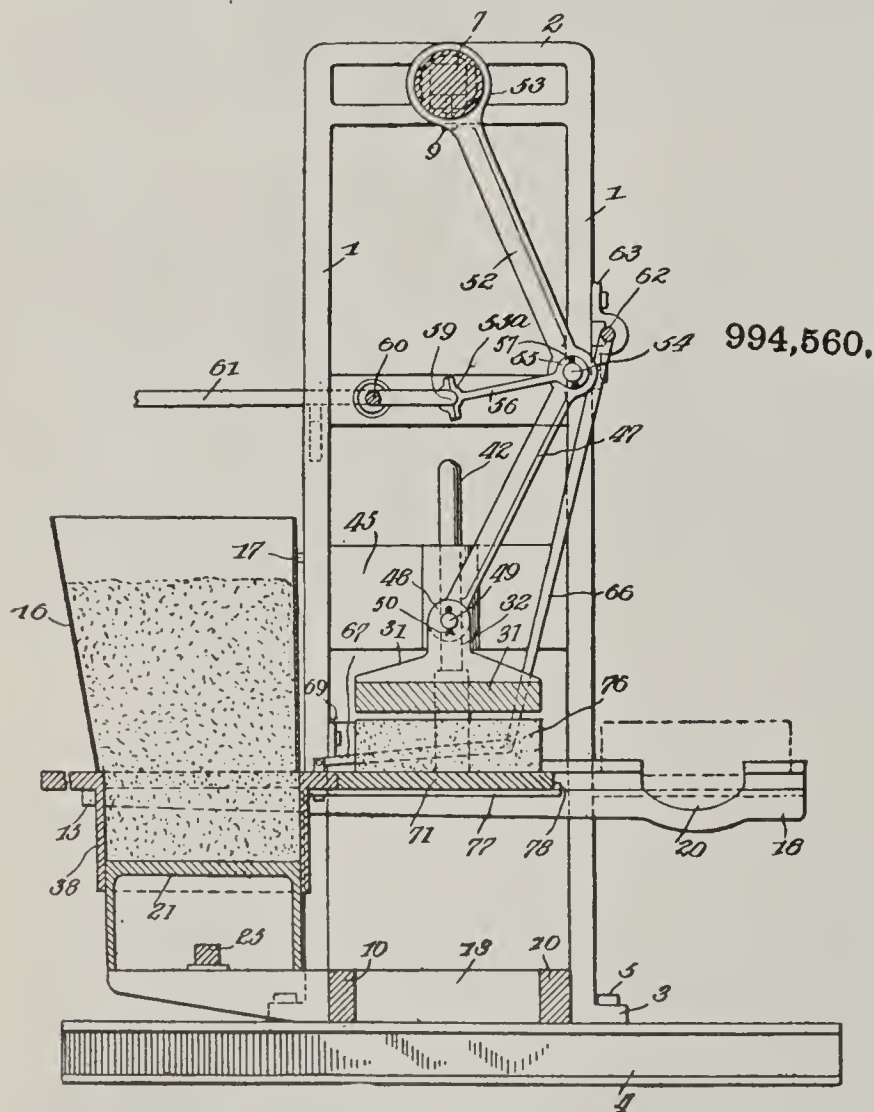
Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Brick-laying Machine: Michele, Falcone, of Cokedale, Colorado. 994,506. Patented June 6, 1911.—The machine comprises a frame carrying grappling hooks at one end and having at the other end a plurality of handles or levers by



means of which the hooks may be operated. The frame is supported on wheels or rollers. The operation will be clear from the illustration.

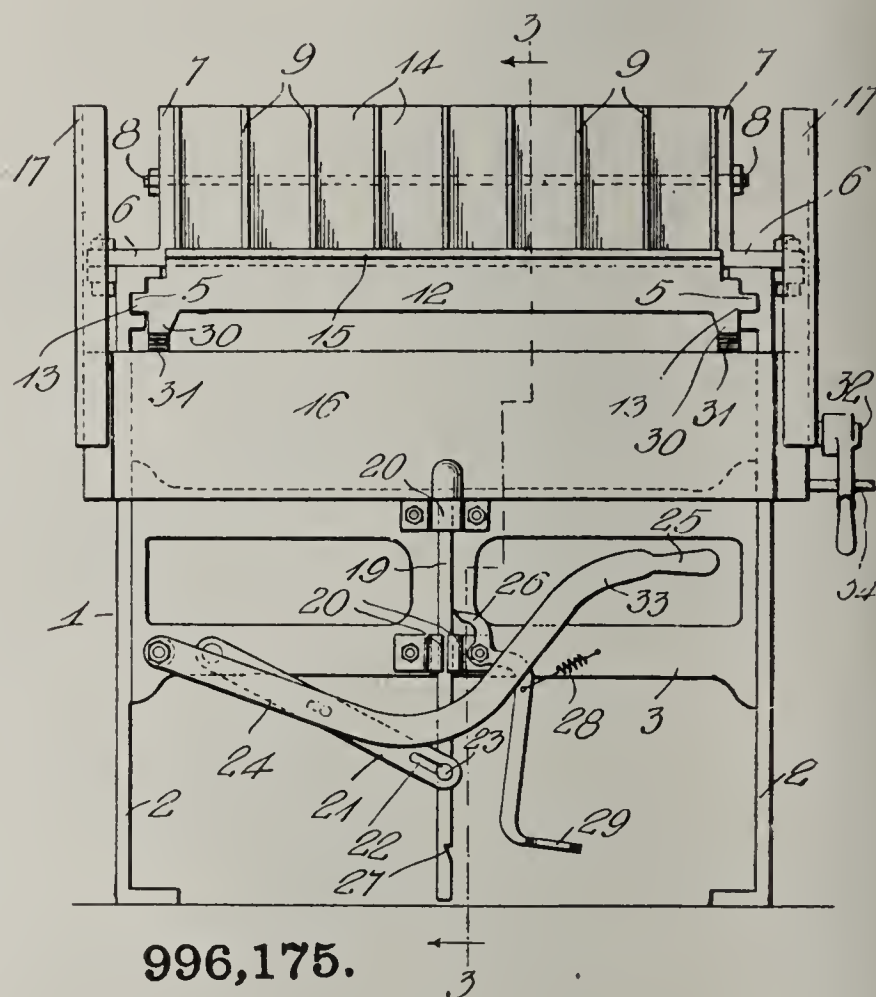
Brick Machine: Arthur Stanley Bacon, of Oklahoma, Oklahoma. 994,560. Patented June 6, 1911.—This machine is



especially designed for making pressed brick. The molds receive the plastic material from the hopper and are then moved forward under the dies 31. This movement carries the previously pressed bricks out to the position shown in dotted lines. The dies or presser blocks are operated by means of the toggle levers 52, 47, which are moved by means

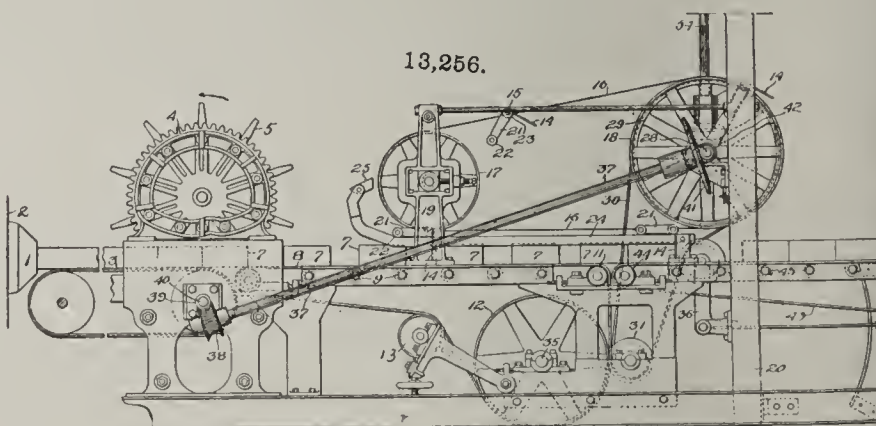
of the shaft 16. The illustration shows a vertical section through the machine.

Brick Machine: Ernest F. Wege, of La Crosse, Wisconsin. 996,175. Patented June 27, 1911.—This invention relates to an improved brick molding machine whereby bricks of different sizes may be readily formed. The novel construction also provides improved means for quickly and easily delivering or discharging the finished bricks from the machine. The drawing illustrates a side view of the complete machine



showing the device open and ready for the delivery of the finished bricks. Space will not permit a detailed description.

System and Apparatus for Hacking Bricks: Raymond C. Penfield, of New York, N. Y. 13,256. Reissued June 6, 1911.—The hacking of bricks, i. e., placing the molded bricks in proper spaced relation in stack formation for drying and



burning, is usually a very laborious, tedious and relatively expensive and somewhat destructive procedure, as it is accomplished largely by hand.

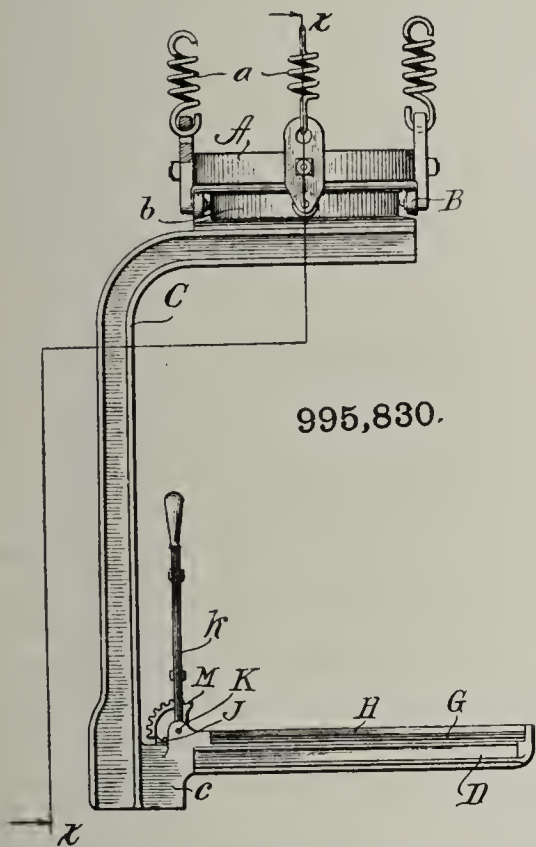
The present invention aims to accomplish automatically the proper hacking of the bricks and delivery thereof to the drying kiln or drier car continuously as the bricks are molded and cut.

In its preferred embodiment, the invention comprises a series of carriers or clamping means arranged to receive their

loads of bricks while in motion, being for this purpose operated to travel at the loading region individually in unison with the cut bricks as the bricks are moved, preferably by belt, after being cut at the cut-off. These automatic carriers, moving in unison as stated, make it practicable to handle the bricks automatically from the continuously operating brick machine and cut-off.

The specification is lengthy and contains a very full discussion of the situation. The drawings consist of thirty figures and are much too complicated to permit of a description here. Those interested should obtain a copy of the complete patent. Our illustration shows a partial side elevation of the apparatus.

Brick-Grapple: Henry Weber, of Chicago, Illinois, assignor to American Brick Handling Machine Company, of Chicago, Illinois. 995,830. Patented June 20, 1911.—This invention relates to brick grapples, and its object is the production of a device having parts of particular construction and special arrangement with respect to each other, whereon a number of bricks may be stacked in open order, or having the bottom row of bricks arranged in open order, may be placed on the device and lifted with it, the device being con-

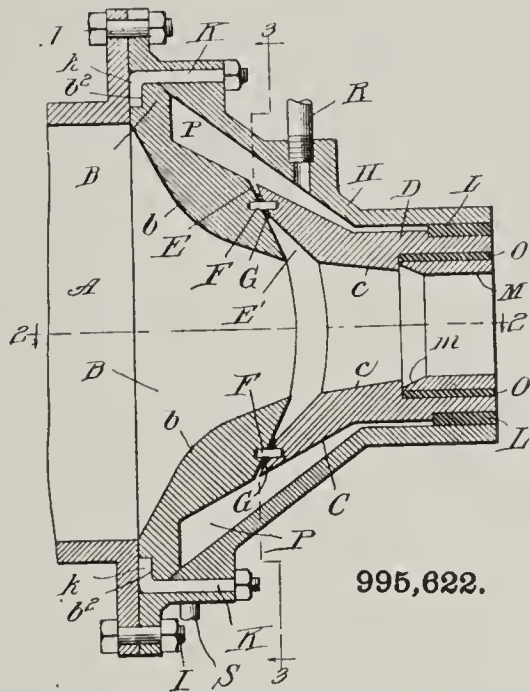


structed to be withdrawn from the stack of bricks after they have been deposited as desired. For example, this invention may be employed to take bricks in the drying kilns or chambers of a brickmaking plant, and to be carried with the bricks and to set them in the burning kilns, and then, without disturbing the stack of bricks or any part thereof, this invention may be withdrawn from its engagement with the bricks, leaving them in the kiln for burning. The illustration shows a side view of the grapple.

Brickmaking Machine: James McLaughlin, of Riverdale, Illinois, assignor of one-half to Samuel T. Jacobs, of Riverdale, Illinois. 995,622. Patented June 20, 1911.—This invention relates to brick machines of that type in which a stream of clay is pressed through a die to form the desired shape. One of the main features of the invention is to ease the flow of clay through the mold so as to reduce the power required. To this end a special nozzle is provided having an annular opening (E) through which steam is fed to the clay as it goes through, thereby lubricating the same.

BUSIER THAN EVER BEFORE IN MIDSUMMER.

"Never in our history," writes the J. D. Fate Co., of Plymouth, Ohio, "have we had as many orders on hand for machinery in the month of August as we have now, and to give you some idea of the same, will say that we have an order for an 'A' machine, double shaft pug mill, two automatic cutting tables for Brazil, South America; dry pan, elevators, screens, double shaft pug mill, Imperial machine automatic brick table, automatic tile table, tile dies, dump cars, winding drum and everything for a complete outfit in a new brick and tile plant for Wehinger Brothers at Mansfield, Ohio; one special Premier machine for hollow-ware for The Johnston Brothers of Clayworks, Iowa; an Imperial machine for The Goodwin Tile & Brick Company, of Des Moines, Iowa; an Imperial for C. Miller & Sons, of Clermont, Iowa; an Imperial with vertical attachment for tile up to 20 inches for Hoagland, Ind.; an Imperial machine with automatic table for larger sizes of tile for The Illinois Shale Tile Company, of Albion, Ill.; and an Imperial machine with automatic cutting tables and dies for The Salem Tile & Mercantile Company, of Salem, Ore. Then we have an order for a Hummer machine, with crusher, elevators, dies, etc., for F. M. Baker, of Defiance, Ohio; a 'D' outfit for C. A. Nelson, at Beaver Dam, Ohio; a side-cut automatic brick table and two automatic



tile tables for Belle Plaine, Iowa; special automatic table for The Ludowici-Celadon Company, of New Lexington, Ohio; special automatic table for The Ohio Clay Company, of Cleveland, Ohio, for hollow-ware; a large automatic table for The Don Valley Brick Works, of Toronto, Ontario; a clay feeder and granulator for Marion, S. C.; and a large, special No. 3 disintegrator for Johnston Brothers, of Clayworks, Iowa. Besides these, we have a number of orders for smaller disintegrators, crushers and regular automatic tile tables for all parts of the country, together with a specially built Premier machine for hollow-ware and conduits for The Clay Product Company, of Brazil, Ind. Not only are we busy, but we have several good prospects besides that we expect to have closed up before the end of the month." Messrs. Fate & Co. make a line of heavy stiff clay machinery, etc., as the reader may see by turning to their ads on pages 238-239 of this issue.

ASHLAND FIRE BRICK PLANT BEING REBUILT.

The Trautwein Dryer & Engineering Co. is busily engaged on various work throughout the country, and among the recent contracts received is the rebuilding of the Ashland Fire Brick Co.'s works along the lines originally laid out by Mr. Trautwein. The plant will be electrically driven throughout and a new power plant, grinding room and hot floor is under

construction. New kilns will be built shortly, and apparatus for the economic handling of raw and finished material is also being installed. When finished the works will rank among the most modern fire brick plants in the country and the reputation of this company for turning out quality brick which they have already established will be greatly enhanced. Mr. Trautwein's large and varied experience in fire brick plant construction should insure them a works to be proud of in every respect.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



WELL—ANOTHER MONTH has gone by with little improvement in the building situation in Chicago. Labor troubles are still smouldering. The slugging cases, some of them involving murders, are proceeding in the local courts, and now and again we learn of sporadic outbursts of violence.

As one well-known building material dealer phrased it the other day: "A few labor leaders have spoiled a mighty good summer."

And he hit the nail right on the head. The rank and file of the building trades unions have suffered more by reason of the present situation than anybody else, and, considering that there has not been in years a summer when building activities were so menaced by labor troubles and disturbances, that is saying a good deal. As is so frequently the case, it has been the selfish interests of a few labor leaders that have been at stake and have produced the trouble. Into the most paralyzing phase of the labor war this year, the question of wages, hours or working conditions for the rank and file of the union men never entered for a minute. Except for the artificial stimulation of trouble for selfish reasons, conditions were such that the rank and file would have had a comfortable and prosperous season of it, for never did a season open with more of promise in the way of building activity, and work certainly would have been plentiful.

However, two rival sets of labor leaders, each chiefly anxious not for the prosperity of their followers, but to keep themselves on the payrolls of their respective unions, and knowing that the greater the prestige and power of their unions, the better their own positions would be financially, and would seem politically, proceeded to foment strife. Each set was determined to undermine the other in order to increase its own importance. As a result, peace-loving, industrious and respectable workingmen with families to support, were beaten up and threatened with death by hired sluggers—not because they did not belong to the union, for everyone of them carried a card, but because they did not belong to the union represented by the paid sluggers and gun men who attacked them. Buildings were delayed month after month, when they should have been finished, and every prospective builder, from large interests planning skyscrapers, to the constructor of a small apartment or a smaller cottage, were deterred from going into a situation that promised nothing but trouble and indefinite delay. There has not been the normal amount of building this spring and summer, particularly of flat building, and as a consequence rentals are going to be somewhat higher in the fall.

A situation like this makes thoughtful men stop for a moment to consider the desirability of the initiative, referendum and recall propaganda, originally urged by the Socialists and now urged by extremists of both great political parties, who give it the general title of "People's Rule Movement," and who conceive to be so popular a campaign slogan that it can not fail to carry them into power. Analysis of the initiative and referendum developed the following startling facts:

1. That proposed legislation would arise from sources wholly irresponsible and, quite possibly, vicious.

2. That signatures to petitions are notoriously easy to secure.

3. That, therefore, whether or not a law should be submitted to the people for final judgment, rests not upon its merits, but upon:

(a) Attractive phrasing of the proposition.

(b) Its backing by men having behind them cohesive organizations.

4. That the voters would be called on to pass upon a tremendous mass of proposed legislation. (In Oregon the number of questions submitted have increased at each election as follows: 2—11—19, and last November thirty-two proposed laws and constitutional amendments. At the same election, Missouri voters were required to pass judgment on nine, Oklahoma on eleven, and South Dakota on twelve proposed laws and constitutional amendments.)

5. That the people simply have not the time to study these intricate questions as they ought to be studied.

6. That, as a result, the great body of conscientious voters decline to pass upon matters with which they have not had the time sufficiently to familiarize themselves. This is proved by the fact that wherever legislation was enacted by "direct" means last fall, it was carried in each instance by a minority of all the voters who went to the polls, and by the further significant fact that in Switzerland, where the initiative and referendum is declared by its advocates to have proved such a success, no measure has ever received fifty per cent of the total vote, and with but two or three exceptions, fifty per cent of the total number of voters in the Federation or in any of its component Cantons, has failed to vote on matters of "direct legislation," both for and against.

7. That, as a further result, instead of having the benefit of the ultimate judgment of all the people, which true popular leaders from the framers of the Constitution to Abraham Lincoln, have declared indispensable to good government, we shall have snap judgment of minorities. Furthermore, that these minorities will be either careless and insufficiently formed, or will be guided or controlled by selfish interests and self-interested leaders. In short, that it will give control to great moneyed interests with their ability to control in main the channels of publicity and advertising, and to hire the silver tongues of unscrupulous demagogues, and the political "bosses," or, if you please, to the industrial "bosses" with their compact organizations.

8. That the best legislation is ever a matter of compromise, by which the interests of all are conserved, and that under the initiative no compromise—no amendment—is possible. The people who inform themselves even can not exercise their best judgment, but must take the matter submitted to them (not by their elected public servants, but by self-constituted and irresponsible individuals) and either vote up the bad with the good that may be in a measure—the injustice with the benefit; or vote down the good to get rid of the bad. Imagine the people of this vast country, with its diversity of interests, passing a tariff measure by direct legislation—a measure which, by its very nature, must be scientifically adjusted to meet the revenue needs of the government on the one hand, and the just industrial needs of the business interests of the whole country on the other, and must at the same time be equitable with reference to the varying demands of each section.

And, finally, it is of extreme significance that the same radical leaders who ever are seeking extreme and unreasonable curbs upon the courts, upon the police and the militia, through the normal channels of legislation, are the very ones who are foremost in urging the initiative and say openly they want it because they believe, under its provisions, they can secure their kind of legislation.

It is also significant that these same radicals are foremost

in demanding the recall, and it is worth considering what effect it will have upon the tendency of public executives to maintain law and order in the face of unreasoning prejudice, when it will be possible for a small faction to cause an unpopular official to stand the expense of a second campaign in the midst of his term of administration; for it is certainly true that any faction with sufficient cohesive power to make a demonstration of violence or conduct a vigorous political campaign, will have sufficient cohesive strength to circulate successfully a petition for the recall of an official which it believes opposed to its self-interests. The profound danger of applying the recall to the judiciary has been well emphasized by President Taft, Mr. Roosevelt and others.

The conviction of four of the alleged labor sluggers in the Cook County Criminal Court on the night of August 4, is expected to have a salutary effect upon the building situation, and a belated building boom may follow within a few weeks, if the expectations of the optimists are realized. Unless these expectations are realized, however, a long and bitter struggle is likely to ensue. The employing interests in the circle of builders already have been driven to band themselves together against the warring labor leaders, and are threatening a lockout which will continue as long as the present situation. In the long run, such a move probably would prove effective, but it would be a measure painful to the whole community, and it is to be hoped it will be unnecessary.

Once the labor trouble is quieted, there will be plenty of new building going on, especially in the downtown and central industrial districts. Charles A. Stevens and Brothers have secured, by lease and purchase, two valuable pieces of property adjoining their present store, and this is said to mean a fine new store building on State street, and will make the east side of the great thoroughfare from Randolph street to Congress street, a solid front of rather modern structures. The Joseph E. Otis heirs are planning a twenty-story "sound-proof" building for the use of musical studios on East Van Buren street. Rand-McNally are going ahead with their great building at Clark, Harrison and LaSalle streets as rapidly as the situation will permit, and the Rogers & Hall Company, printers, are planning a ten-story home at LaSalle and Polk streets.

The biggest thing in prospect, however, is the construction of a great new passenger station by the Pennsylvania railroad. Persistent buying of West Side property is said by those who know, to point unquestionably to this conclusion. All in all, it would have been a record-breaking year if it had not been spoiled, and even yet there is time for considerable profitable activity, unless things get worse.

The common brick men are reported to be especially "peevish" over the situation, as they have their troubles well settled, according to report, and have been in a position to have made money, with enough to go around for all.

SCRIP.

NEW ORLEANS BRICKMAKER MAKES LONG AUTOMOBILE TRIP.

Among recent visitors at the Clay-Worker sanctum was Mr. Fritz Salmen, the well-known brickmaker of Slidell, La., who, with his wife and daughter, is touring the country in an automobile. Mr. Salmen and his family spent several months in California, had his car shipped to St. Louis, and from there were going to New York via Indianapolis, Chicago, Detroit, Buffalo, White Mountains, and such other places as may strike their fancy. In the meantime work is going on steadily at his brick plant, where they contemplate the erection of a continuous kiln in the very near future.

The J. B. Carter Construction Company has installed a 7' 7 $\frac{3}{4}$ " dry pan of Stevenson's make at Mt. Savage, Pa., for grinding and for concrete work on railroads.

GROWING DEMAND FOR PYROMETERS IMPEL AMERICA'S LEADING MANUFACTURERS TO ENLARGE THEIR MANUFACTORY.

The Brown Instrument Company, the first concern to manufacture pyrometers in the United States and whose offices and laboratory have been located at 311 Walnut street, Philadelphia, since 1860, has been forced to move to larger quarters by the great increase in its business, which has more than quadrupled during the past five years. The business was originally established by Edward Brown and bore his name until recently, when an incorporated company was formed, of which Richard P. Brown is president.

As electrical instruments play an important part in the construction of pyrometers, it has been Mr. Brown's desire to be able to superintend the construction of milli-voltmeters for use in their pyrometers, so as to best design the instruments for pyrometric use.

With this end in view, Mr. Brown has become president of the Keystone Electrical Instrument Co., of Philadelphia, which, for a number of years, has been manufacturing voltmeters and ammeters, and the shops and laboratory of the Brown Instrument Co. are being combined with those of the Keystone Electrical Instrument Co., at Ninth street and Montgomery avenue, Philadelphia, which places the Brown Instrument Co. in the unique position of controlling the construction of their milli-voltmeters for their pyrometers, even to the manufacture of the new materials, such as magnets.

The voltmeters and ammeters manufactured by the Keystone Electrical Co. have been always designed in a manner to particularly meet general industrial service, and under the suggestions of Mr. Brown, slight changes in construction have been made, which will particularly recommend them to engineers who will recognize these improvements. Their sales will also doubtless increase through the live organization of the Brown Instrument Co.

By this arrangement the Brown Instrument Co. and the Keystone Electrical Co. will manufacture pyrometers, thermometers, speed indicators, draft gauges, recording gauges, voltmeters and ammeters. In fact, they are now in a position to manufacture or repair practically any type of instrument.

In addition to the works and office at Ninth street and Montgomery avenue, Philadelphia, an office will also be maintained for the present at 311 Walnut street, and the branch offices of the Brown Instrument Co., at Pittsburgh and Chicago, will, of course, also be continued.

GOOD DEMAND FOR STEELE BRICK MACHINERY.

J. C. Steele & Sons, builders of brick and tilemaking machinery, Statesville, N. C., report that the season continues very busy with them and that they have recently shipped brickmaking outfits and equipment as follows:

- A 15,000 capacity per day outfit to Drakes, S. C.
- A 25,000 capacity per day outfit to McDade, Texas.
- A 15,000 capacity outfit to Fairmont, W. Va.
- A 40,000 capacity outfit, including Steele Drying System, to Goldsboro, N. C.
- A 25,000 capacity outfit to Dunn, N. C.
- A 15,000 capacity outfit to Parkersburg, N. C.
- A 15,000 capacity outfit to Ayresville, Ga.
- A 25,000 capacity outfit to Seaford, Del.
- A 75,000 capacity outfit to Marshall, Texas.
- A 15,000 capacity outfit to Panola, Ala.
- A 25,000 capacity outfit, side cut, to Vincennes, Ind.
- A 15,000 capacity outfit to Saluda, S. C.
- A 15,000 capacity outfit to Milliken, Colo.
- A 15,000 capacity outfit to Contreras, Mexico.
- A 40,000 capacity outfit, including the Steele Drying System, has just been shipped to Taft, Cal.
- A 25,000 capacity outfit to Marianna, Fla.
- shipped: Nettleton, Miss.; Augusta, Ga.; Brewton, Ala.; Mt. Holly, N. C.; Clarks, N. C., also Camp Hill, Ala.
- A 75,000 capacity cutting table has just been forwarded to large brickworks near Molino, Fla.
- Equipment for Steele Lift Car Drying System has been

WISCONSIN ASSOCIATION WINS BIG VICTORY.

THE WISCONSIN CLAY MANUFACTURERS' ASSOCIATION has won a brilliant victory in its fight for a reduction in the freight rates on clay products, before the Railway Commission of Wisconsin. A sweeping cut, amounting to approximately 33 1-3 per cent., is made in the schedule of rates by the order of the commission, delivered to the railroad companies a short time ago. While the commission has at this time under advisement the petition of the railroads that the reduction be not made effective, it is believed that the order will stand.

The action of the commission is without doubt the greatest benefit that Wisconsin brick and tile manufacturers have ever received, and assures the future prosperity of the business in this State. For the first time in many years Wisconsin manufacturers are able to compete with outside manufacturers, who have been able to undersell in Wisconsin by reason of advantageous interstate freight rates.

Under the existing interstate rates and the rates in force before the commission ordered the reduction, Chicago brick manufacturers, for instance, were able to ship brick into any part of Wisconsin cheaper than any Wisconsin manufacturer or dealer could. The interstate rate was approximately one-third lower than the local rates in Wisconsin, and the commission's order purposes to make them equal.

The battle for equal rates dates back several years. The Wisconsin Clay Manufacturers' Association, year after year, adopted resolutions at their annual conventions, praying that the commission reduce the local rates. To hasten the matter, John Ringle, then president of the association, was authorized at the last meeting to enter a petition before the commission. Several lengthy hearings were held and late in July the order was handed down. The railroads immediately petitioned for a rehearing, which was held. The Wisconsin manufacturers reiterated their arguments and the commission took the matter under advisement.

Probably no order of the commission directing a reduction in freight rates within the time of its existence has been so sweeping in its jurisdiction and effect as the order relative to brick. For instance, the 15-mile rate, which was 3.5 cents per 100, is reduced to 2 cents; the 25-mile rate, from 4 cents to 2.3 cents; the 50-mile rate, from 5 cents to 3.5 cents, and the 75-mile rate from 5.5 cents to 3.7 cents. The rates ordered by the commission per 100 pounds are as follows:

Five miles or under	1.70	cents	per	hundred
Ten miles or under	1.85	"	"	"
Fifteen miles or under	2.00	"	"	"
Twenty miles or under	2.15	"	"	"
Twenty-five miles or under	2.30	"	"	"
Thirty miles or under	2.45	"	"	"
Thirty-five miles or under	2.60	"	"	"
Forty miles or under	2.75	"	"	"
Forty-five miles or under	2.90	"	"	"
Fifty miles or under	3.05	"	"	"
Fifty-five miles or under	3.15	"	"	"
Sixty miles or under	3.30	"	"	"
Sixty-five miles or under	3.45	"	"	"
Seventy miles or under	3.60	"	"	"
Seventy-five miles or under	3.70	"	"	"
Eighty miles or under	3.80	"	"	"
Eighty-five miles or under	3.90	"	"	"
Ninety miles or under	4.00	"	"	"
Ninety-five miles or under	4.10	"	"	"
One hundred miles or under	4.20	"	"	"

Minimum weight is fixed at 50,000 pounds per car, except that in cases of less than 50,000 pounds, the marked capacity of the car shall be the minimum.

The commission orders that the railroads make effective between their various lines, for distances up to and including 100 miles, joint rates 1 cent per 100 pounds higher than

the above rates. It is also recommended that the companies discontinue rates at present in effect for distances between 100 and 300 miles and substitute therefor the following rates:

Miles.	Cents.	Miles.	Cents.
110.....	4.30	210.....	5.40
120.....	4.40	220.....	5.60
130.....	4.50	230.....	5.80
140.....	4.60	240.....	6.00
150.....	4.70	250.....	6.20
160.....	4.80	260.....	6.40
170.....	4.90	280.....	6.80
180.....	5.00	270.....	6.60
190.....	5.10	290.....	7.00
200.....	5.20	300.....	7.20

The reduction, as stated, applies to tile as well as brick, and includes practically everything that can be classed as a clay product.

Wisconsin clay manufacturers naturally are highly elated over the commission's action and feel highly optimistic as regards the future of the trade. The supply men, especially, are in good spirits over the reduction. Although they were anxious to obtain a decrease in rates, they were powerless to act and were obliged to take a position as supporters of the manufacturers.

Ferdinand Vogt, secretary of the Milwaukee Building Supply Company, spoke as follows in an interview with THE CLAY-WORKER correspondent:

"The reduction will affect the building industry throughout the State, in addition to helping the building supply men and the manufacturers. It doubtlessly will stimulate the building of homes in the future with brick instead of frame. Owing to the excessive rates on brick, it was cheaper for people to build frame homes than brick, although brick homes are acknowledgedly much better in every way. Excepting in cities where brick were manufactured, brick building material was at a decided disadvantage. Concrete construction also made more than due progress because of the discrimination in rates in interstate and intrastate commerce."

The commission's order has also struck the "laity" and those who pay for buildings immediately realized the importance of the reduction. The newspapers of the State have commented freely and favorably on the order. In fact the reduction is favorably received by every one but the railroads.

RICKETSON MINERAL COLORS FOR SAND-LIME BRICK.

Heat, moisture and pressure are the three agents most potent in the working of chemical change, and are, each alone or in combination, responsible for most of the chemical activities of the universe. Any substance that will withstand unchanged a combination of all three shows an unusual degree of chemical stability.

The above is of interest to the building trades because of its relation to mortar colors. A mortar color that changes its chemical composition changes also its shade, and the result is fading, running and disappointment. Conversely, a mortar color that is chemically stable is likewise permanent in its coloring value.

The following letter to the Ricketson Mineral Paint Works, Milwaukee, Wis., therefore, tells an important story, as in the making of sand-lime brick the mortar colors are subject to the most trying test of their permanency that could be applied—a combination of heat, pressure and moisture.

"We are pleased to say that the colors we are using, which we purchased from you, are certainly all right; we are getting good, keen, bright colors, and the test that they are put under during the hardening process would certainly destroy any colors that are not absolutely permanent."

Portage, Wis. COLUMBIA SILICA COMPANY.

It is through tests like these that the "Red Brick Brand" mortar colors have earned the slogan, "They Never Fade."

"Mr Clayworker-This is YOUR SHOW"



THE INTERNATIONAL Brick and Clay Products Exposition Company has issued a very attractive prospectus of the Clay Products Exposition to be held at the Coliseum at Chicago, March 7 to 12, 1912. Any reader of The Clay-Worker who is interested and has not received a copy of the prospectus is requested to at once write to Frank L. Hopley, secretary of the above company, at 815 Chamber of Commerce building, Chicago, as that gentleman is very desirous of getting into communication with every clayworker in the country who is interested in the enterprise which has for its chief aim and purpose the advancement of all the clay industries of the land.

If the clay show is the success that its promoters anticipate, it will prove conclusively to the public the superiority of burned clay as a permanent and economical building material. On this account the show might well be called a Permanent Homes exhibition. "It is time," to quote from the prospectus, "that the clay interests of the country made a concerted effort to 'permanent fireproof homes.' The temporary home is not necessarily cheaper. When upkeep is considered, it is the more expensive. People should be shown that the clay products home is the only safe and sure 'permanent fireproof home.' There is chance of faulty material, no guess work. The material is tried, true and fire-tested. The burned clay home, equipped so far as possible with the products of burned clay, is the ideal home, the sanitary home, the fireproof home, the permanent home." It is something to plan for and look forward to with pleasure, but what is of equal or more importance, you can look back upon it with pleasure because clay products fireproof homes are worthy of confidence. As the years roll by the softening touch of time only accentuates the superiorities you had hoped the permanent fireproof home would develop. The realization of our hopes is satisfying, and this feeling is a sure inheritance of him who builds wisely of burned clay fireproof products."

The exposition management is anxious to accommodate every clayworker in the land desiring space for exhibition purposes, and will aid in every way possible in the designing and installation of the display. To facilitate this work application for space should be made at once, and a blank for

that purpose will be forwarded at once on application to Secretary Hopley, together with floor plans and full information as to cost of space, etc. Applications for space will be considered as far as possible in the order in which they are received. That is, it will be a case of first come, first served. The first allotment of space will be made August 15, at which time applications received will be acted upon. The auditorium is so immense that those who by any chance are unable to get into the first allotment may rest assured of being assigned available space, but it is well for prospective exhibitors to act at once.

A series of conventions will be held during the exhibition. It is anticipated that every association of clayworkers of any sort and kind in the United States will meet in Chicago some time between March 5 and 13, inclusive. Ample accommodations will be provided for such meetings at the Annex, where the regular annual convention of the National Brick Manufacturers' Association and the allied bodies will be held.

In collecting exhibits for this Clay Products Exposition it is important that every use of clay be shown and that the public be convinced of the superiority of clay for the use to which it is put. The co-operation of the entire clay products

CLAY PRODUCTS SHOW COLISEUM, CHICAGO

1912 MARCH 1912						
SUN	MON	TUE	WED	THU	FRI	SAT
				7	8	9
10	11	12				

THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

trade is asked in this matter. If you know of any novel or unusual use being made of clay you are requested to write to the exposition company concerning same.

If you have any ideas which can be used to make the Clay Products Exposition more complete, more interesting, more forceful or more convincing, you will confer a favor by writing the management as early as possible on this subject.

Written for THE CLAY-WORKER.

AMONG ALABAMA CLAYWORKERS.



BUSINESS is still off color, and has been for the past year," stated Lewis Minor, president of the Bessemer Fire Brick Company. "Prospects for business this fall, however, are most excellent." There is being a decided improvement manifest in building circles, and there is every prospect of greater building work being done in this district this fall than ever before;

but, even at that, one can not depend upon the prospects entirely. For instance, since last year the prospects have been good, at times exceptionally good, but the business has yet to come in. However, considering all that, I will say that I honestly believe that we will enjoy better business this fall and the coming winter than at any time for the preceding twelve months."

That the largest single contract ever given in Florida had been granted by Key West to the Southern Asphalt and Paving Company is the announcement of Eugene Fies, president of the corporation, on August 5. The contract was secured by Vice-President John Copeland and John Donelson, who returned from Key West on August 4. The contract is for \$200,000 in brick paving and asphalt blocks on the island, the greater part of which will be the brick paving. This contract for \$200,000 runs the total amount of work on hand for this company up to the interesting figure of almost \$700,000. Mr. Copeland, in speaking of the Key West brick portion of the work, said that Birmingham-made brick could not be used in the work on account of the freight rates. "We must get the brick from Baltimore," continued Mr. Copeland." The freight rates to Key West between Birmingham and Baltimore differ so much that Birmingham can not even hope to compete there.

The annual outing of the Builders' and Traders' Exchange members will be held on August 12 at Edgewood, near Birmingham. This outing will be given the members of the association by the members who are dealers or manufacturers of building material. J. W. Sibley, president of the Sibley-Menge Brick and Coal Company, is president of the Exchange. W. A. Curran, of Moore & Handley Hardware Company, chairman of the special committee created for making preparations for the day of festivities, has announced that Ed Smith, president of the Edgewood car line, will furnish the members of the Exchange with special cars free of charge. Preparations are being made on an elaborate scale and the members of the Exchange are promised a day such as rarely ever comes around.

The Brick Selling Company, of Birmingham, has recently secured quite a number of large orders for Stephenson Oriental face brick, Stephenson's impervious red front and common brick. The largest of these orders are as follows: Stephenson's shale brick for the huge by-product plant of the Tennessee Coal, Iron and Railroad Company, at Ensley, Ala., near Birmingham, upon which work has just started; common brick for the new six-story building of the Young Women's Christian Association, and Stephenson's Oriental face brick for the building front; common brick for the huge three-story and basement building for the Drennen & Co.'s department

store, upon which work is now in progress; common brick for the three-story building for the R. D. Burnett Cigar Company, and Stephenson's Oriental face brick for the building front; common brick for the large two-story store building for Thomas Stobert at Boyles, Ala., and Stephenson's impervious red front for the building front. The Brick Selling Company is supplying the brick used in the construction of the ten-story Young Men's Christian Association building, contract for which was secured some time ago. L. L. Stephenson is president of this company; C. D. Patterson secretary-treasurer and manager, and C. S. Lawson auditor.

The plant of the Riverside Brick Company, at Riverside, Ala., is undergoing a complete overhauling preparatory to commencing operations about the 15th of August. This plant was recently purchased by Columbus, Ga., capitalists, W. Mercer Morris and O. B. Morris. New machinery will also be installed where needed to put this plant in first class shape, that its product might be put on the market at the earliest possible time.

The Southern Mosaic Company, of Birmingham, of which W. A. Biles is manager, has secured a contract for tiling of the bath rooms, porch floors and mantels in the magnificent \$25,000 home being erected at Pulaski, Tenn., for the Hon. W. B. Smithson.

The Graves-Shale Paving Brick Company, of Birmingham, is having numerous improvements made in their plant at Graves, Ala., among which is the installation of a new dry pan, which will increase the capacity of the plant from 30,000 daily to 40,000 daily. Later on, several more kilns will be installed for the development of other clay beds at Graves.

The Graves-Matthews Paving Company, of Birmingham, has recently secured street paving contracts as follows: Newman, Ga., \$20,000; Jacksonville, Fla., \$40,000; Greenville, S. C., \$10,000, and Mobile, Ala., \$12,000. Y. Briddell is manager of the Graves-Matthews Company.

The Southern Sewer Pipe Company, of Birmingham, has secured contract from the city of Pensacola, Fla., to supply the sanitary and storm sewer pipe needed there for the sewerage work, upon which work will shortly begin, amounting in all to \$80,000. This company recently secured a contract to supply Mobile, Ala., with sanitary and storm sewer pipe for the work now in progress there amounting to over \$90,000.

The Vail-King Supply Company, of Birmingham, agent for the Maryland Terra Cotta Company and the Hydraulic-Press Brick Company, has undergone a change of management, J. W. King, secretary and treasurer of the company, having bought the interests in the concern of T. L. C. Vail, president, and A. R. Boone, vice-president.

In order that the demands of increased business may be well met, the Godfrey Mosaic Tile Company, of Atlanta, Ga., has moved its offices and warehouse to No. 25 Cone street in the Walton building, where more commodious quarters are to be had for the large stock of materials and samples of mosaic, terrazzo, tile and marble for floors, wainscoting, mantels and other decorations always kept on hand.

Sam M. Blake, clerk and register in the City Court at Birmingham, has been appointed receiver for the Adams Coal and Clay Company, of Birmingham, which concern went into bankruptcy some time ago.

T. L. Herbert & Sons, of Nashville, have closed a contract to furnish 130,000 gray brick for the Alabama School for the Deaf, and lately secured a contract from Jacksonville, Fla., for 70,000 of their gray brick, the demand for which is rapidly increasing.

P. H. Dunn and associates are considering the establishment of a brick plant with a daily capacity of 20,000 to 25,000 brick at Hamilton, Ala.

A. L. A.

The only theories that are really good are those that can be broken in to work with practice.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Outlook Promising in the Keystone State.

My Dear Randall:

Enclosed find check for \$2.00 covering subscription ending July, 1912. Also voucher, which please sign and return at your earliest convenience.

I am happy to inform you that business in this section of the country is good, and that I have everything sold for this year, and orders on the books that will keep me going for the next eighteen months. The outlook is very promising and I have increased the works during the last year by adding two new kilns, Yates pattern, of course. You know me well enough to know that I would not introduce any other kiln than the one introduced and patented by our good, true friend, "Sir Alfred." I have also built, in addition, a six-track dryer, and with the addition of the kilns and dryer, I now have a capacity of fifty thousand brick per day.

I do not believe in throwing roses at myself, but I started the factory three years ago last month and from that time to the present date I have never shut down only for legal holidays. Pretty good for a kid, as Yates calls me.

Corry, Pa.

R. Warren De Rosay.

Obtain Valuable Information From Clay-Worker.

Editor Clay-Worker:

It is with pleasure that we hand you herewith our check for \$2.00, covering subscription to the Clay-Worker until July, 1912. We always find your publication very interesting reading and gain many valuable hints to aid us in our labors of manufacturing what we, as well as others, claim to be the best red-faced brick manufactured west of Chicago, viz: the noted "Newberg Red."

We are at present supplied with orders for over two and one-half millions and have recently added a "White" gasoline auto truck, capacity five tons, to facilitate our deliveries in Portland.

We are also about to construct more kilns and add an oil equipment for burning. Also have the foundations preparing and will have a new American dry pan installed within a short time, to be used to prepare "grog" for further bettering of our product.

Portland's building activities continue to astonish the Northwest and the demand for clay products far exceeds the supply.

Wishing you continued success in your chosen field, we beg to remain,

Yours very truly,

Portland, Ore.

Newberg Brick and Tile Company.

By J. E. Fuller, Secretary.

New Zealand Municipality Desiring Better Streets Will Investigate Brick.

Dear Mr. Randall:

The Christchurch city council is considering the question of making a number of the principal streets of this town better than they have been up to the present.

To arrive at a conclusion, which is the best material to use, they propose to lay down a short section of a street with various materials which does not include BRICK.

I wish to bring before their notice the question of brick-paved streets, and to do so in as convincing a manner as possible I would like to make a set of lantern slides of views of brick-paved streets, and show them to the members of the council. As your country is leading the world in this matter, you are in a better position to provide what I require than any one else.

I want to procure a few good photographs of BRICK-PAVED streets to include some that have been in use a number of years subject to heavy traffic, and if possible a report as to age and condition. I know that I am giving you a good big order, but I have had personal experience of your kindness and I read something about things that you have either said or done almost every month, so I think you will endeavor to do this for me. I am living in hopes of again some day visiting you in your great country. Of course I get the "Clay-worker" every month, which I read with considerable interest and profit. I am also a member of the Ceramic Society and get their reports so that I am kept in touch with what is going on in the clay world. I would very much like to attend one of the annual conferences of the N. B. M. A., but they are held in your winter, which is our summer and busy season.

Now, Mr. Randall, I will do what newspaper correspondents frequently do, "thank you in anticipation."

Yours very truly,

Christchurch, New Zealand.

T. N. Horsley.

New Wall Construction Combining Hollow Tile and Brick.

Editor CLAY-WORKER:

We desire to call the attention of parties interested in building homes, tenement or business place, to a wall construction composed of hollow tile, made of well-burnt clay, standing a test of 4,000 pounds per square inch. As these tile are laid up with and faced with brick, the brick carrying part of the weight of the wall, the strength of the wall is just double that of the tile alone.

This wall construction is conceded by competent authorities to be the cheapest brick construction on the market.

The advantages of brick construction over frame are numerous; they require one-third less fuel to heat, they are ten degrees cooler in summer; in winter, the wall being hollow, frost does not penetrate, painting is not required, the facing brick we use are impervious, every shower of rain will clean them; with fifty years' wear the wall will be as good as new. A frame of this wall can be seen at the Builders' Exchange, Buffalo, N. Y. We have applied for a patent on this wall construction which we consider advantageous over an all brick wall and will be pleased to give particulars to anyone interested.

E. B. REED.

Buffalo, N. Y.

Vice-President of American Blower Company Home From His Trip to the Orient.

Editor THE CLAY-WORKER, Indianapolis, Ind.:

Gentlemen—Hon. Wm. C. Redfield, Congressman from the Fifth District, New York City, was obliged to cut short his trip around the world in order to attend the extra session of Congress.

We enclose herewith copy of a letter written by Mr. Redfield during the trip above referred to, which will doubtless be of interest to your readers.

Yours very truly,

AMERICAN BLOWER COMPANY.

Bombay, March 31, 1911.

American Blower Company, Detroit, Mich.:

Gentlemen—It is an oft-told tale that the American flag on merchant vessels has gone from the seas, and it is a fact that while I have seen two steamers carrying the flag of Sarawak and twenty with that of Portugal, I have not, since leaving Japan, seen an American flag. I am not so much

concerned about this as a matter of personal pleasure or patriotic pride, but it has been brought home to me that it is a matter of serious loss. Not, I mean, loss merely to the transportation and ship building business that is directly involved, but the far more serious loss that you yourselves suffer, and all your fellow manufacturers, and to which, amid your many cares, you have doubtless given little thought. In our American public discussion of this theme, the ship builders and the ship owners and possibly our railways have been assumed to be parties concerned, and our general public has wasted little sympathy on them. But while these may be the direct interests involved, the indirect interests are vastly greater and more important.

These indirect interests are you and your fellow manufacturers in Detroit and in Chicago and St. Louis and elsewhere. You and they are poorer because the American flag is not seen on the high seas. You employ fewer men and use less machinery or work fewer hours and make less money because of that fact. This is what I want you not only to read but to realize, to grasp and act upon.

Suppose Detroit were so placed that every shipping line from it was owned and controlled by her business rivals. How could she then get trade away from Chicago or St. Louis or compete with them? For not only would every shipment Detroit made pay a profit to these rivals but the time and speed and frequency of the shipments would depend on their wills. Detroit might in such case by the energy of her men and by their initiative and astuteness still do a good trade, but you will agree with me that the condition I sketch would be a serious, nay, a disastrous, handicap.

Now this is the substantial fact as regards the foreign trade to the United States. We must have that foreign trade. To lose it would be a disaster. But almost every box and bale sent abroad not alone pays tribute to a rival's purse (which is the least of it) but—and here is the grave fact—the course that box or bale travels, the provision of sufficient and frequent means of sending it all, these, all these, are not only in the hands of your business rivals, but are deliberately and skillfully used in their favor and to your business injury. True, some lines want our trade and say they cater to it, but no English or German line but will give preference to its own materials and there is almost no one to give preference to Americans.

When I sold an engine in Rangoon, I was told there was a three-weeks' handicap in time against us as compared with England, and that our engines would have to go to Birkenhead and be transferred there. There was no American ships regularly sailing to Rangoon and no way in which you could avoid the handicap of three weeks' time and an extra freight charge. Fortunately, the excellence of our engine got us a start, but the handicap is there working while you sleep. And this same handicap ties itself, to a more or less degree, to every quotation made abroad by every American manufacturer.

I do not write in advocacy of any special form or measure of relief but only to do certain simple things, viz.: (1) To bring the facts home to those most interested; (2) To suggest that it is high time the "Age of Talk" ended and the "Age of Action" began.

Can not we be patriotic and wise enough to drop this, that, or the other preference and agree on something that will give to our manufacturers and their workmen the share of the world's trade to which they are entitled? This would be a righteous and a reasonable protection.

Yours very truly,

WILLIAM C. REDFIELD.

A pottery plant will be established in Athens, Ga., by East Liverpool, O., clayworkers, W. A. Harsha, Thomas R. Harsha, Leveran Auberger and George L. Auberger. A site has been furnished by the Athens Chamber of Commerce and plans and specifications are now being made by a Northern architect.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



BUILDING SITUATION in New Jersey seems to have improved somewhat during the past month. So far as records are available, this seems to hold good throughout the principal cities of the State. Newark, the largest city, has enjoyed a development in building operations and permits filed which is gratifying to the interests dependent upon this for their business. And so far as can be learned there is a similar conditions elsewhere. The suburban section is likewise feeling the effects of the improvement and conditions are much better. There is a hopefulness which seems to promise a continuation of the present improvement indefinitely. It is by no means as easy to secure capital for building operations as it has been during some years past, but there seems to be a little loosening up of money compared with the previous few months.

Factory building promises to be a matter of much importance on the New Jersey side of the North river during the next year or two. For example, the Hoe Printing Press Company, which has been located in New York the better part of a century, has determined to build a new factory elsewhere, preferably in some of the suburban towns in New Jersey which have suitable land and water transportation. The cause of removal is the arbitrary action of the labor unions. The firm will erect a modern brick factory in their new location, wherever it may be. The factory employs a large number of skilled hands and competition for the location is brisk. Paterson, which already has a large number of machine shops of various types, including locomotive works, is making a strong bid for it, and the same holds good of other important communities.

Along the Hackensack river the brick yards are being operated at about their full capacity. There will be something like 75,000,000 to 100,000,000 brick made this season. The schooners are going to New York almost every day with cargoes, and there is in addition a good local demand. Paterson is taking some brick from this district and a little is being shipped to Newark, but most of them are going to New York. Price conditions have been satisfactory. Up to \$6.25 has been paid most of the season. Only a few have gone out lower, and there seems to be no reason why the same satisfactory price should not be obtained throughout the selling season. Buyers are not especially anxious to take what they have no immediate use for, but there is plenty to keep them busy as this is written. The weather has not been so good through the latter part of July and the opening weeks of August. A good many rains have fallen, some of them severe, and the work on the yards has been retarded in consequence. As a whole, however, the situation is quite satisfactory.

In the Sayreville section most of the plants are operating to full capacity. In fact, the entire Raritan region is enjoying reasonable prosperity this season. Sales have been made at substantially full prices. Nearly all buyers have placed reasonably liberal orders and there has been a disposition in some instances to advance prices on the better grades. Up to \$6.25 has been paid most of the time during the past month, and that is looked upon as a very satisfactory figure.

R. T. Greenlee, of Belleplain, is operating his brick plant to its full capacity this season. Most of his sales are to local consumers. Some addition to the plant may be necessary if the present rate of development continues.

Kressner & Holland, Berkley Heights, are employing about thirty-five men in the manufacture of brick at their plant this season. The bulk of the product is shipped to

other towns, though there is some demand at home. Good prices are obtained in most instances.

At Bordentown the various clay manufacturing plants are enjoying unusual prosperity. The Bordentown Brick Company is working about forty men, while S. Graham & Co. are running to their full capacity, which is about sixty men. The Ironside Pottery Company, with its 110 men, is prosperous and finds a ready market for its entire product about as fast as made. The labor conditions seem to be quite satisfactory and the sale of the output at all of the plants seems to be made at profitable prices. The enterprises are important additions to the opportunities for employment of the place.

The Bridgeton Brick Company is working to its full capacity and sales are quite in keeping with the output. The situation has not changed materially since last year, though building operations in the town are upon a more liberal scale. Bridgeton is an important manufacturing center, and brickmakers have opportunity to dispose of the bulk of their product at home for profitable prices.

Stuart & Patterson are working about seventy-five men in the manufacture of pottery. Their business has increased somewhat during the year and more men are working now than were employed a year ago. The sale of the goods manufactured increases and the present outlook indicates development during the next year or two.

The Camden Pottery Company, manufacturers of earthenware, is employing 100 men this year and has difficulty in keeping up with its orders. The company makes a good grade of earthenware and has customers who take everything offered as soon as it is ready for shipment. An effort has been made in the past to build up a permanent business. The trade covers a wide extent of territory and is constantly extending. It is, therefore, of considerable importance to the city. The sanitary goods turned out by this company are found in all the leading cities and are quite the equal of any other make in their particular departments.

Hugh Hatch, of Camden, is employing about sixty men this year in his brick yards and is turning out stock to the capacity of his plant. The growth of the city affords him a market at home which takes all his product without his having to go far afield for customers.

Another prosperous maker of brick is Augustus Reeve, who has increased the number of his employes to thirty-five this year. The bulk of his stock is sold at home, the builders near at hand furnishing a market for everything he can turn out. His stock is of good quality and no difficulty is found in getting a market.

The Clifford Brick Company, of Cliffwood, is running with about 350 men this season. While it might not be strictly accurate to say that their works are crowded, it is not too much to say that they are operated to capacity and good sales are made as fast as the stock is ready for delivery. This place is in the Perth Amboy district, only about one hour by rail from New York, which explains the development of the brick industry by this firm. The quality of the brick turned out, which includes practically everything offered in New Jersey, is sufficient to guarantee good sales as rapidly as the stock is made.

The Lenox Brick Company, of the same place, employs fifty men and turns out stock which makes a good profit for the owners. The population of the town is given as 500. The total number of men employed in the brick plants aggregates 400. It comes pretty near being a brick community.

D. H. Applegate finds his ten men are fully employed filling orders for vitrified brick this season. The plant is a small one, but is large enough to pay its owner a good profit. The product is of the best quality and finds a ready sale everywhere.

The Egg Harbor Brick Manufacturing Company, at Egg Harbor, has about fifty men at work this year. The plant is in good condition and is turning out a good quality of

stock. The brick goes out at good prices as fast as it is made. Buyers sometimes have to wait to get their orders filled. A good deal of development is in progress in that immediate vicinity and prices are profitable. Buying has been liberal so far this season at full outside range of values.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



LEVELAND SHOWS a remarkable growth in its building record for the month of July, the increase being in excess of 100 per cent. This was due largely to the issuing of a preliminary permit on a large hotel structure. Had it not been issued, the July of this year would have shown a record several hundred thousand larger than last year. For last month, the value of the permits issued was \$2,277,451, as against \$1,094,638 for July, 1910.

The first seven months of the present year are ahead of a similar period for 1910. For the seven months ended yesterday, 4,828 permits were issued for buildings valued at \$9,964,630, as against 4,301 permits in 1910 valued at \$8,246,495.

To date the building record for this year is \$1,718,135 ahead of last year, which was credited with being the banner year in the history of the building industry in Cleveland. Nearly \$10,000,000 is the valuation for the first seven months. It is expected that the year's total will reach a figure in the neighborhood of \$16,000,000, which will be considerably ahead of anything Cleveland has ever experienced. The only year approaching it was 1907, when the \$3,000,000 permit for the new county court house was taken out.

The following table, compiled in the building inspector's office, shows the comparative value of permits by months for last year and the seven months of 1911:

Month.	1910.	1911.
January	\$ 281,659	\$ 564,122
February	500,020	766,660
March	1,922,204	1,214,790
April	1,711,165	1,460,939
May	1,258,468	1,701,634
June	1,388,341	1,979,034
July	1,094,638	2,277,451
	\$8,246,495	\$9,964,630

The big permit was for the new \$2,000,000 hotel to be erected at East Twelfth street and Euclid avenue for The Statler Company. The permit was for only \$1,000,000 and covers the initial work. It is expected that steel and masonry contracts will be proceeded with at once. The Brooks Company has the steel contract and it is busy fabricating the metal. Other contracts will be let within a short time. It is expected that the new hotel, when completed next year, will be one of the handsomest in the country.

Another big apartment hotel project was announced during the past week by Joseph Laronge, who has engaged Architect George Griebel to prepare plans for a nine-story structure facing on Wade Park boulevard, just north of Euclid avenue. It will be 50 x 150 feet in size and will cost in excess of \$150,000. The building is to be of a light-colored brick, with terra cotta trimmings. The frame will be of steel fireproofed with concrete and tile.

The Newburg Realty Company, at a cost of \$65,000, is building the first white-glazed terra cotta theater in Cleveland from plans by Architect Harry Cone. The theater has a seating capacity of 650 persons. In conjunction with the building is a large furniture store. The entire building will be 66 x 150 feet in size.

Contracts were let during the past week for one of the most unique houses ever built in Cleveland or vicinity. It

is to be a white-glazed terra cotta residence for Harry Coulby, on the eminence of a hill just east of Cleveland. Plans for the structure were prepared by Architect F. W. Striebinger and the contract awarded to Wm. T. Paul's Sons. It will be a two-and-a-half story structure, 83 x 107 feet in size. Work was started on the foundation during the past week.

A new brick building block, containing five stores and five suites, is to be erected for Jacob Newman and Morris Frank at Superior avenue and East Twelfth street. It will be the first business block east of East Twelfth street, where a flourishing business district is building up.

Architects Briggs and Nelson, Rose Building, have completed plans for a new \$400,000 brick building and printing plant for the Cleveland Press at East Nineteenth street and Rockwell avenue, N. E. It will be four stories high and "L" shaped. On the corner will be a tall clock tower which may be seen for several blocks around. A dark red or a chocolate-colored brick will be used in the new structure. It will be of a fireproof type of construction throughout. Foundation contracts have been awarded and other contracts will be let within the next two weeks.

Plans have been completed and bids are now being considered for the \$300,000 market building for the Cleveland Model Market Company, to be erected on Euclid avenue opposite East Forty-sixth street. It will be of white terra cotta, tile, glass and steel, containing 164 install stalls and 62 outstalls for market gardeners. Fronting on the avenue will be six stores for retail purposes. Knox & Elliott are architects for the project.

The Crowell & Sherman Company has been awarded the contract for a six-story building of steel and white terra cotta for the Commercial Building Company, on Euclid avenue, just east of East Ninth street. It is to be used for high-grade commercial purposes, most of the space having already been leased.

New buildings costing about \$75,000 are being erected for the Taylor Boggis Foundry Company at 3027 East Fifty-fifth street. The company sold its old plant to the Pennsylvania railroad and is proceeding to erect a new one. The new buildings are to be used for an office, a cast-iron foundry, a hardware building and a pattern-storage warehouse. The structures are of brick and steel. BUCKEYE.

BATHROOMS AND CLAY PRODUCTS.

This is an age of bathrooms and the quantity of material used in furnishing them is doubling every year. Moreover, the prediction has been made that five years will see ten times the quantity of bathroom supplies used that are used today. They are becoming not merely a part of every new home, even down to the cottage, but they are becoming a conspicuous part and the number is being multiplied in the larger homes. New hotels built today have a bathroom attached to practically every bedroom and the same idea is pervading the entire structural world.

This is not only an opportunity for the well-known line of bathroom supplies in clay products, but it suggests that it may be worth while to give more attention to developing bath tubs and other appliances from clay products that heretofore enough attention has not been given to.

The average bath tub is made of steel or iron and enameled. There are porcelain tubs, but not nearly enough of them. It looks like the time has come to strive for not only some of the finest kind of porcelain tubs, but to develop things in this line that will be within reach of the general public, tubs of what we call the popular type that anybody can buy.

The use of clay products in the bath tub is not new by any means. It belongs way back in history and takes its place with the ancient potteries of ancient Egypt.

At the time that the Egyptians were making vases and

other articles out of pottery they were also making bath tubs and on the island of Crete these bath tubs were, after the owner died, used as coffins.

In other lines we are able to produce good material with artistic effects at much less expense than was practical in the ancient days. Therefore, it should be both possible and practical to develop more in the bath tub line and get this bath tub supply business, not merely with certain fixtures and certain classes of elegance, but get into it with both feet, so to speak, and practically control the situation and it will be a big thing for a certain line of clay products.

OBITUARY.

Well Known Wisconsin Brick Men Pass Away.

Two pioneer brick and tile manufacturers of Wisconsin have passed away during the last few weeks—John Q. Burnham of Milwaukee, and William A. Drowley of Menominee, Wisconsin.

Mr. Burnham was probably the best known brick manufacturer in southern Wisconsin, succeeding to a vast business founded by his father, who was George Burnham. In spite of the gradual exhaustion of the clay supplies in Milwaukee and the use of lands that doubtlessly would have yielded an almost inexhaustible supply, for building sites, factory tracts and other purposes not requiring working of the ground, the two yards of the Burnham interests are today among the largest in the Middle West, and supply a large percentage of the home-made brick and tile used in the vicinity of Milwaukee.

John Q. Burnham was born on September 16, 1849, and died on August 5, 1911. He had been in failing health for some time, but the direct cause of his death was a stroke of apoplexy.

After being educated in the public schools of Milwaukee, he entered the brick manufacturing field under his father, who had organized the Burnham Brick Company several years before. At the same time a brother, Charles T. Burnham, joined the business, which is now known as the Burnham Brothers Brick Company. The company conducted two large yards, one on Howell avenue, in the extreme southern part of the city of Milwaukee, and the other in the town of Wauwatosa, between the cities of Milwaukee and Wauwatosa.

After the death of his father and brother, Mr. Burnham became president and chief operator of the business. He was actively engaged in the manufacture of brick up to the time of his death. Several years ago he formed the Milwaukee Builders' Supply Company, and was president of this concern, which is today one of the leading firms in the building supply field.

In 1900 Mr. Burnham was married to Miss Phoebe C. Grider, who survives him.

Mr. Burnham was a large real estate owner in Milwaukee, where he was born and where he spent his entire life of sixty-two years.

Menominee's Pioneer Brickmaker Dies.

William A. Drowley, one of the founders of the now extensive brick industry in and around Menominee, Dunn county, Wis., died in a hospital at Minneapolis, Minn., on July 20, after suffering for many weeks with kidney trouble. Mr. Drowley was sixty-three years of age, a native of Milwaukee county, and a resident of Dunn county for forty-five years.

In 1866 Mr. Drowley moved from Milwaukee to a then new and unimproved territory in northwestern Wisconsin, settling on a farm in the town of Lucas. His attention was at once arrested by the possibilities offered by the nature of the soil and general conditions for the manufacture of brick. Mr. Drowley was probably the first to delve into the clay de-

posits and in 1872 became associated with the first enterprise manufacturing brick for commerce. With Frank Kelley and the late Judge John Kelley, he established yards just west of Menominee. These yards now form an important unit of the Hydraulic-Press Brick Company, one of the largest concerns of its kind in the Middle West.

Ten years later, in 1882, the business was incorporated under the style of Dunn County Press Brick Company and in 1884 it was changed to Menominee Pressed Brick Company. Today its holdings form No. 3 yard of the Hydraulic company.

In 1888 Mr. Drowley became superintendent of the Standard Pressed Brick Company. For four years he was superintendent of a large yard at Grand Forks, N. D. Since 1909 he has been associated with various enterprises, in Menominee and elsewhere, always maintaining his residence in Menominee. One of the last of his connections with the business which he devoted practically a lifetime to, was the superintendency of the Estevan Coal and Brick Company of Estevan, Canada.

Mr. Drowley was prominently identified with the civic, commercial and educational interests of Menominee. He served for six years as a member of the board of education, two years as a member of the common council, and held other positions of trust. In 1873 he was married to Miss Mary Kelley, who survives him. He was a member of the Elks' lodge at Eau Claire, Wis.

Pioneer Machinery Manufacturer Dies.

Samuel Stevenson, the veteran president of the Stevenson Co., manufacturers of brick and sewer pipe at Wellsville, Ohio, died at his home in that city August 2nd, at the advanced age of 82 years. Neuralgia of the heart was the cause of his death. In 1872 he bought the shop of P. S. Geisse, at Wellsville, where he learned his trade, and which was the start of the Stevenson Co., with which he had always been actively identified. It is said that Mr. Stevenson made the plans and built the first press for sewer pipe ever used in the United States.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.



THE BUILDING SITUATION in the Pacific Northwest is still dull with the exception of Portland and some of the smaller inland towns. The building strike in Vancouver, B. C., is in a fair way of getting settled, and while it will increase the building activity in that city quite considerable, the loss in build-

ing, while the strike was on, is too great to overcome this handicap for the balance of the year. The building in Seattle has been dull for the month, and while it shows some gains over June, it is still very much lower than previous years. There will be made several announcements of interest to the building circles in the near future, and the prospects are brighter for the balance of the summer. July is going to establish a new high record of increase in the building line for Portland. The total building permits at the close of the month will run over \$1,350,000, which is an increase of over 40 per cent over the record of the same month one year ago. In Spokane the building situation is not very promising. The building contractors are blaming high wage scales and union working rules for existing inactivity in building, and believe a change will help, and are preparing to declare for the open shop, and follow similar action taken by the coast cities. A strong movement is on foot to abolish present wage scales and working rules and to place labor on competitive basis, paying men according to ability.

According to Pacific Builder and Engineer, the total

permits issued for the different cities of the Pacific Northwest for the first half year is as follows, as compared with the first half year of 1910. The list given according the highest amounts of building permits issued this year in comparative standing:

	1910.	1911.
Portland	\$8,316,099	\$9,583,364
Vancouver, B. C..	6,885,880	9,188,406
Seattle	8,340,995	3,972,335
Spokane	3,810,529	2,174,878
Victoria, B. C....	1,202,835	1,432,585
Tacoma	1,559,398	845,227

The city of Renton, where the paving brick plant of the Denny-Renton Clay and Coal Company is located, will experiment with second-class brick as a paving base at the expense of the brick company. The Denny-Renton Clay Company will furnish free the brick for \$75,000 worth of paving work which will be done in the city this summer.

The Denny-Renton Clay and Coal Company, of Seattle, are still enlarging the scope of their operations, and have just acquired, by purchase, the plant and business of the Diamond Brick Company, of Portland. The consideration of the transaction is over \$200,000. The Diamond Brick Company's plant is located at Image, six miles east of Vancouver, Washington. In connection with this recent sale, one of the largest realty transfers was filled in Multnomah county, Oregon, by the Western Clay Company and involved a consideration of \$360,000, and comprised all the property of the Western Clay Manufacturing Company. The Western Clay Company is the Oregon branch of the Denny-Renton Clay and Coal Company, and bought out the old Western Clay Manufacturing Company a few months ago.

The new brick plant at St. Maries, Idaho, is now in full operation, and the first kiln is now being fired. The demand will call for over a million brick this season.

The Twin City Brick and Tile Company, of Kennewick, have booked orders for a million brick since the first of the year. This increase in business is due to the erection of large school buildings in the Columbia and Yakima River valleys.

The Fidalgo Island Brick Company, which was incorporated a few weeks ago at Anacortes, Washington, is now installing its machinery, and will be having brick on the market in the near future.

W. S. Dinmick, formerly general manager of the Tacoma Railway and Power Company, has been appointed general manager of the Little Falls Fire Clay Company, of Tacoma. This company is operating a sewerpipe plant at Sopenah, and has just finished a new paving brick plant at Bayne.

The Builders Brick Company of Seattle had a small fire at their plant at Spokane avenue recently, and the damage done amounted to about \$800. The operations of the plant were not interfered with on account of the fire.

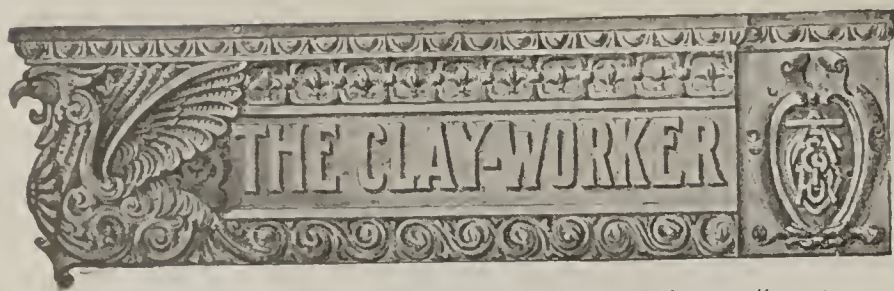
SIWASH.

"MASSA" JOHN SIBLEY ADDS A HAIGH KILN TO HIS EQUIPMENT.

Hervey Haigh, the continuous kiln man, of Catskill, N. Y., is kept hustling these days. Among orders recently booked is a large continuous kiln for the new Sibley-Menge Brick Company's plant at Birmingham, Ala.

ENGINE TRADE SATISFACTORY.

The Frost Manufacturing Company, Galesburg, Ill., report a satisfactory trade in engines and dry pans. As may be seen by referring to their ad on page 237, they are prepared to furnish power equipment to meet the demands of all users of steam power. Clayworkers desiring to improve their equipment of clay preparing machinery, either dry pans or wet pans, will find it to their advantage to get quotations on Frost pans.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LVI.

AUGUST, 1911.

No. 2.

CURRENT COMMENT.

The building record looks good and promises even better.

* * *

Dynamite is a dangerous thing—even when handled by union labor.

* * *

Mix some red-blooded energy in with your science of business—it will help some.

* * *

Sometimes the best way to do good for yourself is to do a little good for the other fellow.

* * *

Are you taking in the agricultural fairs—and boosting drain tile and other clay products while you are about it?

* * *

No matter how sensitive a machine may be, it's not within its province to be sensible. That is the duty of the man in charge.

* * *

When you visit your neighbor to see what he is doing, make the underlying purpose mutual help, and not that of personal gain at his expense.

* * *

One of the promoting theories of the postal savings bank is that it will pull idle money out of old socks and tin cans and putting it in circulation. Here's hoping it circulates.

* * *

The lumber people are not boosting home building to aid the brick business, but it will help some just the same if the brick men are awake to their opportunities, and we think they are.

* * *

Consistency may not put a shingle roof on the brick man's plant while urging other builders to use roofing tile, but sometimes the clay manufacturer does. The answer is, don't

let up on urging others to use tile for roofing, but use more of it yourself.

* * *

Make brick while the summer is on, they will want to lay most of them before winter.

* * *

It's no joke, but a fact, that we have some soft brick burnt hard and some hard brick burnt soft.

* * *

The brick-veneered house is already becoming popular, and brick and tile for the porch can be made so.

* * *

Mix horse sense in with your science of business. It will make science work better and keep you on safer ground.

* * *

Doctor Wiley may ride a few hobbies, but he's some food expert, anyway, and has done a lot to save us from unhealthful unawares.

* * *

The glory of conquest comes from difficulties overcome. There is lots of room for this kind of glory among the clayworking industries.

* * *

Every time we see a new asphalt street going in we can't help but wonder a little if some paving brick man has been "asleep at the switch."

* * *

That a good showing can be made of clay products there is no question. The questions pertain to when, where, and how much, and the answer is Chicago, March 7-12, 1912.

* * *

We don't doubt but what, as our news reports say, this country can make sugar enough even to sweeten the world, but just the same there are some things reported about sugar weighing and dealings that don't smell sweet.

* * *

It is now figured by the Bureau of Statistics that the exports from the United States during the year ending with June, 1911, will exceed by about 300 million dollars the figure of last year and cross the two billion dollar line. That sounds like prosperity with a big "P."

YOUR OWN BUILDINGS.

It is not only refreshing but decidedly encouraging when a man boosting brick and other clay products for general building purposes finds a brickmaking plant where practically all the buildings are themselves made of brick.

Why not let us have more of this? There are too many brick plants in which lumber enters in construction as well as too many houses and other structures. Some of it is, perhaps, unavoidable, but undoubtedly there is room for the brick men themselves to increase the consumption of brick by using some of their own product for building their own plants.

It will not only increase the use of brick materially, but it is the best kind of an example to set, and a good starting point to advocate the use of brick.

Where a man has a permanent location, it may cost him more, primarily, to build his plant of brick, and perhaps he is not sure just how much he may want to extend his plant in the near future, therefore, builds temporarily and adds to it, but by and by he should begin converting his buildings into permanent brick structures. When building extensions and additions, why not make them of brick, build permanently and make them things of beauty to advertise the product, while at the same time giving a building that is worth while?

Think over this and not only think over it, but get busy and try some of it. Consistency demands it and logic justifies it.

fies it. So, let us have more of the clay products themselves in the buildings and factories and around where they are made.

STIRRING UP THE HOME SPIRIT.

Not for the first time, but repeating in a measure a campaign that has been waged periodically heretofore, the American Lumberman is urging the retail dealers in lumber throughout the country to stir up the home-building spirit, not only in their advertising, but in their talks when they come in contact with people. The idea is an excellent one, because it makes for the creation of new business in a way that brings permanent good to those among whom it is created. There is not a better theme than that of home building, and there is no fault to find with anyone who urges the people of his community to build better homes, even though the direct purpose of it may be to get more business for themselves by supplying the material for the building. This is a thing we have been urging among brick manufacturers right along, and they should keep in the band wagon and keep their horns blowing. Nor should they stop with rousing the spirit of home building, but should go further and educate the people in the economy and satisfaction that comes from building homes of brick.

THE PACE SETTER IDEA.

Brickmaking is a husky business, and while fine scientific principles enter and assist wonderfully, one should never lose sight of the fact that red blood and physical hustle are among the most important factors to get capacity and make a profit out of the business.

The science of clayworking is essential, that is an analytical study of the materials and methods of manufacture, and it is worth while to study the new business science, that of eliminating unnecessary steps and movements, but when it comes down to the men themselves, the thing that will beat all the science in the world is to have here and everywhere throughout the yard a few men for leaders, red-blooded men, who are full of life, energy, and hustle, are bubbling over with it so that they inspire others, to set the pace and lead the procession.

Just as the strains of a lively musical air will stimulate thought and action, so does the live, wideawake energy of a hustling man in a group of others drive out lethargy and put new life and energy into the crew.

That is why the pace setter is important. The pace setter is not only a leader who does a certain amount of work and thus inspires others to efforts to duplicate it, but he is a safeguard against lassitude, a sort of incipient industrial ailment that creeps into all places now and then where men are employed. He is a sort of balance wheel that keeps things running steadily all the time and by his energy carries the industrial movement over the dead centers and trying places here and there.

In the operation of machinery it is usually practical to figure out some certain machine with a man in charge of it that sets the pace for the plant, and all others naturally have to keep up. It is a wise man, too, that can so plan his institution that with one or two good machines setting the pace all the others will be doing what they should, earning their full measure right along.

It is comparatively easy to do this in a machinery equipment, for there are fairly well understood capacities established for guides or pace setters, but when it comes to men on the yard and around the kilns, there is no mechanical pace setter available, and it is then that one should turn to the individual, the red-blooded individual, and get enough of him distributed through the crew to set the pace and keep the work moving along at a lively rate. One should be able

to pick them out among the workmen, because here and there are always men of energy. When you find one of them make it worth his while. Pay him more than the others, for not only does he deserve more pay for the work he does, but he earns it doubly as an inspiration to others. Make him foreman or give him any position you choose. Make it worth his while to keep up steam, and keep setting a pace. Put enough of them throughout the place to keep the place lively and regular and it will bring more returns for the money invested than almost any other system of business methods and economy that can be devised.

HORSE SENSE.

Horse sense is a good thing anywhere, but it looks considerably like there is more need for it in working and burning clay than anywhere else. Not horse sense exclusively, but horse sense brought into play in connection with careful scientific study.

One of the strong reasons for the need of lots of horse sense is found in the fact that two clays, no matter if they analyze practically the same, will not burn the same. A burner that has made a success in one locality may go to another place, where there is apparently the same kind of clay, and find that all his logic and science and early training are seemingly at fault. There is a difference in the burning.

Clays, like individuals, are never exactly the same, neither does the same treatment produce the same effect. Science will help us some, but if depended upon entirely it becomes very confusing. That is why we need horse sense. Just plain, common horse sense, and lots of it. A kind of sense and intuition in a man that enables him to sense the condition of things and the work of his fires and the behavior of the clay and move intuitively and sensibly in mastering it.

Horse sense means freedom from dogma and from getting wedded to either chimney corner or scientific doctrine until one is not able to understand the fact that other things may wield an influence and considerably warp the doctrine.

Horse sense, as stated, is a sort of intuitive sense, a sense of putting two and two together without arithmetical calculations, of not jumping at conclusions, but plugging at them.

Use it. The more of it the better. Bring it into play even if it knocks the spots off of some of your scientific reasoning. Scientific reasoning is a good thing, but sometimes it is restricted to narrow views that do not take into consideration enough other and diverging influences. It is horse sense that furnishes a protection against the literal following of scientific doctrine when it should not be, and it is horse sense in the end that will do more to get the greatest quantity of good brick and the fewest failures out of burning than anything else.

BRICK AS ROAD BUILDING MATERIAL.

State Highway Commissioner P. C. Light, of West Virginia, has declared that the only material fit for road building anywhere—either in city or country—is brick. In an interesting interview given "Dixie Motoring" by Mr. Light upon a meeting of the Washington County (O.) Good Roads Association, he said:

"Brick is the only material for the laying or paving of roads anywhere, either in the city or in the country, judging from every point of view.

"I say that, not because there are no other materials which make good roads, but because in my estimation the material to use is the best material.

"The roads of West Virginia, speaking as a whole, are

deplorable, though since the creation of a department having charge of the roads, they have been very materially improved; and with the advent of automobiles the demand for better highways on the part of the roads which they must use, that a systematic system of improvement be adopted is also being heard. And that is just what is proposed to do. There has never yet been any definite policy on the part of the State in the matter of roads and road improvements, but in the future there will be. And a very definite one it will be too.

BUTTON-HOLE TALKS IN BOOK FORM.

The series of amusing sketches which have appeared in *The Clay-Worker* during years past under the title "Button-Hole Talks" have recently been issued in book form by the author, W. D. Gates, of Chicago. Typographically, the book is a gem and Mr. Gates is gladdening the hearts of his personal friends by sending them autograph copies. It was published for that purpose, and will not be put on public sale. In commercial life Mr. Gates is well known as the president of the American Terra Cotta and Ceramic Company, one of the most successful firms engaged in the manufacture of terra cotta and pottery in the United States. When business cares hang heavy upon him Mr. Gates has a way of amusing himself, and a good way it is, too, by turning his attention to literary work, and "Button-Hole Talks" is one of the results, being chronicles of some of the many humorous or pathetic incidents that come to the keen observers of the idiosyncrasies of life. Our readers, and especially those who know Mr. Gates personally, and have come under the charm of his lovable personality, have grown very fond of these "Button-Hole Talks," one of a new series of which will be found on page 146 of this issue.

KEEPING EVERLASTINGLY AT IT.

If there is any one firm in the clay machinery line that believes more implicitly in publicity work than any other it must be the American Blower Company, of Detroit, Mich., for they are circularizing their trade constantly. This month we have received four pocket leaflets, one bulletin and two circulars with return postcards attached, all of which appeal to us in their clever makeup and facts presented. The four leaflets are devoted to "Sirocco" electric forge blowers, "A. B. C." exhaust fans, "Ventura" electric ventilating set and the "Sirocco" fan, respectively, while the bulletin is a twenty-page pamphlet given over to descriptions and detailed articles pertaining to the "Ventura" disc ventilating fans. The two circulars are of the usual type, one giving some typical applications of the "Ventura" fans, while the second, testimonials and descriptive matter on the "Sirocco" electric forge blowers. If you have any ventilating problems, be sure and write the American Blower Company, of Detroit, Michigan.

CHISHOLM, BOYD & WHITE COMPANY'S FINE CATALOG.

As usual the Chisholm, Boyd & White Company, of Chicago, Ill., has issued to the trade an attractive catalog—this one their twenty-fifth—and like all of its predecessors, appealed to the reader through its artistic illustrations and interesting descriptive matter. The illustrations consist of full-page half-tones of their factory, their presses, dry pans, acme clay mixer, elevator boot, a modern brick plant and three fine blue prints showing: (1) general arrangement of brick plant, (2) ground plan of machinery building and power house, and (3) elevator showing position of pans, elevator, screen, mixer and press. The descriptive matter includes a historical sketch of the Chisholm brick press, meaty paragraphs on equipment and facilities, presses, dimensions and capacities, standard Boyd nine-foot dry pan, clay mixer, elevator boots and economical handling of raw material, and operation of machinery. The Chisholm, Boyd & White Company have compiled this excellent catalog in accordance with their motto, "Built up to standard—not down to price," which they have adhered to through their many years of successful business. Any one desiring a copy should write the Chisholm, Boyd & White Company, Chicago, Ill. (See their advertisement on pages 126 and 127 of this issue.)

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 213.]

FOR SALE, WANTED, ETC.

FOR SALE.

Marion "A" 45-ton steam shovel; 1¼-yard bucket; friction crane. First-class order. Will make attractive price. Can be seen at Millville, N. J. Address PHILA, 8 1 d Care Clay-Worker.

WANTED—Position as superintendent or foreman on modern brickyard. Am a German, with 25 years' experience in different kinds of clays. Know the brick and tile business thoroughly from pit to office, and can work a plant economically. Am a first-class burner. Best references. Address JOHN, 8 1 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on pages 197, 198 and 199.

"A Quality Above All Others in Clayworking Machinery."

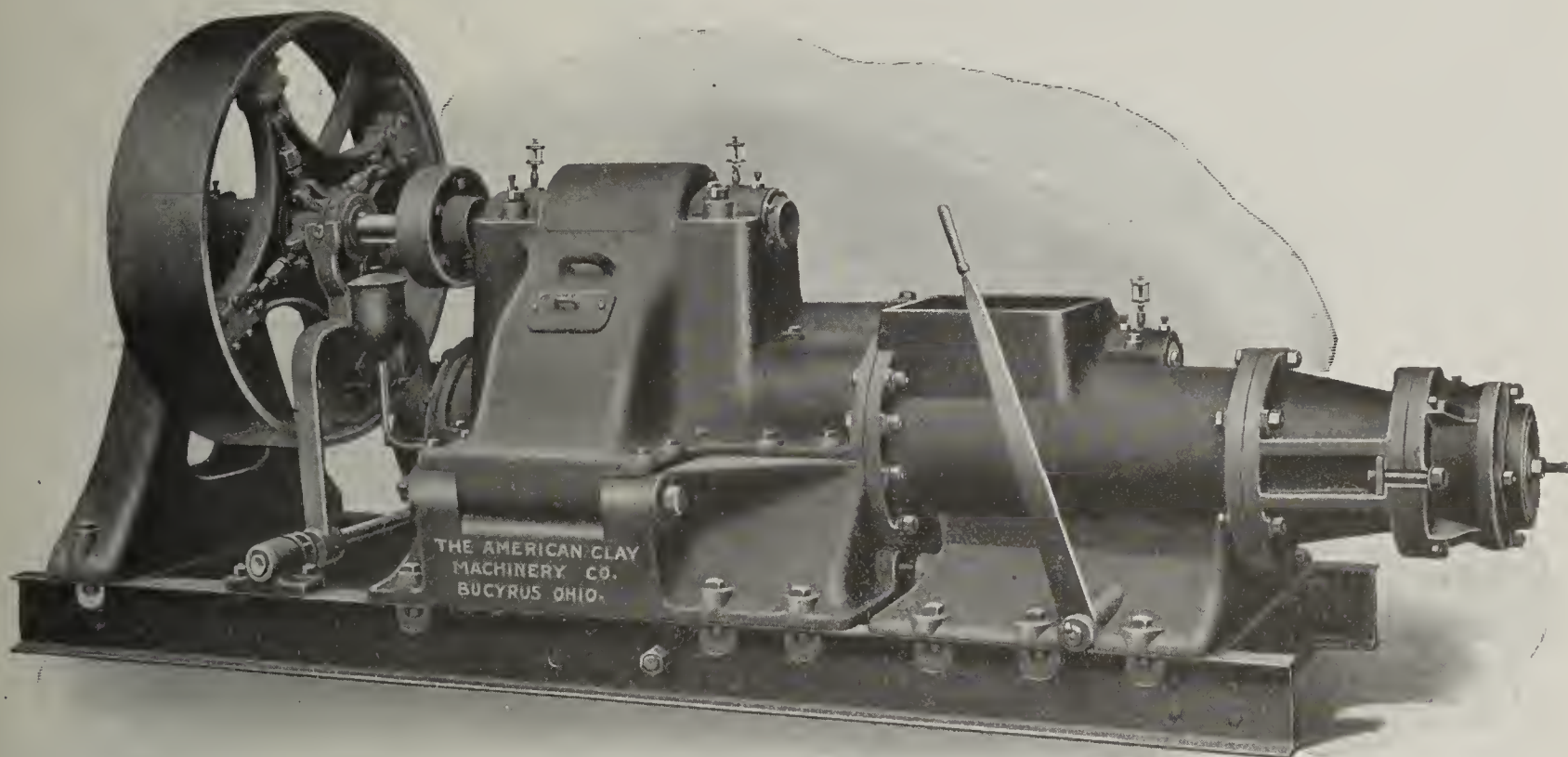
The Voice of Experience

Here is something from a tile maker which will interest you—if you are desirous of making your business pay. His experience costs you nothing and ought to be profitable to you. Listen to what he says:

"Our clay as taken from the bank, usually requires no tempering, and is delivered by gravity from the pug mill to a 24-inch American Disintegrator, used to break up an occasional flint stone into pieces small enough to pass through the die readily. The Disintegrator discharges by gravity into the No. 218 Auger Machine. This machine is the most positive in its action and has the greatest capacity of any drain tile machine ever built. Its gears are of cut steel and are so effectively housed that after months of operation we find them as clean as when first installed. The bearings are of the improved American type, brass, wick oiling, self aligning and are giving excellent service, in fact there has not been one hot or even warm bearing on the machine since started. The end thrust is oiled by gravity and drains into a reservoir in which the master gear runs, providing a constant supply of oil on both gear and pinion.

"The force feed device is driven by cut steel gears, also enclosed in the main gear housing. This device is simple in construction, and the application of one original idea has made it most positive in its actions. Clay too soft to stand in a four-inch column, or operate the cutter, is taken in as readily as a disintegrator would do it.

"The design of the barrel of the machine and of the augers, has reduced the internal resistance of the machine to a minimum. We did not fully appreciate the extent of this improvement until we determined, by a series of careful tests, that when operating at a capacity of three or four thousand five-inch tile per hour, the



average required to drive the auger machine is twenty horse power. We have never seen this equaled and in a few instances have seen the type of drain tile machines considered leaders two years ago consume as high as seventy-five horse power operating at much smaller capacity.

"We are particularly enthusiastic regarding the No. 218, as we are satisfied that it is giving and will continue to give results frequently hoped for by drain tile makers, but never attained with another machine. The present condition of the machine indicates that it will operate indefinitely without repairs other than augers, and that reminds the writer that your chilled auger is giving excellent results."

THE WOODLAND CLAY CO.

John W. Anderson, Jr., Mgr.
WOODLAND, ILL.

We will send full description and an estimate on the No. 218 machine on request. Our line includes everything the Clay Worker needs



The American Clay Machinery Company
Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

The Question of Quality Solved

When all represses have been weighed in the balance.

When all presses have been through the stress of clay grind.

When the daily record of bricks has been checked for each press.

When the quality of the work is compared.

When the repair bills have been audited and paid.

When these and a lot of other important points have been considered it will be found that

The Eagle Repress is far and away the best repress on the market and a cheaper press, in the long run, than two of most any other kind.

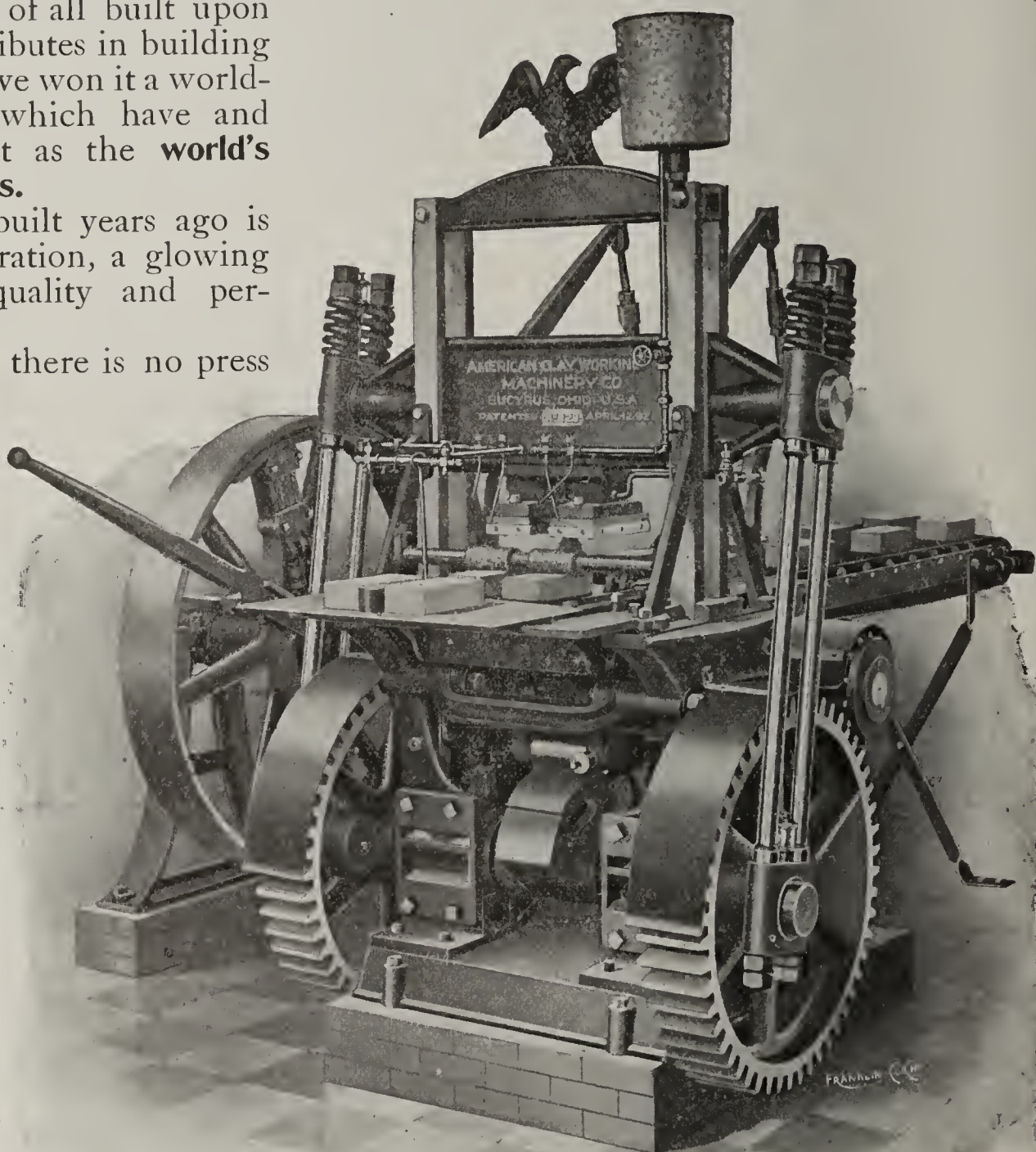
The Eagle Repress is first of all built upon quality. It has the attributes in building and operation which have won it a world-wide reputation and which have and always will maintain it as the **world's leading and best Repress.**

The first Eagle Repress built years ago is still in satisfactory operation, a glowing testimonial of Eagle quality and performance.

For paving and face brick there is no press which will give the daily and yearly output of the Eagle at anywhere near as low cost.

In a word, you will make no mistake in pinning your faith to the Eagle Repress. It belongs to a worthy line of Clay Working Machinery and is a credit to the line. It is "Built Right and Runs Right" and, what is more, it keeps at it day in and day out without repairs.

Send for full particulars about the Eagle. We also build every machine and appliance needed for the manufacture of Clay Products by all processes.



The American Clay Machinery Company
Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

According to the Bible

The Bible says: "To him who hath shall be given." And there's a reason, of course. The man who has something got it because he hustled for it, and he will get more if he shows himself deserving. At least that's the way it has been with our orders for Steam Pipe Rack Dryers. Each one has been sold to a man who investigated and found out all about the dryer before he bought. There wasn't anything for him to find out after he bought except that he had made a wise choice and that the dryer was better than he contemplated. It's because this dryer is absolutely right that we get more orders. Another has been sold in Canada, still another in New York, and a third in the west.



HERE ARE A FEW BRIEF WORDS FROM A NUMBER OF USERS OF THE STEAM PIPE RACK DRYER

The American Pipe Rack Dryer is producing maximum results at a minimum cost.

It is a Dryer that occupies less space than any other of like capacity.

A Dryer that positively has perfect circulation and accordingly dries every brick uniformly throughout its holding capacity and in the same given time.

A Dryer that requires less labor cost for handling the product than any other dryer.

A Dryer where the first cost is its last cost—no repairs.

A Dryer that is a perfect solution for all the old dryer troubles.

A Dryer that is the result of twelve years experience, so that it is no longer an experiment but a positive evolution to final perfection.

One customer says: "We dry 60,000 brick with one boiler of 100 h. p. capacity, at a fuel cost not exceeding 15c per thousand."

Another customer says: "We consider it one of the best systems we know of for handling the product. We will gladly show anyone this 'Best of Dryers' on the market today."

Another customer says: "I have built five brick plants in my time and used every kind of dryer, but your Pipe Rack Dryer beats them all."

Still another says: "I do not see how a dryer could be arranged requiring less labor. The system of steam circulation is most effective."

And another says: Your Dryer is a success and I am highly pleased with it. I will be glad to show it to anyone."

*We are the world's greatest factor for good in the clay trade
because the good we have done entitles us to that honor*



The American Clay Machinery Company

Bucyrus, Ohio, U. S. A.

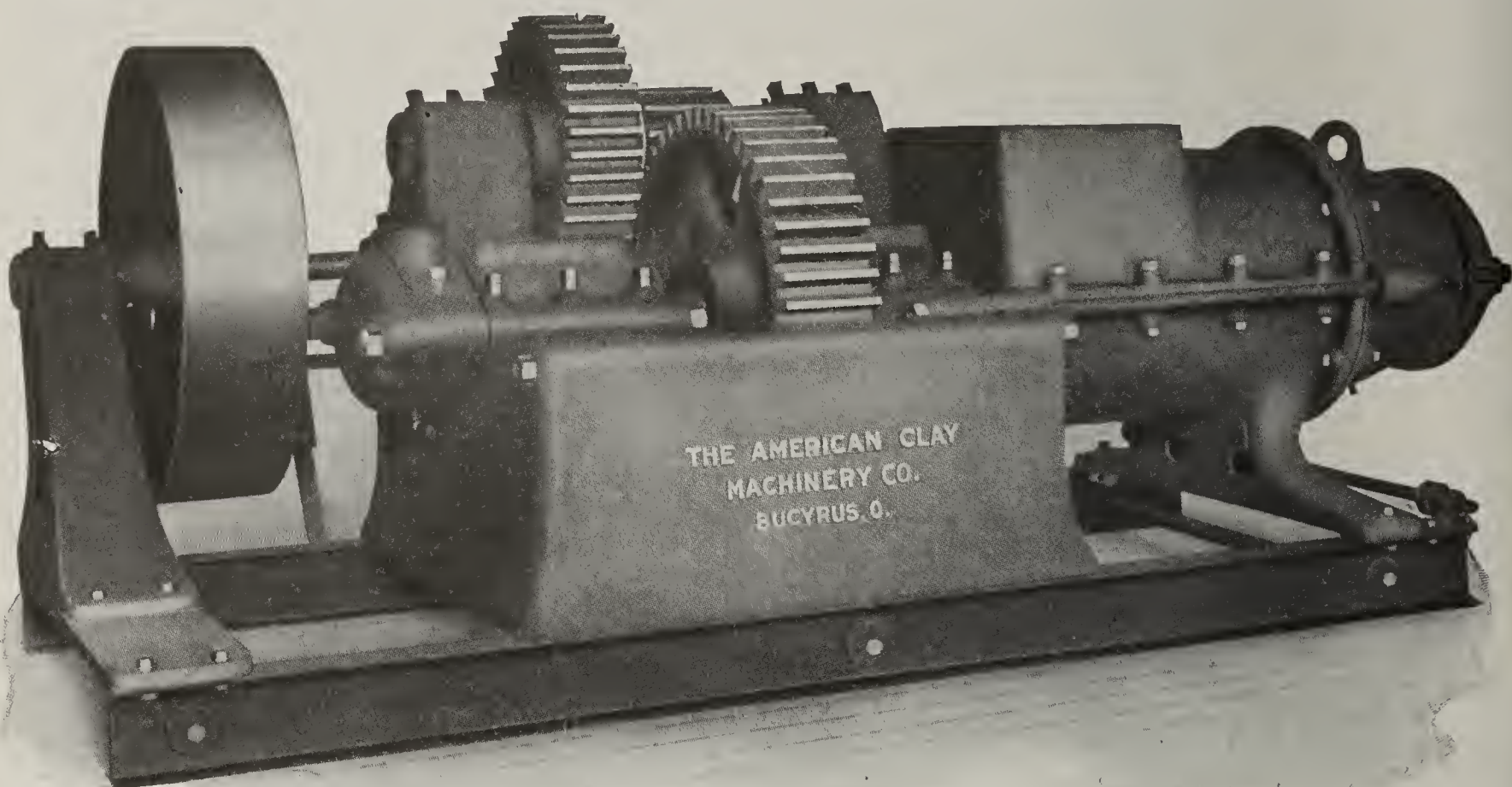
Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

The Greatest Auger Brick Machine on the Market

The No. 65 Auger Brick Machine is designed for the manufacture of brick, tile, hollow blocks and similar products. The construction of the machine is high class throughout, the material used is of the best quality, and the workmanship of the highest standard. The machine is built with a high factor of safety. It is entirely self-contained, being mounted on heavy steel I-beams. The massive self-contained gear frame contains all the principal journal bearings which are long and well babbitted. The end thrust bearing is secured to the gear frame by heavy steel bolts. This bearing consists of two large chilled plates between which is a phosphor bronze wearing plate revolving in a bath of oil. The main shaft is hammered steel $6\frac{1}{4}$ inches in diameter. The hammered steel intermediate shaft is mounted in the gear frame above the main shaft, where the bearings are accessible and the gears may be protected from the dirt. The gears are covered with a neat steel



The No 65 Auger Brick Machine.

housing. The gears are heavy and made with strong teeth, designed for smooth and quiet operation. All end thrust is taken on steel rods which parallel the main shaft and pass through the gear frame. The nozzle is fitted with a renewable corrugated lining made of a special mixture of white and gray iron which is also used in making the auger and knives. This special mixture, we have found, gives great strength and wearing quality. The die front is hinged to the nozzle and provided with a safety pin attachment which will shear off should the clay become too stiff and the strain excessive, thus preventing serious damage to the machine.

The machine is driven by a friction clutch pulley 48 inches in diameter, 12 inches face, operating at from 250 to 300 revolutions per minute, capacity ranging from 7,000 to 9,000 standard size brick per hour.

We also equip this machine with automatic oiling system if desired.

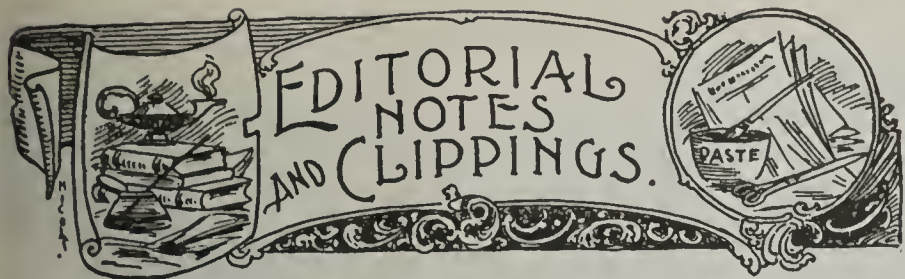


The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.



The Frankfort Brick & Construction Co., at Frankfort, Ky., has filed notice of dissolution of partnership.

The Renovo Fire Brick & Clay Mfg. Co., of Renovo, Pa., has been incorporated with \$200,000 capital stock.

The Doyle Clay Co., of Drake, Ill., has been incorporated with \$25,000 by J. E. House, T. Hanley and L. W. Daniels.

The Commonwealth Clay Co., of Streator, Ill., has been organized by Albert Warren, Wayne P. Hendricks and D. Ennis.

The plant of the C. P. Merwin Brick Co., at Berlin, Conn., was damaged to the extent of \$25,000 by fire which started from an over-heated kiln.

The Curtis Brick Co., of Grant Park, Ill., has been incorporated with \$500,000 capital stock. The incorporators are Edward C. Curtis, Vernon S. Curtis and Ernest B. Griffin.

The Muskogee Pressed Brick Co., of Muskogee, Okla., has filed a petition for dissolution of partnership. The directors of the company are C. C. Ayres, Frank Fee, A. F. Blank, J. M. Perkins and A. B. Bellis.

The new brick plant at Davenport, Okla., is now in full operation, turning out 50,000 a day. The plant is equipped with machinery from the shops of J. C. Steele and Sons, of Statesville, N. C. Natural gas is used for fuel.

Thomas D. Whitney, president of the Ludowici-Sullivan Roofing Tile Co., of Chicago, died June 27th at Carlsbad, Germany, at the age of 52. It is said that Mr. Whitney was the son of the first white woman born in the state of Wisconsin.

A charter has been issued by the Secretary of State of West Virginia to the Olive Hill Fire Brick Co., of Olive Hill, Ky. The authorized capital is \$400,000, and the incorporators are S. B. Chilton, W. G. MacCorkle, W. A. MacCorkle, J. E. Chilton and S. Hess.

Louis N. Rancke, who for a number of years was general manager of the Baltimore Retort and Fire Brick Co., Baltimore, Md., has recently been appointed general manager of the Vulcan Fire Brick Co., with general offices in the Knickerbocker building, New York City.

Baul Beer, of the Barber Asphalt Paving Co., of Des Moines, Ia., announces the purchase of eight acres of new shale land and an increase in capacity of 50 per cent by the erection of six new kilns, five extra drying tunnels, and a new automatic scheme of handling shale from the quarries.

August H. Gutkes, president of the Brooklyn Fire Brick Works, Brooklyn, N. Y., died July 30th of heart trouble following a week's illness. Mr. Gutkes was born in Germany, but had lived in Brooklyn since he was twelve years old. He had been connected with the fire brick industry for many years.

A new concern to be known as the Perfection Brick and Tile Co., of Boston, Mass., has been organized and will at once begin the erection of a plant of 50,000 daily capacity at Fayetteville, Mass. The company owns a valuable tract of a very fine white clay from which they will make a high-grade front brick. C. H. Metcalf will have charge of the erection of the plant.

Alfred E. Dickey, superintendent of the W. S. Dickey Clay Manufacturing Plant, at Deep Water, Mo., was run over by a locomotive and killed instantly. He was riding on a step at the rear of the locomotive, which was backing into the plant. He slipped and fell beneath the wheels and the entire engine passed over his body. He had been superintendent at the Deep Water plant since 1889. He leaves a widow and one daughter.

The Fallston Fire Clay Company, of Fallston, Pa., whose plant burned to the ground in early spring, is almost ready to resume work in a fine new structural-iron building, fireproof throughout. No Western Pennsylvania plant will be more up-to-date than theirs, with machinery installed by the Stevenson Company, of Wellsville, Ohio, comprising three 9-foot dry pans, three elevators, two 12-foot pug mills, one No. 5 rock breaker, every piece of which is motor-driven. Two of Freese's mammoth brick machines, with automatic

cutters, are a part of the excellent equipment; they, too, are motor-driven.

The Rockwood (Pa.) Brick Co. has begun extensive improvements at its plant. A new railroad siding is to be constructed and new machinery installed.

A company has been organized at Summittville, Ohio, for the manufacture of brick. Allen B. Creighton is at the head of the enterprise. The firm will be known as the Summit Brick Company.

P. A. Montgomery, of Michigan, has purchased a controlling interest in the Bloomington (Ill.) Pressed Brick Company, and will take charge of the management of the same, enlarging and improving the plant.

Miami, Fla., is to have a sand-lime brick plant with a capacity of 15,000 brick per day to cost about \$20,000, according to plans now under consideration by the Board of Trade of that place in connection with a Georgian who contemplates erecting the plant.

The plant of the Diamond Brick Co., at Imago, near Vancouver, Wash., has been sold to the Denny-Renton Clay & Coal Co., of Seattle. It is understood the purchase price was \$200,000, and the new owners will make substantial improvements in the plant, increasing the capacity of same.

F. W. Dennis, the kiln builder of Norfolk, Va., has had an unusually busy season. Following the two kilns built for the Jonesboro (Ark.) Brick Co., he built two kilns for John B. Prullage, at Vincennes, Ind., all of which are giving perfect satisfaction, and he now has a contract to build three kilns at Goldsboro, N. C.

The National China Clay Products Company, which is erecting a plant in National City, Cal., for the manufacture of crockery and chinaware, has established a laboratory for the purpose of testing samples of clay, and will test, they say, free of charge, one-pound samples of clays, shales, feldspar and quartz found in California.

Mrs. C. J. Holman, wife of the well-known brick manufacturer, C. J. Holman, of Sergeant Bluffs, Ia., died July 24th, from heart trouble. Mr. and Mrs. Holman were married in 1879 and went to Sergeant Bluffs on their wedding trip and later decided to make their home there. Mrs. Holman is survived by her husband and four children.

The Farmers and Merchants Co-operative Brick and Tile Co. have secured an option on the plant of the Finkle Brick Co., at Marshalltown, Ia., and will soon begin the erection of new buildings and re-building of the old ones. The company will manufacture pressed brick, hollow block and drain tile, and expect to turn out about 50,000 brick per day.

A movement is on foot among the brick manufacturers of St. Louis to form a local organization for the purpose of increasing the price of their product. Prices have declined in the past two years from \$9.00 to \$6.50, and it is believed that if the brick manufacturers can come to a mutual understanding of some sort, that it will result in a better market.

J. Wheaton Stone, of the Eastern Machinery Company, New Haven, Conn., writes that business has been good with them this season. Among recent sales is a New Haven machine to the Fitchburg Brick Co., of Fitchburg, Mass. Mr. Stone says that between 80 and 90 per cent of all the brick made in New England are made on New Haven machines.

The Brillion Brick and Tile Company, of Brillion, Wis., is getting into the "big fish" class, having recently landed a single order for 250,000 brick for the new milk condensory at Denmark Manitowoc county. Since Joseph Fricke took hold of the plant as manager, the whole works have been improved and are today a model, judging from the favorable comment of visiting brick and tile men who want to get pointers. New sheds have been built, fire walls constructed and electric power substituted for steam and manual labor wherever possible.

The Stevenson Company, of Wellsville, Ohio, is equipping and remodeling its fourth consecutive plant for the Robinson Clay Product Company, of Akron, Ohio. This plant is known as their No. 4 works. Two of Stevenson's standard 40" x 52" presses have been installed. These are the presses which have given the Robinson people such eminent satisfaction heretofore, increasing their output beyond their highest expectation and improving the quality to a marked degree. Their new No. 9 was the first to receive Stevenson's installation and it is a model indeed, one of the most complete sewer pipe plants in the States. It is a three-press plant

(Continued on page 192)

EDITORIAL NOTES AND CLIPPINGS—Continued.

electrically driven throughout. Each and every plant they are remodeling will be up to date in every respect.

A company has been organized at Summitville, Ohio, for manufacture of art pottery. Those interested in the enterprise are E. R. Norton, J. N. Caldwell and F. C. Bush.

The Chicago Fire Brick Co., of Chicago, Ill., has purchased a tract of ground in the southwestern part of the city on which they will construct a two-story storage plant to cost in the neighborhood of \$25,000.

A. J. Davis and Manley Lee, of Butte, Mont., will erect a small brick making plant at Roundup, Mont., where they have purchased a site containing good deposits of fire clay. Work on the plant will begin at once.

The Matherson-Porcupine Brick & Tile Co. has been incorporated and will erect a plant at Matherson, Ont., Can. F. W. Plant, of Toronto, who has been appointed general manager, will have charge of the construction of the plant, which will be pushed to completion as rapidly as possible.

Fred S. Robinson, 119 Avondale street, Woodhaven, N. Y., writes that he is in the market for a pipe machine for the manufacture of pipe about 8 to 10 inches in diameter, to be so constructed that the machine can be confined to one floor of the factory building. He also desires to purchase second hand machinery for the manufacture of stoneware.

Wright & Hutchinson is the name of the new firm which has taken over the Tillbury Brick & Tile plant at Delavan, Ill., which has been closed since the death of Mr. Tillbury last December. They are repairing and overhauling the plant generally and will put same in operation for the rest of the season. They are old experienced brickmakers who have recently moved to this country from Scotland.

The plant of the Fort Scott Brick & Tile Co., at Fort Scott, Kans., is being improved and enlarged as rapidly as possible, under the management of Mr. Kenneth Calhoun, president of the company. An immense kiln is being erected under the supervision of G. W. Ogan, of Danville, Ill., which, when completed, will have thirty chambers. The plant promises to be one of the largest and most complete in that part of the country.

Articles of incorporation have been filed for the reorganization of the Curtis Brick Co., of Grant Park, Ill. The new company is the successor of the Alonzo Curtis Brick Co., with yards at Grant Park, Beecher, Manteno and Chicago. The old company was organized in 1883 and has grown to be one of the largest and most successful brick plants in the State. The new company, which is incorporated for \$500,000, takes over all the properties of the old company.

The capacity of the plant of the Adams Brick Co., at Martinsville, Ind., is to be enlarged by the erection of some down-draft kilns. The Adams Co. has head offices at Indianapolis, Ind. They also operate a plant at Veedersburg. The two plants give the firm an output of about 30,000,000 brick a year. Fred B. Adams is president; Frank W. Wood, vice president, and C. A. Pritchard, secretary and general manager. In addition to handling its own product, the firm disposes of about 15,000,000 high-grade building brick every year.

The entire plant of the Summit China Company, of Akron, Ohio, will be moved to Macon, Ga., where it is proposed to put in operation one of the largest china manufacturing plants in the entire country. L. K. Force, F. H. Buerbach, R. H. Kent and W. H. Dettleback, the owners of the Summit China Company, have made ideal arrangements with the Chamber of Commerce at Macon, which body will supply a site and four walls, and the machinery will be moved from Akron to Macon. The company will be known in the future as the Macon China Company. A Cleveland architect is now preparing plans for the building, which will be 130 by 320 feet, two stories, brick or concrete; eleven kilns and equipment. The dimensions given are of the factory proper, exclusive of the office and engine room, the latter two taking up another building forty feet square. It is generally conceded that this is the first setting forth of a general exodus of china manufacturers from the Middle West and East to the South, and that in a few years this industry will have been entirely transported to Georgia and Alabama. On account of the prohibitory freight rates from Alabama and Georgia to the Middle West and East, and the fact that Alabama and Georgia possess wonderfully rich and productive kaolin beds and its treasured shot clay, the owners of the Summit China Company were induced to come South, and it

is generally thought that they will soon be followed by others.

J. Ira Davy of Mineral City, Ohio, is in the market for some flint clay.

Flatley Brothers Company, of Green Bay, Wis., will supply the twenty-odd carloads of facing brick to be used for the exterior walls of the new St. John's church.

Morton Rapp, for twenty-five years a member of the firm of Rapp Bros. Pottery Co., at Peoria, Ill., died recently at the age of 58 years. He leaves a widow and thirteen children.

The Universal Sanitary Pottery Co. was completely destroyed by fire July 15th. The loss is estimated at \$200,000, on which there is only about \$40,000 insurance. The plant will be rebuilt as soon as possible.

After a shut-down of six months, work will be resumed at the plant of the United Fire Brick Co., at Connellsville, Pa., next month, giving 250 men employment. The company has been awarded the contract for furnishing 5,000,000 bricks for road improvement in Washington county.

Michael Baake has filed suit against the Kalo Brick & Tile Co., of Fort Dodge, Ia., for \$25,000. Mr. Baake was employed in the clay pit when a piece of clay weighing between two and three tons fell on him inflicting injuries which necessitated the amputation of both legs.

Green & Sons have opened a brick, tile, pipe and cement supply yard at Appleton, Wis. The Greens are interested in the Streator Clay Manufacturing Company and will handle the Illinois product as a leader. Two-thirds of all sewer pipe used in Appleton is Streator manufacture and Green & Sons will have no difficulty in building up a large trade in Appleton and the vicinity.

C. B. Platt, of Van Meter, Ia., writes that he is busy making drain tile up to 18 inches. He will probably add 85,000 feet of dry floor to his floor drying space in order to go more extensively into the large tile business. He has recently opened up a bed of shale which will stand immense heat without losing shape and consequently is well adapted to large tile and sewer pipe of which Mr. Platt makes a specialty.

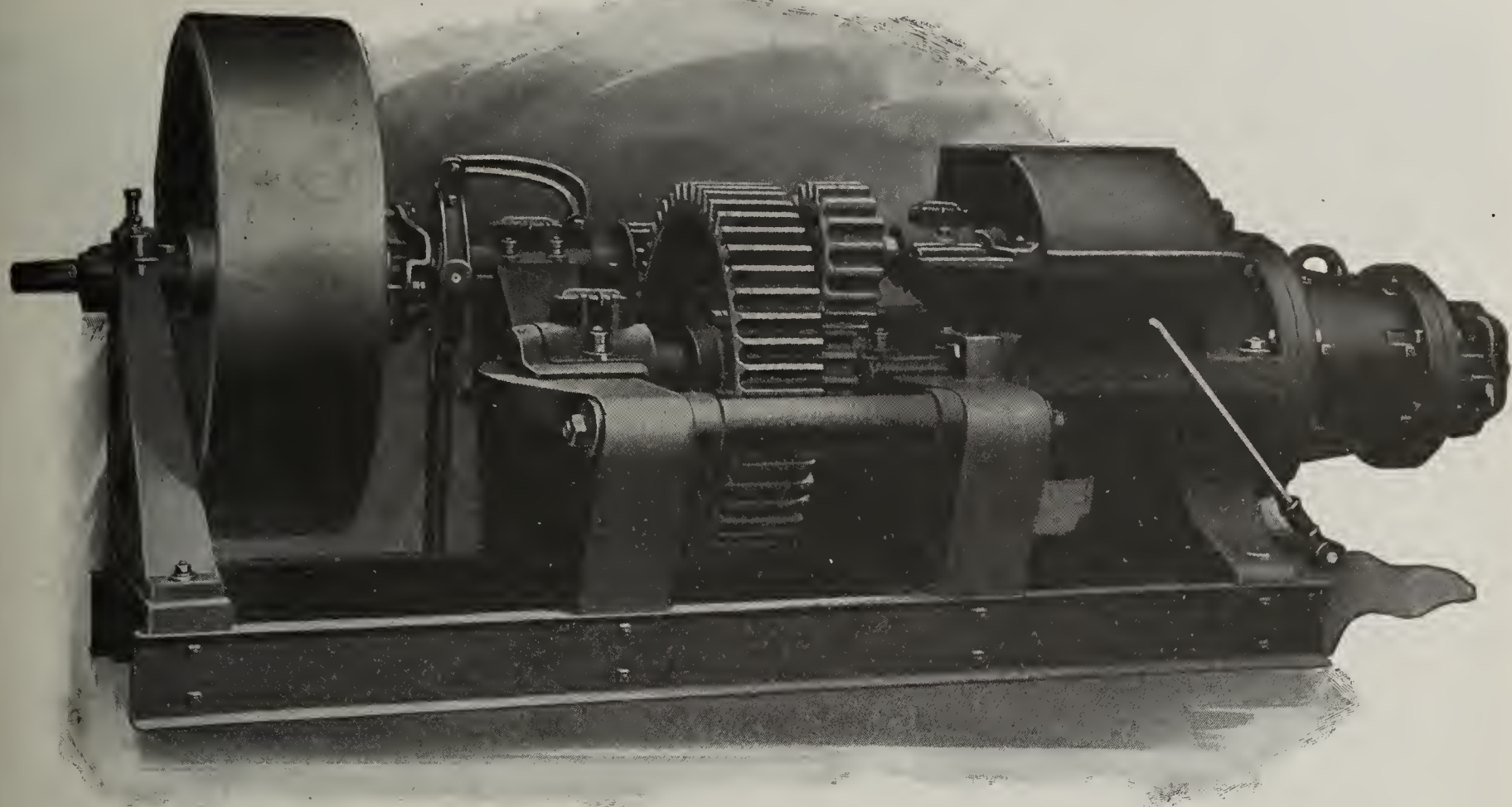
W. J. Gillette, manager of the Barron Red Press Brick Company, Barron, Wis., is establishing all kinds of records for large production this season. Mr. Gillette recently fired a kiln containing 415,000 brick, the largest ever fired in northern Wisconsin yards, or at least in the territory surrounding Barron county. The daily capacity has been increased to 35,000 brick and will soon reach 55,000 brick daily.

The Castle Rock Brick and Tile Co. has been organized at Castle Rock, Colo. The officers of the company are Chas. L. Kirk, of Denver, president; Neal Allen, of Pittsburg, Kans., vice president, and M. J. Casey, of Castle Rock, secretary and treasurer. A plant will at once be erected for the manufacture of brick from shale which they have in unlimited quantities. They expect to turn out about 50,000 brick at the start.

The machine room at the plant of the Allegheny Brick Co., Pittsburgh, Pa., was destroyed by fire and dynamite recently. The fire had gained some headway before it was discovered and a quantity of dynamite, which was stored nearby for the purpose of blasting shale, was exploded from the heat. Fortunately, the other buildings of the plant are at some distance from the machine room and were not damaged to any great extent. The loss is covered by insurance.

O. H. De Lamorton, president of the De Lamorton Manufacturing Company, Pascagoula, Miss., writes that his firm is in the market for a 50,000 daily capacity brick machine, and wants prices, illustrated catalogues and quotations for machine f. o. b. Pascagoula, Miss. They also want prices on cement brick and cement block machinery for making ornamental trimmings, columns, newels, posts, ornamental blocks, etc.

"That wooden paving continues to be an expensive luxury," says the Shenandoah (Iowa) Sentinel-Post. "It costs like sin to begin with, and it still continues to take its toll from those who use it." After telling of an accident which tarred two immaculate young men, the paper continues: "The episode was amusing and the victims will recover, but that same tar sticks to the poor women's shoes and spoils their carpets and skirts. It just oozes up from between those wooden blocks until one wonders where it all comes from and if it ever will quit oozing. Those streets are all right in winter, but should be avoided on hot days."



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 232-235.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BUILDING CONDITIONS in San Francisco, Oakland and the suburban towns continue in fairly satisfactory shape, with very favorable indications for further improvement. The local record for July showed a valuation of \$2,134,479, a gain of about \$200,000 over June, though according to the official figures, operations are hardly as large as last summer. The Oakland figures are about double those for July, 1910, and show a very satisfactory gain over June. In southern California there is considerably more work than last year, but June was a much better month than July in Los Angeles. Notwithstanding the good showing made here, large contracts are the exception, and the bulk of the work for the rest of the year will doubtless consist of small buildings.

The most encouraging feature in the San Francisco business is the final selection of the site of the Panama-Pacific Exposition. Under the plan announced, both the Golden Gate Park and Harbor View sites will be used, and a number of accessory features are to be prepared in other parts of the city. Of the exposition buildings themselves, as many as possible are to be of a permanent character, and it is definitely announced that several large structures of a semi-public nature will be erected in connection with the event. It will probably be some months before actual construction is started on the buildings contemplated, but meanwhile buildings in the vicinity of the sites are at a premium, and plans are being made for a great number of business structures, apartments, etc., in those parts of the city.

The price of \$7 per thousand, established on common brick about the first of July, has been steadily maintained, and the local demand is fully as strong as before, if not more so. The outlook is a little uncertain, however, as the San Francisco market is expected to absorb the surplus produced at all plants within shipping distance, and the outside demand is subject to great variations. It is said in some quarters that the country business is hardly as brisk as for some time past, which would tend to throw more brick in this direction. There seems to be a fairly good spirit of co-operation among the local brick interests, however, and within reasonable limits any surplus sent in by one manufacturer can probably be handled through the various selling agencies without depressing the market.

The sewer pipe business is still in good shape, with a steady demand from the country and increasing requirements in San Francisco. Contracts have been let during the last month for local sewer work amounting to about \$250,000. The greater part of this consists of brick-lined concrete mains, but quite a large amount of pipe will also be required in connection with it. The potteries are able to take care of considerably more work than they have on hand, and there is no little disappointment over the decision of the Supreme Court, announced last week, that the Oakland sewer bonds are invalid. As formerly reported, the contracts for the Oakland work, amounting to about 150 miles, have already been let, but these will now have to be canceled, and it will be impossible to get out a new bond issue before the first of the year.

At the last meeting of the Masons' and Builders' Association of San Francisco, officers were elected as follows: President, E. J. Brandon; vice-presidents, Walter Reed and E. S. Rainey; treasurer, T. W. Butcher; secretary, W. S. Scott.

Hollow partition tile are still being delivered for the Hearst building by Gladding, McBean & Co., but the job is practically complete. This company has a large amount of other work in the city, and, with its large trade in pottery and terra cotta through the interior, its plant is well occupied, though the material for the Oakland city hall will not be required for some time.

The United Materials Company, local agents for the Los Angeles Pressed Brick Company, has taken a large number of miscellaneous jobs in the last few weeks, and its principal difficulty at present is to get the material delivered in time. The Los Angeles company's brick for the local market is now furnished almost entirely by the Richmond plant, though tile

and some other lines are still shipped from southern California. The improvements now in progress at Richmond will enable it to take care of all local requirements without difficulty. As its materials have been specified for a large number of prospective buildings, there is no doubt that the output will be well taken care of through the fall.

The Standard Sewer Pipe and Terra Cotta Company was recently incorporated in San Francisco, with a capital stock of \$1,000,000, by W. F. Barnes, H. C. Norton, E. C. Leffingwell, William Shea, Jr., and A. J. Bloch. The exact intentions of the company have not been given out, but it is reported from Antioch, Cal., that W. F. Barnes, of this company, has secured an option on the old plant of the California Brick and Clay Manufacturing Company at that place, which has not been operated for some time. It is believed that work will be resumed at this plant within a month or two.

J. N. Gregg, head of the brick manufacturing and lime quarrying firm of Holt & Gregg, operating plants at several places in northern California, has been looking over the field in Sacramento with the object of starting a distributing depot there. The company's brick plant, near Anderson, Cal., is running at full capacity, and has taken a large amount of business all over the northern part of the State, shipping some material to towns along the southern border of Oregon.

The city of San Diego, Cal., will use 500,000 brick in connection with its new concrete sewer line. The order for the brick was placed recently with the Hieatt Brick Company, a comparatively new concern at that place.

The Steiger Terra Cotta and Pottery Works of this city is just finishing delivery on the new Olympic Club building, on Post street near Taylor, the handsome appearance of which is attracting considerable attention. The principal part of the facing is of twelve-inch brick of the "tapestry" type, while the ornamental cornice, window trim and other decorative features are of standard white terra cotta. The company reports no new jobs of special importance, but is well satisfied with the general volume of business in all departments.

It is expected that a change in control will take place before long in the Carnegie Brick and Pottery Company, one of the largest pottery plants in the State, which is one of the principal assets of the defunct California Safe Deposit and Trust Company. There is apparently no hope of reorganizing the latter concern, and efforts are being made to dispose of its properties to the best advantage for the depositors.

It is reported that the California United Brick and Tile Company of Los Angeles is considering the establishment of a branch at Bakersfield, Cal.

The Pacific Tile and Terra Cotta Company is preparing to develop a large white clay deposit in the Silver Lake district in San Bernardino county, Cal., about seven miles from the line of the Tonopah and Tidewater railroad. It is proposed to put on a number of automobile trucks to transport the material to the railroad. M. A. Murphy, who is well-known in the clay industry of California, is named as general manager of the company.

The Livermore Fire Brick Company is now at work on the contemplated improvements to its plant at Livermore, Cal. A sidetrack is being laid from the line of the Western Pacific, giving an outlet by two railroads, and a large oil tank is being installed. A 100-horsepower electric motor is also being put in. The company is regularly employing about thirty-five hands. The principal item of new business is a large contract from the Pacific Gas and Electric Company, which is a large user of fire brick. The company, whose main offices are in Oakland, has, until recently, kept out of the San Francisco market, but some of its material has appeared here in the last few weeks.

According to a recent report from Vallejo, Cal., Los Angeles parties have been looking over the plant of the Vallejo Brick and Tile Company with a view to purchasing the property.

The city of Phoenix, Ariz., is taking figures on a sewer system, the engineer's estimate of the cost being about \$400,000.

School buildings will be an important factor in the brick business around San Francisco this fall. As soon as the bonds are disposed of, the city of Oakland will take figures on sixteen new schools, while in San Francisco the contract for the girl's high school, to cost about \$500,000, is expected within a month or two. Plans are under way for several other school jobs in this city, most of which will probably be awarded before the end of the year.

SUNSET.



Barrett's PAVING PITCH



Creosoted Block Pavement in Mobile, Ala., Filled with Barrett's Paving Pitch in 1905.

A Foreign Expert's Opinion

In a paper presented at the Second International Road Congress in Paris last year, Mr. Hector F. Curran said in relation to the ancient argument between pitch and cement as a filler for street pavements:

"The advantage of pitch as against cement is that the pitch will more rapidly adjust itself to the expansion and contraction of the wood paving, whilst a cement joint has no means of doing this after the bond is broken, and the moisture, therefore, more readily finds its way into the surface of the roadway. Again, the traffic can be at once allowed to pass over the roadway as soon as the pitch grouting has cooled, whilst it is necessary for seven days to elapse to allow the cement grouting to become thoroughly set."

Mr. Curran did not state all the points of superiority of pitch over cement for the joints of block pavements. He might well have added that a pitch-filled pavement never cracks,

never rumbles, is protected against damage from the vibration of street car rails, is easily removed for repairs without destruction of the block, and is easier on horses than the rigid cement-bonded surface. Furthermore, the pitch-filled pavement gives better foothold for horses on account of the wearing away of the filler at the top of the joints. In case of any punctures of the waterproof seal, the pitch on a hot day will automatically repair itself, whereas cement will not.

With pitch, "every joint is an expansion joint." No special expansion joints are needed.

Barrett's Paving Pitch is the best pitch for all paving purposes, whether brick, granite or wood is used. We make it especially for this purpose, and it is the same quality and grade of pitch which we have been supplying for the last thirty years with satisfaction to everybody. Booklets on request.

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Seattle

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Cleveland

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE FALL SEASON from a building standpoint, and it will affect brick as well as all other materials, is apt to be somewhat disappointing. The crops of the Northwest—especially the wheat crop—proved to be a disappointment, being much less than was expected. The effect was to shorten the expected demand for new work. Yet, the crops are not so bad as many have been representing them to be, and later on in the fall, when all the crops are in, the corn, the late hay and other crops which may prove to be a big addition to the income from the soil, there will doubtless be a reaction from the present depression. For there will be a better crop of wheat than is being counted on. There always is, when the crop is short. And there will be more return from the other grains. Things are not promising for a boom, but the Northwest is not going out of business by any means. The farmers of the Northwest have been buying automobiles and farm tractors. Such men are not going to quit business because their yields have become less than they expected. In fact, many of them have sufficient money ahead, and often crops carried over from the previous season, so they can make such improvements as they may desire, if it can be shown to be to their interest. So, if prices of labor and materials decline under the weight of lessened activity, it will find many farmers ready to make improvements—always provided it can be shown to be advantageous to do so. Brick manufacturers will find it worth while to remember this and to be alert for any development which can be used to their advantage in this direction.

The season of 1911 has not been a very good one so far, for the common brick trade. A few plants have begun shutting down, some starting before the end of July. This is a date which is almost unheard of for shutting down. But the demand upon such yards has proved small, and after accumulating a stock for fall and winter, the proprietors concluded to avoid further expense and shut down.

Building conditions in St. Paul and Minneapolis have been somewhat handicapped by the strike of carpenters, which naturally hampered other lines. In St. Paul, it was worse than in Minneapolis, and the members of the Master Builders' Association there finally decided to make terms with the union, which they did, agreeing upon the old scale of forty-five cents per hour until November 1, when a board of arbitration will take it up. That was the old scale, and the strike was for fifty cents. But the men secured the recognition of the union, an agreement not to lockout, and gave an agreement not to strike. In Minneapolis, the masters won the contest and have the open shop, which they declare they will maintain.

The case in St. Paul where a trial court refused to enforce a lease on an apartment which was in a building that did not comply with the law on fire escapes, has come to the front again through an application for a new trial. The court rejects the application vigorously, declaring that structures which do not comply with the law as to fire escapes, are "contrabands of law and outlaws." The case will be appealed to the Supreme Court. A few healthy decisions of this character will help greatly in increasing the demand for fireproof construction.

The situation regarding the plant of the Fairmount Drain Tile and Brick Company, of Fairmount, Minn., is but little changed. The stockholders held a meeting at which a committee of nine prominent business men was named to work with the officers on the proposition of determining the best

method of proceeding. This committee will consider whether it will be better to attempt to ship in clay from outside for use in the plant, or if a system of washing the clays to rid them of the objectionable limestone will be best. This committee has not yet reported its findings upon the subject. Either method is open to objection, but it seems likeliest that the washing system will be adopted if it can be installed without too great expense. There are several plants in Minnesota which wash their clays, to get rid of limestone or other impurities, and they are able to do business at a profit.

The settlement of the carpenters' strike in St. Paul is followed by a difference between some of the members of the Builders' Exchange. Several members of the exchange have been charged with violating the agreement with the exchange during the period that the strike was on, by employing union men and paying the scale. Fines ranging from \$25 up to \$500 are said to have been levied upon four members, who will naturally drop out of the organization. One member declares that he has tried to resign from the organization and was not allowed to do so, and that as far as he is concerned, the exchange could not get him back again. The differences are most unfortunate, for the exchange has done good work, and has a good, compact membership which will enable it to accomplish a great deal more, if only the members will stand together.

The Builders' Exchange of Minneapolis has urged the Board of Education of Minneapolis to take up trade education in a broader manner hereafter. When the new technical school is completed, it is expected that the board will provide courses for a number of trades, doubtless among them, bricklaying. The board is prepared to take up as many trades as there is a demand for.

George W. Markham, John B. Sanborn, and George H. Hurd, all of St. Paul, have formed the Marshalltown Sewer Pipe and Tile Company to operate the old plant at Marshalltown, Iowa. The plans of the new company are not wholly public, but it is understood that a modern brick and tile business is to be developed.

Minneapolis building permits for July were \$1,111,190, against \$1,151,930 for July of 1910. For seven months of the year, the total amounts to \$9,904,575, against \$9,285,410 for the same months of last year. This is a gain of \$619,000, which is a remarkable showing under all the circumstances.

Brick Building News.

J. & W. A. Elliott Company, of Minneapolis, received the general contract for the erection of a four-story brick block at Eight street near First avenue South, for Anton Knoblauch. It will be 66 x 165 feet in size, with pressed brick exterior walls. Cost, \$60,000.

The R. A. Donahue estate, of St. Paul, has let the contract to J. H. Donahue for the erection of a fireproof apartment building, three stories, 68 x 150, on St. Peter street, between Tenth and College avenue. Cost, \$60,000.

The J. & W. A. Elliott Company, of Minneapolis, received the general contract for the erection of a modern four-story warehouse building, of brick, to be erected at Fort Williams, Ont., for the International Harvester Company. Cost, \$100,000.

Buechner & Orth, architects, St. Paul, have prepared plans for a modern brick and stone fire station to be erected at Mason City, Iowa, at a cost of \$25,000. It will be of pressed and common brick.

R. J. Cheney & Co., Minneapolis, received the general contract for an addition to the city hospital of Minneapolis, at \$84,888. The building is of a light yellow pressed brick exterior.

The West Side Commercial Club of Minneapolis, proposes the erection of a handsome three-story brick building for its use. The first floor will be devoted to stores, and the second and third to club rooms. The exterior will probably be of white enameled brick. A site has been secured at Lake street and Nicollet avenue, forming an arcade around the structure located on the southeast corner. E. L. Phelps will erect the building and lease it to the club if the arrangements are completed as planned.

T. WIN.

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Classified Advertisements.

FOR SALE, WANTED, ETC.

WANTED

100 flat cars, 20" gauge.
ATLANTIC TERRA COTTA CO.,
1170 Broadway,
New York City.

WANTED.

A party to co-operate in exploiting a valuable clay property in Illinois. Ad-dress
REFRACTORY,
Care Clay-Worker.

WANTED.

To buy a brick plant having shale or fire clay, raw material and round down-draft kilns. Give complete description. Address
LOCK BOX 743,
Uhrichsville. Ohio.

WANTED.

I am looking for a good business opening or farm. Price must be right. Will pay cash. Give full particulars in first letter. Address
C. W., BOX 965,
Cherry Valley, Ill.

WANTED—A good, practical brick and tile man to take part interest in a well equipped pressed brick brick and tile plant. Good locality in northern Colorado. To act as superintendent and manager of same. Address
BOX 7—COLO.,
Care Clay-Worker.

WANTED.

An experienced man with \$4,000 to take management of an up-to-date new tile plant. Must have first-class busi-ness ability. Address
BOX 333,
Corwith, Iowa.

CASH FOR YOUR PLANT OR BUSI-NESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,
FRANK P. CLEVELAND,
965 Adams Express Bldg.
Chicago, Ill.

HELP WANTED.

Sewer pipe workers for works now building. First-class press man, branch and fitting maker, and pipe finishers; also setters. Booze fighters not wanted. Good wages paid to experienced men. None others need apply. Address
ALHAMBRA BRICK AND TILE CO.,
Phoenix, Arizona.

WANTED—An experienced man to assist in the manufacture of iron-spot and fire-flashed brick on a plant now making common and ordinary front brick. The right man who knows how will be given a remunerative position. None other need apply. Write, giving references as to character and ability.
SALMEN BRICK & LUMBER CO.,
Slidell, La.

WANTED TO BUY.

About 24" clay pulverizer (American Ring Hammer preferred), also five to ten thousand plain pallets, size 34"x10", 3/4" to 7/8" thick.
CONARD & SHERTZER,
Columbus, Ohio.

FOR SALE—Well equipped cement tile plant, capacity 4,000 per day, lo-cated in good Iowa county seat town. Doing good business. Good reasons for selling.
BOX 7—LAND,
Care Clay-Worker.

FOR SALE.

Books for brickmakers. Inexper-enced workmen will find them a source of valuable information. "Brickmak-ers' Manual," \$3.00; a practical treat-ise on the every-day details of brick-making. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "An-alyzes of Clays," \$2.00; a valuable re-ference book, giving analyses of well-known clays of this and foreign coun-tries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, prop-erties and uses, with special reference to those of the United States. Any or all of these books mailed postage pre-paid on receipt of price. Write for list of other valuable books for clay-workers. Address,
T. A. RANDALL & CO.,
Indianapolis, Ind.

(Continued on next page.)

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—Brick and tile machine, with cut-off tables and dies. One fifth original cost. BOX 40, 8 1 cm South Park, Ohio.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa. For full particulars, address

DE WITT BRICK AND TILE CO.,
7 3 c De Witt, Iowa.

FOR SALE.

We offer special prices for a limited time on one Victor repress, steam silica press, single die hand repress. Address

BOX 8—J. B. H.,
8 1 d Care Clay-Worker.

FOR SALE.

The only dry press brick plant on Puget Sound. Best facilities in the State. Ten acres clay bank, 5 to 100 feet high; 16-year lease.

BOX 8—GIG,
8 2 cm Care Clay-Worker.

FOR SALE.

Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new.

F. H. EGGERS,
6 tf d Cleveland, Ohio.

FOR SALE—Brickyard, capacity 35,000.

Wire cut, repress and sand mold machines; 11 acres fine clay deposit; railroad siding to kilns; three lines railroad and water transportation; cheap wood. Foreclosure sale—one-third cost of plant.

BONNER COUNTY NATIONAL BANK,
5 4 cm Sand Point, Idaho.

BRICK PLANT FOR SALE.

At a bargain if sold soon. Daily capacity 50,000; rack, pallets and full equipment. Fine clay for soft mud or die machine brick, and plenty of it. Located in Wisconsin and a good business established. Assured sale of all products at good profit. Ready to start now.

P. O. BOX 21,
8 1 cm Menominie, Wis.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address

BOX 6—B. T. CO.,
6 tf d Care Clay-Worker.

FOR SALE—CHEAP.

Twenty rack cars, twelve pallets high 24-inch gauge, for 34-inch pallets; two-way dump cars, two yards capacity, 36-inch gauge, with brake; one two-way dump car, one and one-half yard capacity, 36-inch gauge. Address

BOX 8—OHIO,
8 1 d Care Clay-Worker.

FOR SALE.

Having quit the brick business, will sell the following equipment at a low price, all of which is in good condition: one all metal mold sander, with shafting and pulleys; 200 grate bars for kiln, one dirt crusher and 20-foot elevator with shafting and pulleys.

J. S. COLLINS,
321 Main St.,
6 4 dm Frankfort, Ky.

FOR SALE.

Martin "A" power brick machine. Pug mill and belt sander.

1 Potts clay crusher.
10,000 wooden pallets, 34-in. long and 10 in. wide, with a strip 2-in. wide and 4½ in. high nailed on each end.
140 24-in. gauge 6 ft. Atlas brick cars.

JOHN WILSON,
1025 Williamson Bldg.,
7-tf-d Cleveland, Ohio.

SECOND-HAND MACHINERY FOR SALE.

Two 150 h.p. boilers, one 75 h.p. boiler, one slide-valve horizontal engine, one automatic cutoff engine, 50 h.p.; one horizontal engine, 40 h.p.; one 320-gallon fire pump; two feed water pumps, two feed water heaters, one 36-inch lathe, one 12-inch lathe, two 7-foot wet pan machines, two 5-foot dry pan machines, one disintegrator, two pug mills, one sanding machine, one automatic cutting table, three hand cutting tables, one sewer pipe brick machine, six hand brick presses, nine wooden bucks, five dump carts, four four-wheeled spring trucks; also two safes; odd lots of hollow tile key brick, and complete line of wooden brick molds.

For particulars address

P. I. KEELER,
Barber Asphalt Paving Company,
8 1 cm Maurer, N. J.

FOR SALE.

101 ft. 24" 6-ply rubber belt, nearly new.

62 ft. 22" 6-ply rubber belt, nearly new.

Several 16", 14" and 12" and pulleys.
57 ft. 29½" 3-ply leather belt. Good condition.

ATLANTIC MANUFACTURING CO.,
7 3 cm Wilmington, Del.

FOR SALE.

Five-foot dry pan, bucket clay elevator and two-mold dry press, made by American Clay Machinery Company; 26-foot 16-inch clay conveyor, made by the J. D. Fate Company; Dunlap Perfect screen. All in good condition. Will sell at half price.

GOLD BROS. BRICK COMPANY,
7 tf d Big Stone City, S. D.

FOR SALE—BARGAIN.

Brewer No. 9A drain tile machine, fine condition, new gears.

Dies from 4 to 18 inches, inclusive.
Two Brewer No. 29 cutters, for two-foot lengths.

Brewer conical roll crusher, rolls new.

Rust clay feeder.
Two 16-foot clay conveyors, 18-inch belt.

Ten thousand feet one-inch steam pipe, headers and manifolds.

Pratt & Cady boiler, return trap.
12x16 Chandler & Taylor engine.

Two 56x16-inch Chandler & Taylor high-pressure boilers.

One new and the other has new flues and in fine condition, 110 pound. Hartford Insurance and Inspection in force.

Machinery in central Indiana, fine chance to get complete drain tile outfit cheap. Smoke nuisance causes us to dismantle plant. J. B. C.,
8 1 d Care Clay-Worker.

WESTERN AND PACIFIC COAST CLAYWORKERS ATTENTION

Clayworks engineering. Plans for common, face and paving brick, sewer pipe and pottery plants; for dryers; for up draft, down draft, continuous and other kilns. Clay deposits examined and tested. Machinery installed and operations supervised. Clayworkers, appliances, such as Engelhard pyrometers, Bristol recorders, draft gauges, watchman's clocks and others.

GEIJSBEEK ENGINEERING COMPANY,
Blake-McFall Bldg. Portland, Oregon.

Classified Advertisements—Continued.

WANTED, ETC.

WANTED.

New Haven horizontal brick machine. Address BOX 8—MAN, Care Clay-Worker.
8 1 d

WANTED—A practical dry press superintendent who has faith enough in himself to take a working, financial interest in the best face brick proposition in the West.

YANKEE HILL BRICK M'FG. CO.
8 1 d Burnham, Neb.

WANTED—POSITION.

By a successful superintendent. Would prefer making brick by contract, but would accept salary. Thoroughly conversant with all kinds of brick machinery—up-draft, down-draft and continuous kilns. Would lease or buy a small plant if terms could be arranged. Good references. Address

BOX 8—PROFITS,
8 1 cm Care Clay-Worker.

ATTENTION.

We have several new brick presses, one four-mold and two two-mold. Would be willing to take stock in high-grade plant for same. Can also furnish plans for best brick kilns in the market. Address

BOX 8—EXPERIENCE,
8 1 d Care Clay-Worker.

AN OPPORTUNITY.

Brick and terra cotta plant with five (5) kilns, at railroad station (with siding), forty-five miles from Philadelphia. Rent free for ten years to any responsible party who will make clay products; unlimited supply of clay on property half mile from works. Address

EDWIN F. MORSE,
S. W. Cor. 12th & Sansom Sts.,
7 3 cm Philadelphia, Pa.

AN OPPORTUNITY TO LEASE OR PURCHASE.

Plant for lease, suitable for manufacture of pottery, sanitary ware, faience or any ceramic specialty. Has good buildings and kilns, is located in the clay center of New Jersey, with plenty of skilled labor available; is convenient for raw materials and has excellent shipping facilities. To right party who presents a favorable proposition, together with satisfactory references and experience, owner might furnish necessary capital. To a capable faience expert this presents a favorable opportunity to get into the business with good backing. Address

J. A. G. ROOT,
1242 Pacific Street, Brooklyn, N. Y.
8 3 cm

See additional ads under Table of Contents.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

P. MITTLER,
Robbins, Tenn.

REBUILT ENGINES AND BOILERS.

ENGINES—CORLISS: 18x42 Lane & Bodley; 18x36 Ohio heavy duty, 16x42 Allis; 12x30 Lane & Bodley.

ENGINES—AUTOMATIC: 14½ x 24 Buckeye, 11x16x12 Buffalo Compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 10x12 Valley, 8x14 Noyes.

ENGINES—THROTTLING: 18x24 Atlas, 14x18 Sinker-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x13 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

BOILERS—STATIONARY: 72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x12, etc.

BOILERS—FIRE BOX: 100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h.p., etc.

BOILERS—VERTICAL: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 h.p., etc.

HEATERS—All sizes, open and closed.

PUMPS: All sizes, single and duplex.

ELECTRICAL: 30 k.w. generator, direct connected to 8x10 Skinner engine; 20 k.w. generator, direct connected to 8x10 Economic engine; 18 k.w. belted generator.

MISCELLANEOUS: Saw mills, lathe mills, edgers, cutoff saws, re-saws, blowers, exhaust fans, tanks, etc.

Write for list. Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS AND JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St. Cincinnati, Ohio.

MR. BRICKMAKER

I am prepared to furnish Blue Prints and Specifications for One of the Best

Down-Draft Kilns in the World.

This is not a new and untried affair, but one that has been thoroughly tested.

Blue prints and specifications sent by express cost you Ten Dollars.

Edward Van Antwerp,
Dent, Minn.

PATENTS

secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

Wuerz & Hillenbrand

Kiln & Chimney Builders and Designers

197 Havemeyer St.

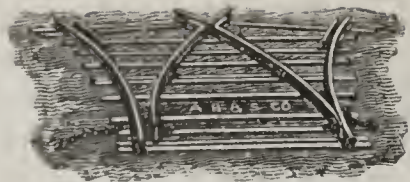
BROOKLYN, N. Y.

2 Kennebee Ave., Cleveland, O.



HELICOID SCREW CONVEYOR is heavier stronger and better made than any other. Requires fewer repairs—no lapped and riveted joints to come apart—flight all one piece. We are the only people who actually roll a continuous flight conveyor by either the hot or cold rolling process. All other steel conveyors have sectional flights. Our No. 34 Catalogue explains the difference. Elevating, Conveying and Power-Transmitting Machinery.

H. W. Caldwell & Son Co., 17th St. & Western Ave. Chicago
Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

Ricketson's PURE Colors

The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and



none like them for Brick, Mortar, Cement, etc. Red, Brown, Purple and Black.

RICKETSON MINERAL PAINT WORKS,

MILWAUKEE, WIS.

The Universal Turret Nozzle

The Most Efficient Device Known for Hydraulic Stripping

NO HOSE REQUIRED—Connected direct to pipe line from pump. Does not have to be staked down or anchored in any way.

Universal in movement, it has a greater range of delivery and greater "flexibility" than hose.

EASILY AND SAFELY OPERATED BY ONE MAN.

This nozzle will pay for itself in a short time by the saving of labor alone, to say nothing of the increased amount of material that can be moved, as against other methods of hydraulic stripping.

MADE IN VARIOUS SIZES.

Write us today for prices and full information.

The Universal Nozzle Company

502 Commercial Club Bldg.
INDIANAPOLIS, IND.



Mention the CLAY-WORKER,

WHEN WRITING TO ADVERTISERS

Mention the CLAY-Worker.



Hoffmann

KILNS

The **GENUINE HOFFMANN** Kiln Model 1907B

BURNS 1,000 BRICKS with 2 cwt. of smallest dusty coal.

90 to 100% of all bricks set are A1 colour.

It is cheaper than a number of Up or Down Draughts for Equal Output.

GUARANTEED SAVING: On Fuel 75%; on Labour 50%.

Total Saving about \$1 per M Bricks.

Pays back initial outlay in 12 months.

60 Years' Experience. 20,000 References.

Also Special Continuous GAS-FIRED KILNS for Pavers, Firebricks, Tiles, Pottery, Lime, Arc Carbons, Emery Wheels, etc.

HOFFMANN CONSTRUCTION CO., Finsbury Pavement House,
London, E. C., England.

Mention THE CLAY-WORKER.

Chicago Retort & Fire Brick Co.

"AJAX"
**Fire Brick for
Building Kilns**

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.,
CHICAGO, ILL.

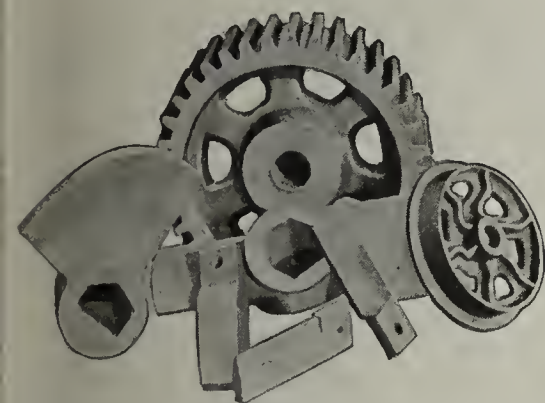
'Phone
Randolph 3601.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
SIZE SHAPE

Write Us **Evans & Howard Fire Brick Co.**
Now St. Louis, Mo.



Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent
shut downs.

Let us refer you to other users.

The Wallace Machine and Foundry Co.
LAFAYETTE, IND.

DESIRABLE CLAYWORKING PLANT On Southern Railway

Favorably located, with good clay deposit nearby.

Owner Of Plant Will Sell

Either all or part of his interest. Capacity, 5 to 10 Carloads Daily of Brick
And Two or Three Cars of Coal Which is Mined With the Clay.

Excellent Opportunity for Man With Money.

Clayworkers Should Investigate This Proposition.

Refer to File No. 9102, and write

M. V. RICHARDS,

Land and Industrial Agent, Southern Railway
1369 Pennsylvania Avenue, Washington, D. C.

or

Chas. S. Chase, Western Agent,
Room 700 Chemical Bldg., St Louis, Mo.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for
practical and theoretical instruction in the
clayworking industries. Two courses have
been provided: the regular course of four
years; a short course of two years, designed for
the young man who has had practical experi-
ence in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete
courses in all of the usual engineering branches.
It is prepared to offer especially fine facilities for
the study of the clay industry in its department
of Ceramic Engineering.

This department, located in a large new
building, is entering upon its 15th year. Sub-
stantial additions to its equipment are now in
process. Its laboratories and equipment are the
most complete in the country. It offers regular
courses in the technology of clayworking, glass
and cement manufacture, and an opportunity for
a limited amount of special study in these and
similar fields.

Tuition is free. Laboratory fees are low. Liv-
ing expenses moderate. The corps of instructors
is composed of specialists who have had good
practical experience.

For information or catalog address
PROFESSOR EDWARD ORTON, JR.,
Director of Department of Ceramic Engineering,
Columbus, Ohio.

Kilns Driers Processes

JULIUS J. KOCH

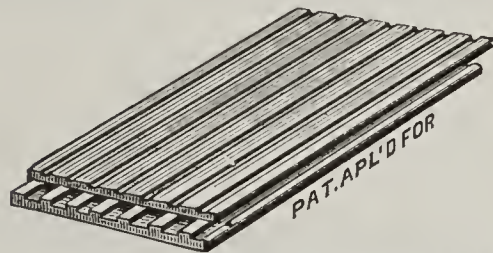
Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for
Interlocking Tiles, Dies for all shapes,
Hips, etc., in metal or plaster.

Special Roller and Auger Presses for
Shingles, Interlocking Spanish Tiles, Au-
tomatic Shingle Cutting and Punching
Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capa-
city and horse power, stiff mud brick
and hollow block dies, dry press liners.

MUELLER BROS.,
1436 Macklind Avenue, on Frisco Tracks,
ST. LOUIS, MO.

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

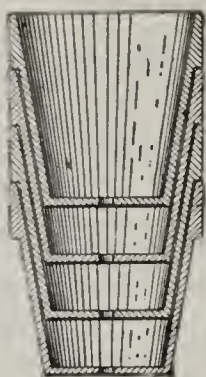
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

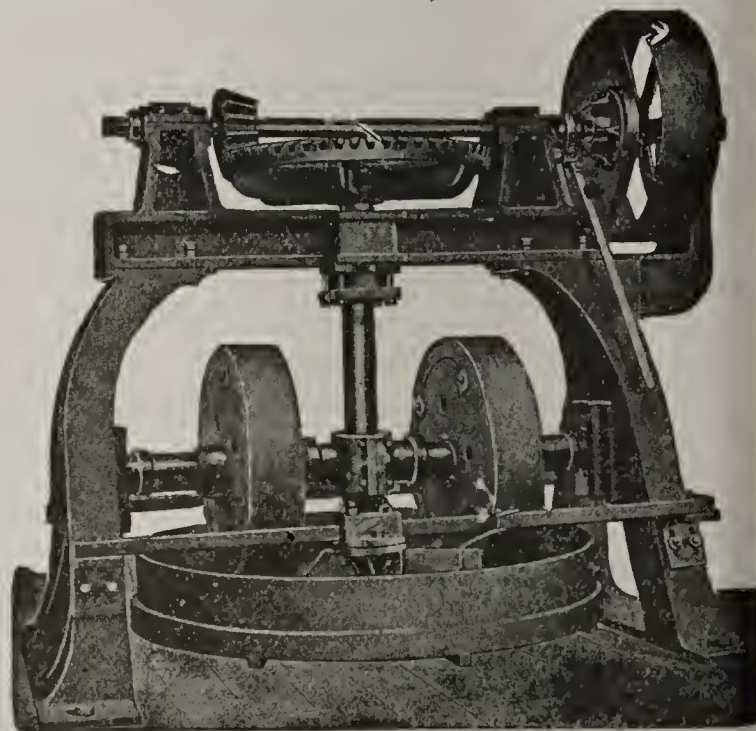
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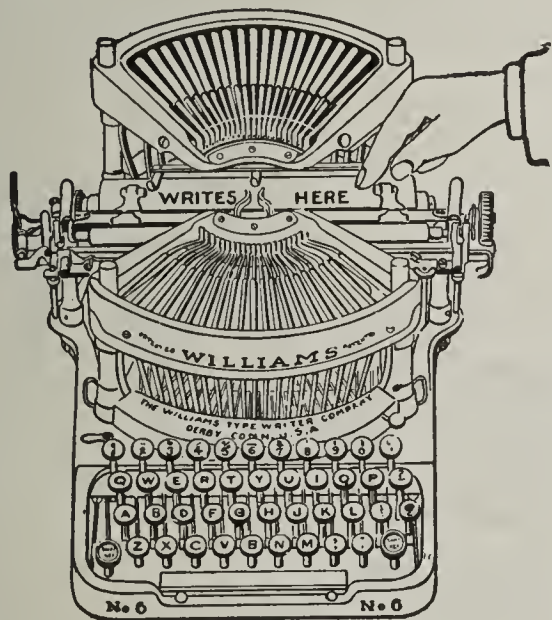
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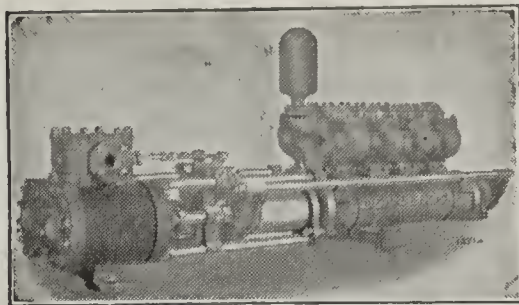
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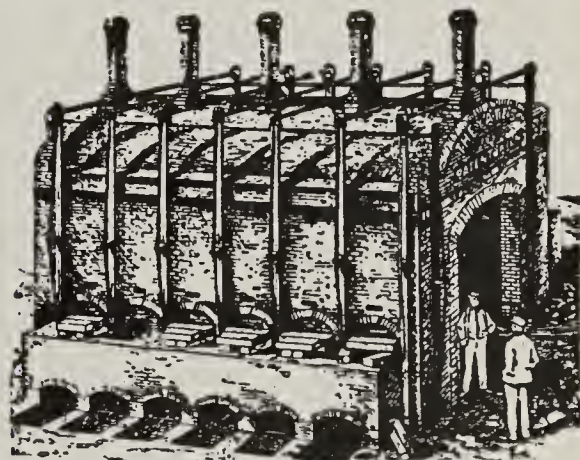
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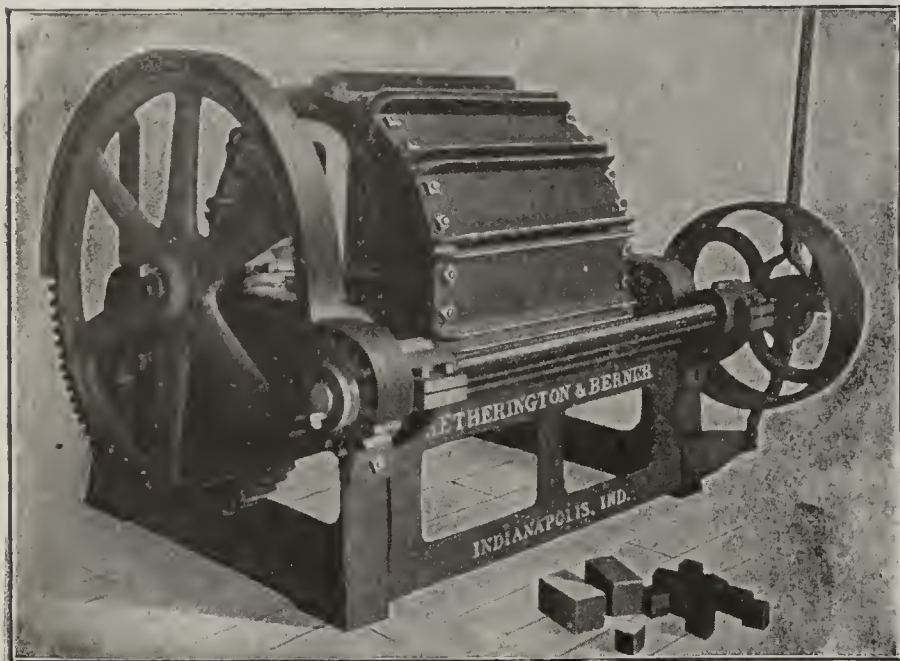
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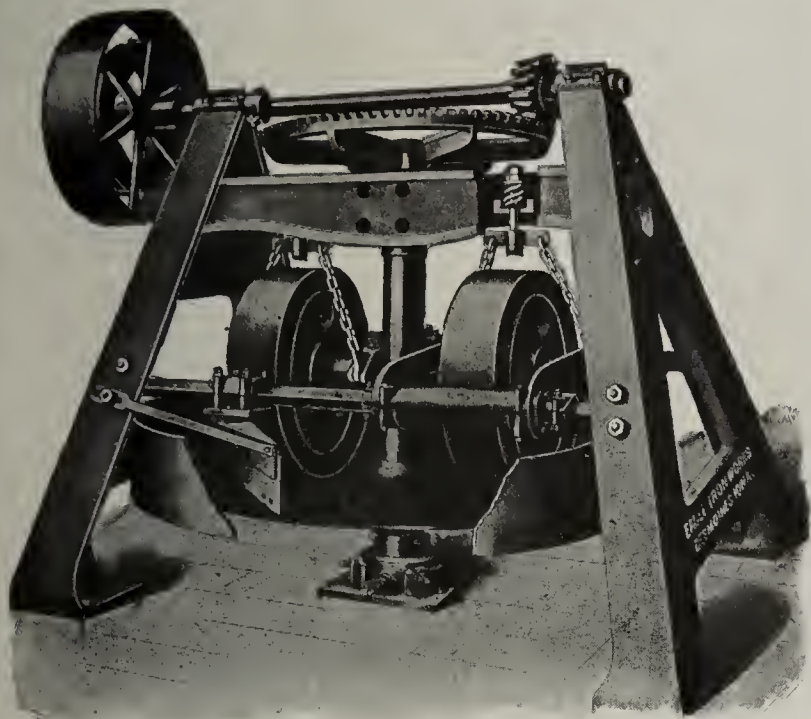
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N. Y. State University.
Ohio State University.
Richardson-Lovejoy Engr. Co.

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Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

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Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

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Main Belting Co.
Sawyer Belting Co.

Belt Conveyors.

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Brewer & Co., H.
Caldwell & Sons Co., H. W.
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Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

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Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

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Morehead Mfg. Co.

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Bolivar Face Brick Co.
Fiske & Co., Inc.
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Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

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Evans & Howard Fire Brick Co.

Brick (Paving).

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Clinton Paving Brick Co.
Danville Brick Co., The
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Vitriified Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

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Brick Machines (Soft Mud).

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Hensley, J. W.
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Raymond Co., The C. W.
Scott-Madden Iron Works Co.
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Brick Machines (Stiff Mud).

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Raymond Co., The C. W.

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American Clay Machinery Co.

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American Clay Machinery Co.

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Boss, John C.
Buhner, Jacob.
Dennis, F. W.
Haigh, H.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
King, E. A.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dump Cars.)

Castings.

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Caldwell & Sons Co., H. W.
Chambers Bros. Co.
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Koch, J. J.
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Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

Clay Gatherers.

(See Scrapers.)

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American Clay Machinery Co.
Raymond Co., The C. W.

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Koch, J. J.
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Ricketson Mineral Paint Co.
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Williams & Co., C. K.

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Orton, Edward, Jr.

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Freese & Co., E. M.
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Potts & Co., C. & A.
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Taplin, Rice-Clerkin Co.

Couplings.

(See Supplies.)

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Dennis, F. W.
Haigh, H.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hillenbrand.
Vogt, Anton.

Cutting Tables (Brick & Tile).

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Ceramic Supply & Con. Co.
E. M. Freese & Co.
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Raymond Co., The C. W.

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(See Supplies.)

Dies.

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Drain Tile Machinery.

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Trautwein Dryer & Engr. Co.

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Stevenson Co., The
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Ohio Ceramic Engineering Co.
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(See Conveyors.)

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Hoists.

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Wallace Mfg. Co.

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Evens & Howard Fire Brick Co.

Jacks.

(See Supplies.)

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Boss, J. C.
Buhner, Jacob.
Chisholm, Boyd & White Co.
Dennis, F. W.
Haigh, H.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
King, E. A.
Manufacturers Equipment Co.
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Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vogt, Anton.
Yates, Alfred.

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(See Supplies.)

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

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Kiln Irons.

(See Supplies.)

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

(See Supplies.)

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.
Milwaukee Locomotive Mfg. Co.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
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Mortar Colors.

(See Coloring Materials.)

Nozzles for Hydraulic Stripping.

Universal Nozzle Co.

Oil Burners.

Ill. Supply & Constr. Co.
Tate Jones Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Pans (dry and wet).

(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson and Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Plows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Rockwood Mfg. Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin Rice Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdry and Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese and Co., E. M.
Hensley, J. W.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

American Pulverizer Co.
Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.

Pumps.

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Richardson Lovejoy Engr. Co.
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Davenport Locomotive Works.
Milwaukee Locomotive Mfg. Co.
Ohio Ceramic Engineering Co.
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Brown Instrument Co.
Ceramic Supply & Constr. Co.
Richardson Lovejoy Engr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Richardson-Lovejoy Engr. Co.

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Marion Steam Shovel Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

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American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
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Raymond Co., The C. W.
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New Jersey State School.
New York State School.
Ohio State University.

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Arbuckle and Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott Madden Iron Works.

Screens.

American Clay Machinery Co.
American Pulverizer Co.
Arbuckle & Co.
H. Brewer & Co.
Bonnot Co., The
Ceramic Supply & Constr. Co.
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Dunlap Mfg. Co.
E. M. Freese & Co.
Harrington & King Perf. Metal Co.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
The Stevenson Co.

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Evens & Howard Fire Brick Co.

Sewer Pipe Machinery.

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Arbuckle & Co.
Brewer & Co., H.
Taplin Rice Clerkin Co.
Scott Madden Iron Works Co.
Stevenson, Co., The.

Steam Gauges.

(See Supplies.)

Steam Shovels.

Marion Steam Shovel Co.
Scott-Madden Iron Works.
Thew Auto. Steam Shovel Co.

Steam Specialties.

Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
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Steel Pallets.

Ohio Galvanizing Co.
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Anderson Fdry. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
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Caldwell & Sons Co., H. & W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd and White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
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Martin Brick Mach. Mfg. Co., H.
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Rodgers Engr. Co., The L. E.

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Anderson Fry. & Mach. Works.
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Fate Co., The J. D.
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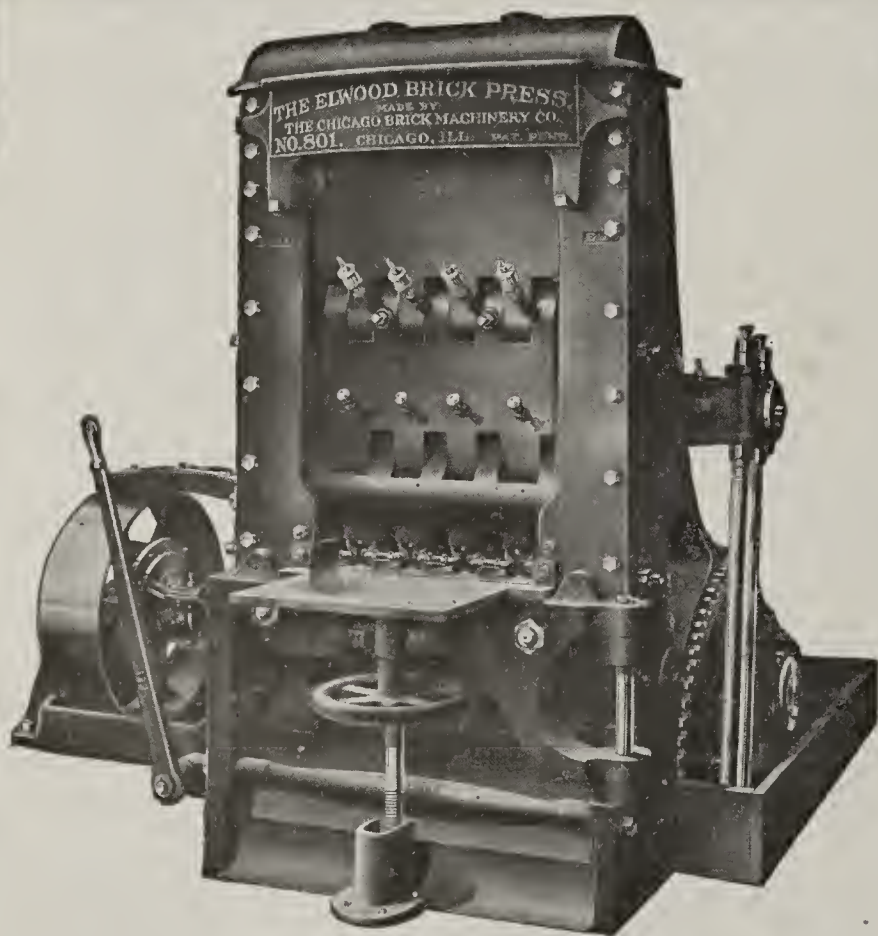
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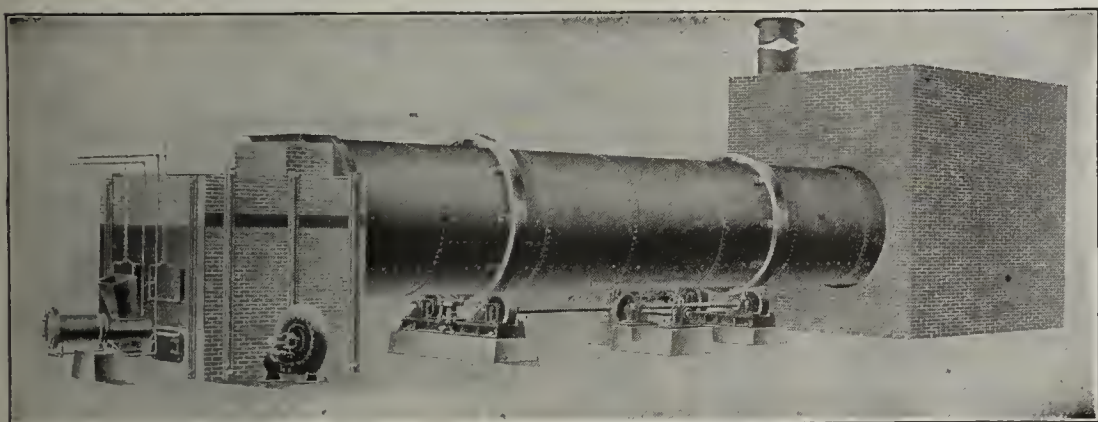
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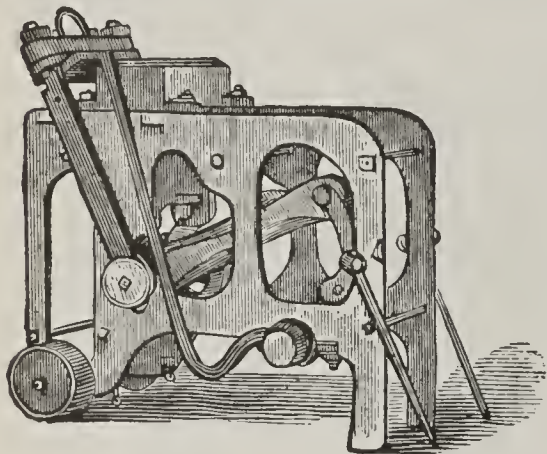
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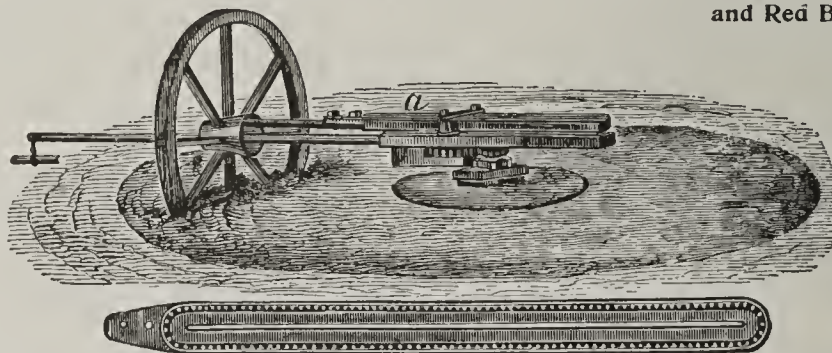


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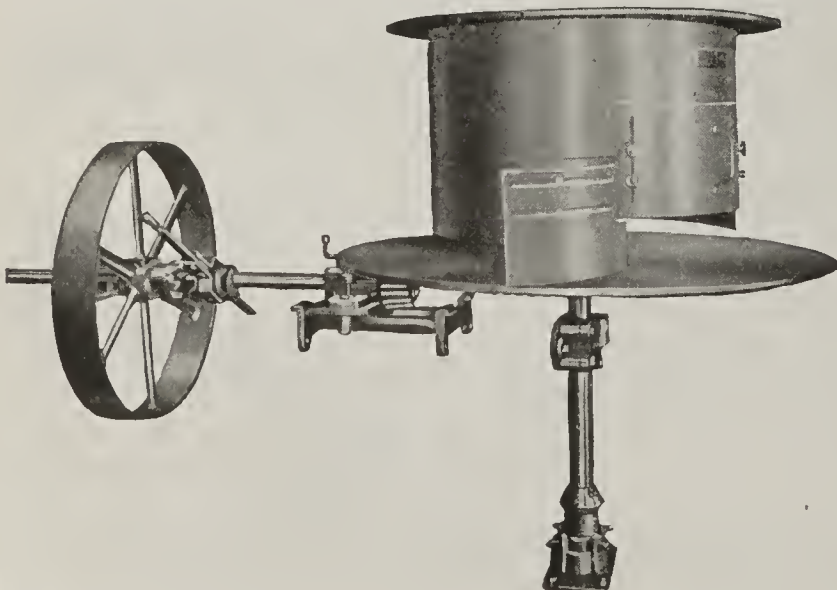
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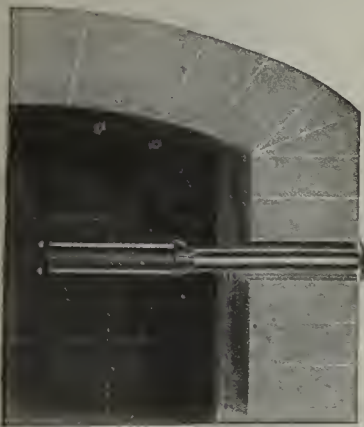
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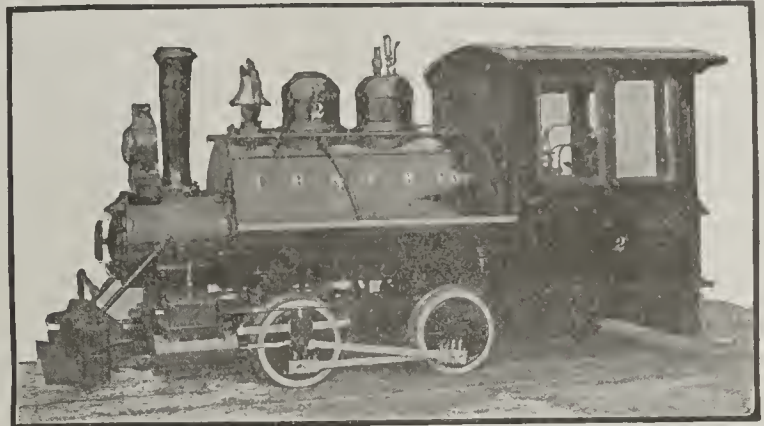
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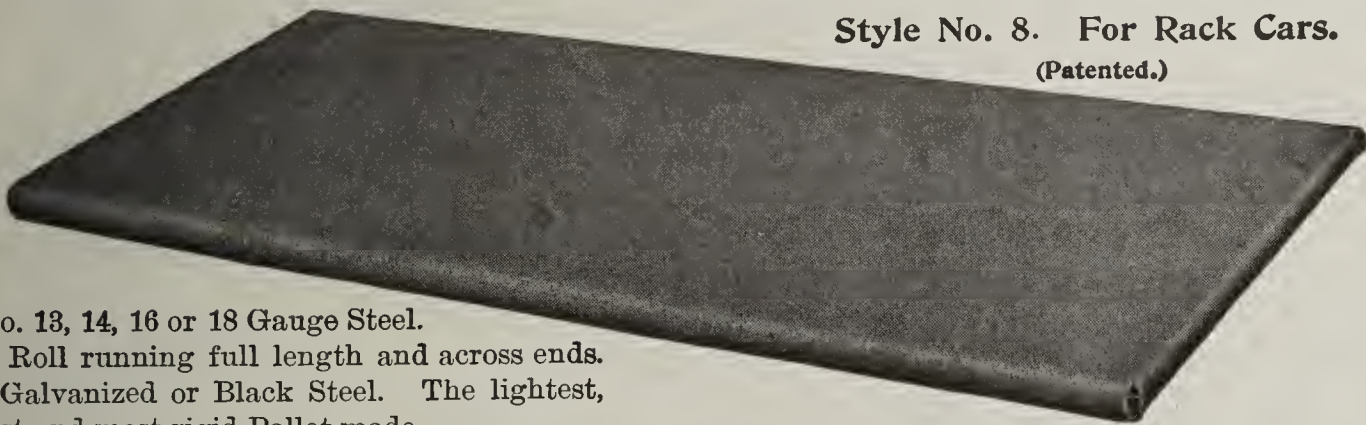
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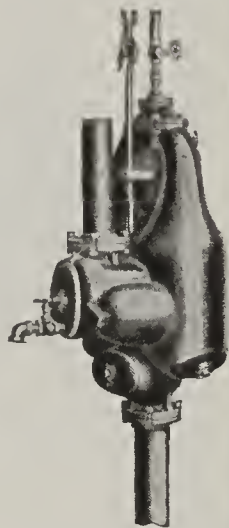
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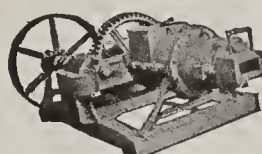
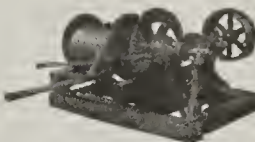
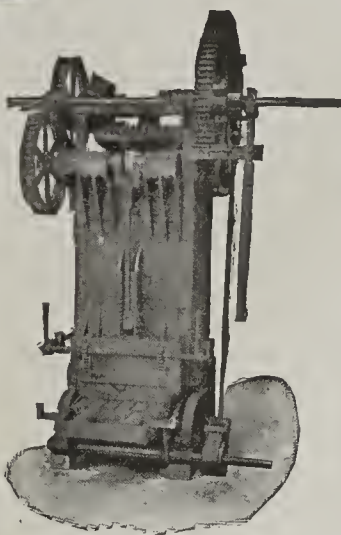
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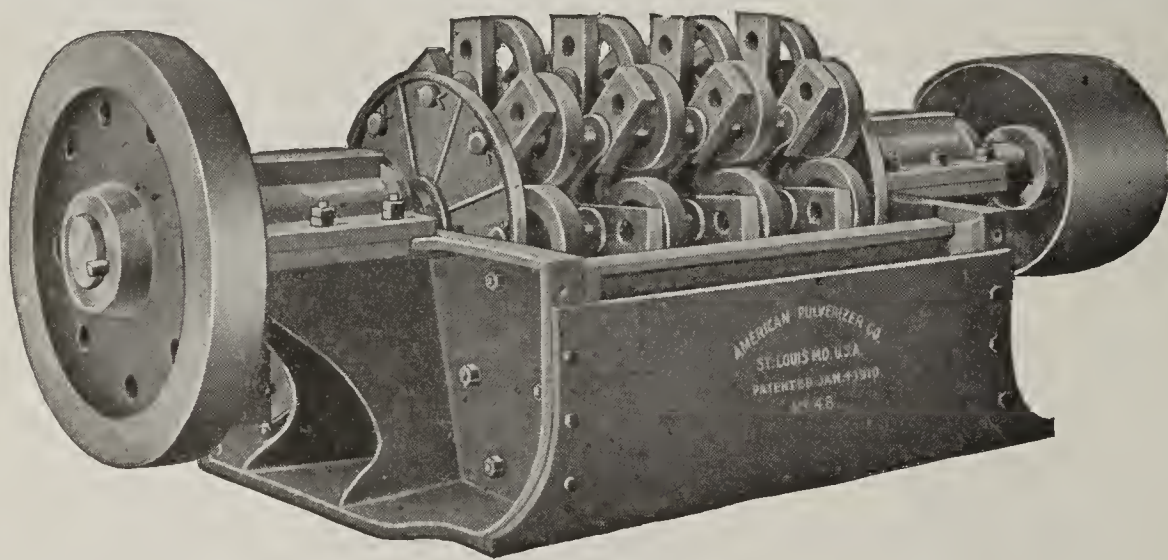
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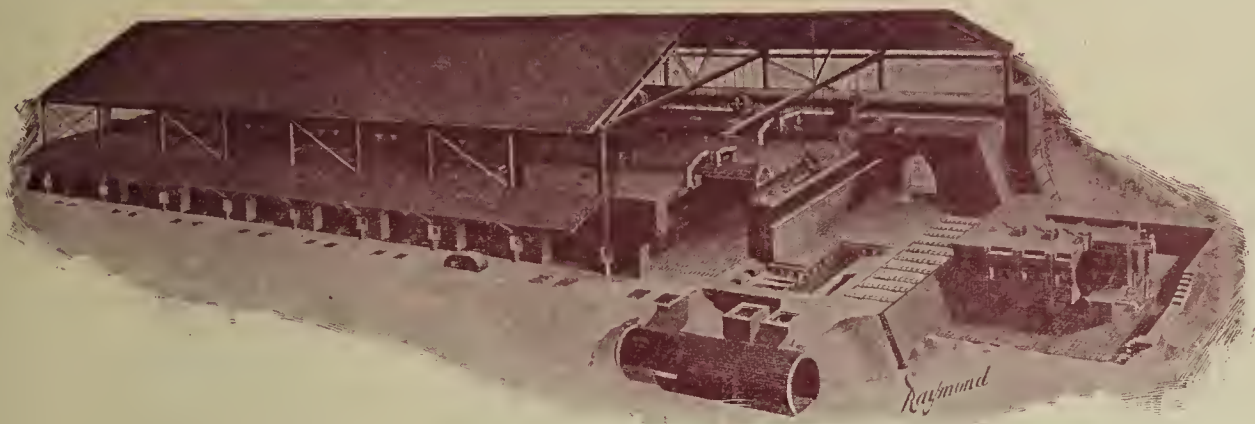
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ST. LOUIS, MO.

The Youngren Continuous Kiln Producer Gas Fired



OUR NUMEROUS installations of the YOUNGREN KILN are giving splendid results. On the strength of the proven results, we are now constructing these kilns in all parts of the United States. A saving of 60% of the cost of burning, combined with absolute uniformity of burn and minimum kiln losses makes this Kiln an absolute necessity to the up-to-date clayworker.

It is built in two types—COMPARTMENT or TUNNEL, and is successfully burning all classes of clay and all the principal products.

Literature fully covering the Youngren Kiln will be mailed on receipt of your request.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

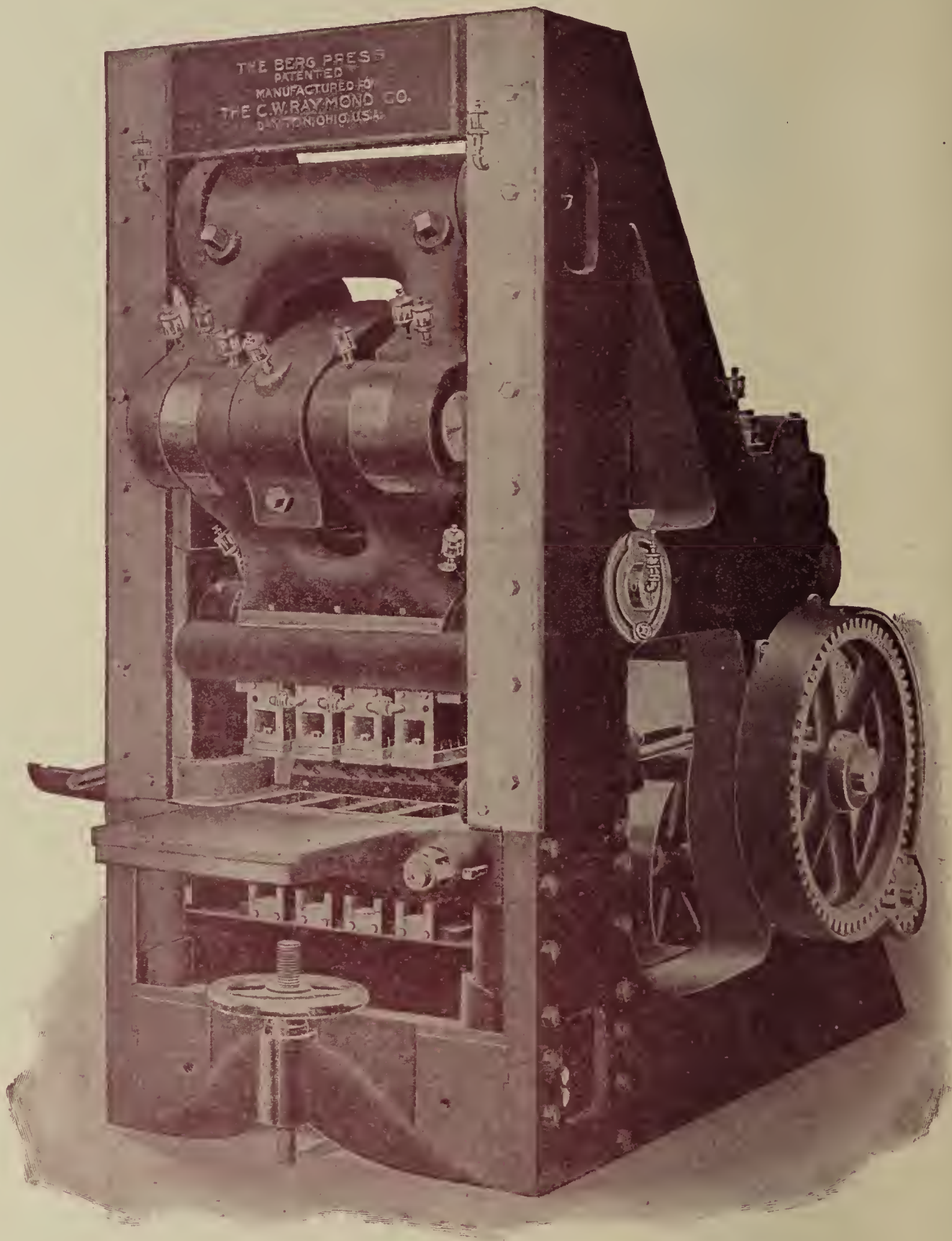
The Berg Dry Press

The New Model Berg Press is the acme of dry press construction. Stronger than ever, yet simple in its massiveness, it stands farther in advance of all other machines of this type than ever before.

Consider These Points:

- (1) Greater pressure and fewer working and wearing points than any other machine.
- (2) Brick with granulated surfaces absolutely impossible.
- (3) Self-contained—No out-board bearing.
- (4) All working parts above clay line.
- (5) Instantaneous adjustment, to take up wear of plungers, close to operator's hand.
- (6) Each press shipped complete in one piece.

Our Exhibit No. 2111
gives complete
details.



THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery
Dayton, Ohio, U. S. A.

THE RAYMOND "777" BRICK MACHINE

AND

THE RAYMOND No. 2 AUTOMATIC CUTTING TABLE

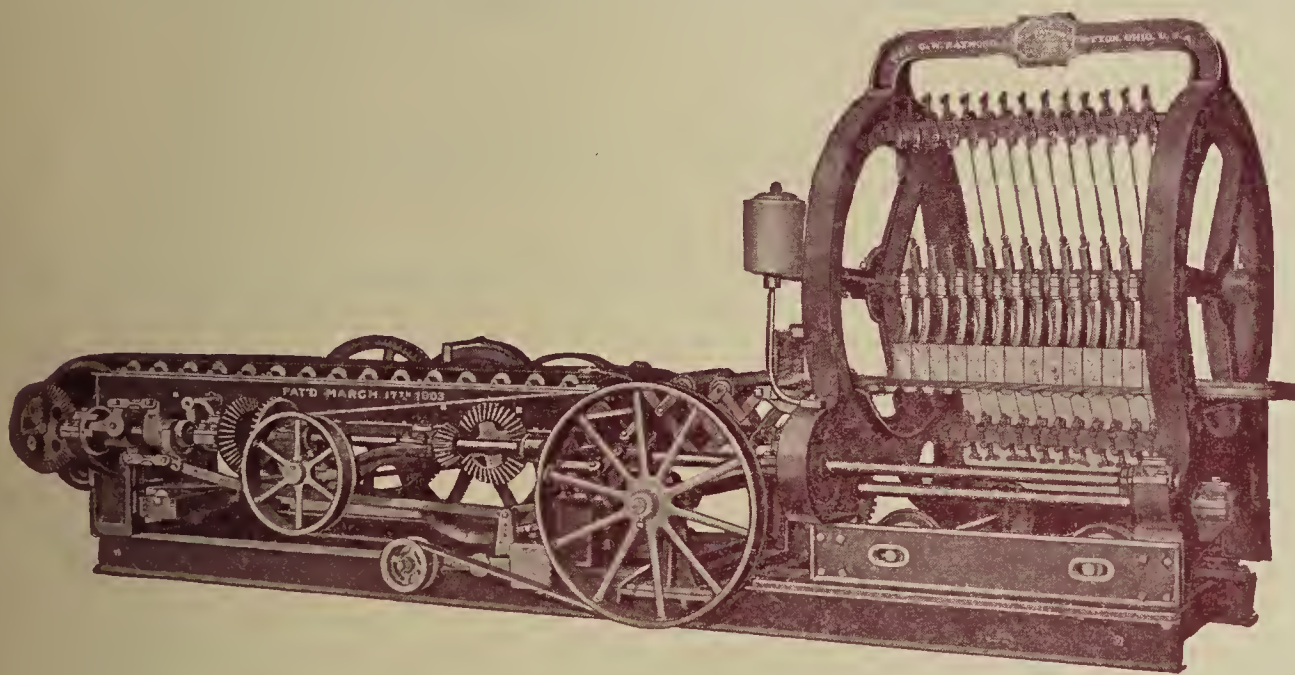
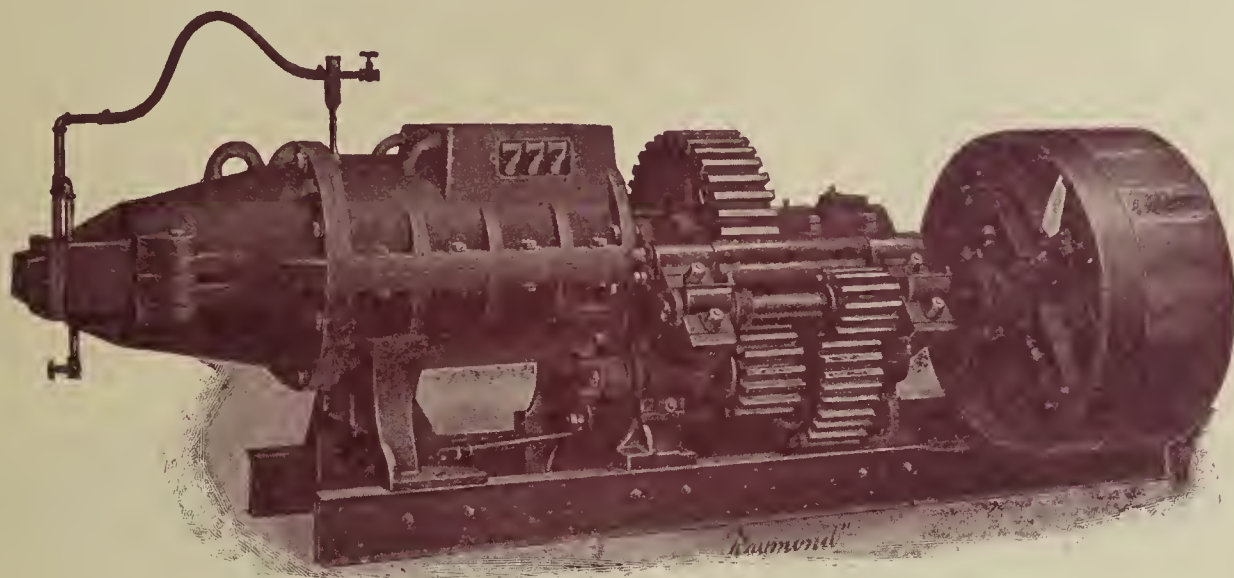
Our "777" is a brick machine of unapproached record. It will make more brick and better brick than any other machine of equal rated capacity.

Entirely self-contained and every part "Get-at-able."

A product of the best Engineering skill, it contains every desirable feature known to the modern clayworking machinery builder. Its capacity is 40,000 to 60,000 standard size brick per ten hours.

Our No. 2 Automatic Cutting Table is a step in advance of all other

machines on the market to-day. Working parts reduced to a minimum. The continuous motion of the reel makes it free from rack and jar. Its capacity is limited only by the brick machine.



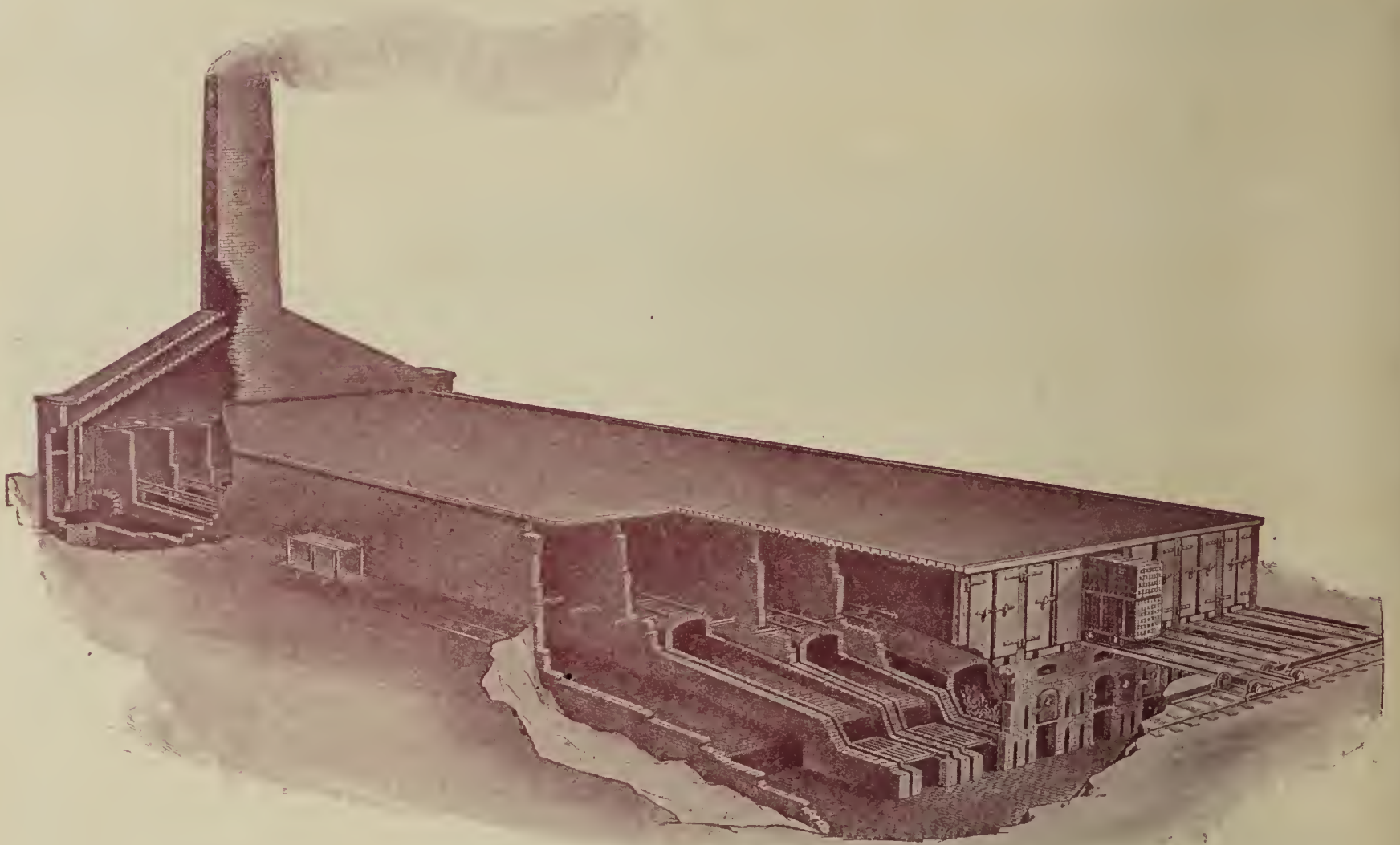
Our Exhibits explain these machines fully.

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The Raymond Radiated Heat Dryer



Are You Having Drying Troubles?

The Raymond Systems of drying clay products have been a boon to the clayworker with drying troubles.

Our Raymond Radiated Heat Dryer is simplicity itself—no fan or engine troubles—temperature and air circulation in each tunnel under absolute and separate control. Ware only in contact with pure air. Cars never in contact with gases or acids. Fuel cost per ton of dried ware less than in any other dryer.

The tenderest clays can be dried without injury, and the same successful results are obtained with every description of clay ware.

Exhibit sheets covering our Drying Systems sent upon request.

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NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



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THE CLAY=WORKER, INDIANAPOLIS, INDIANA.

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A SUCCESSFUL DRYER

Does not by any means consist solely of embodying in a structure the required amount of building material and iron work and providing tunnels or other means for enabling the cars of bricks to pass through so as to come into contact with the heat. With such a structure, however, properly designed and back of it a thorough knowledge of the art of drying clay products and a perfect understanding of the air movements, humidity, and temperature regulated to suit any and all conditions, we have a successful, progressive dryer; and in no other are these merits more pronounced than in



The Justice Radiated Heat Dryer

This dryer is the culmination of a quarter of a century of study of drying problems, and it is not an idle boast when we say that there is absolutely nothing as good in the dryer line as "THE JUSTICE RADIATED HEAT DRYER." If you will kindly drop us a line if interested, we will send our Bulletin No. 1, telling of the many meritorious features of this dryer and will further show how its installation means economy both in cost of construction as well as operation.

THE MANUFACTURERS EQUIPMENT COMPANY

Sales Agents for

The J. D. Fate Co.'s Complete Line of Clayworking Equipment
The Joplin Rock Crusher The Elwood Dry Press

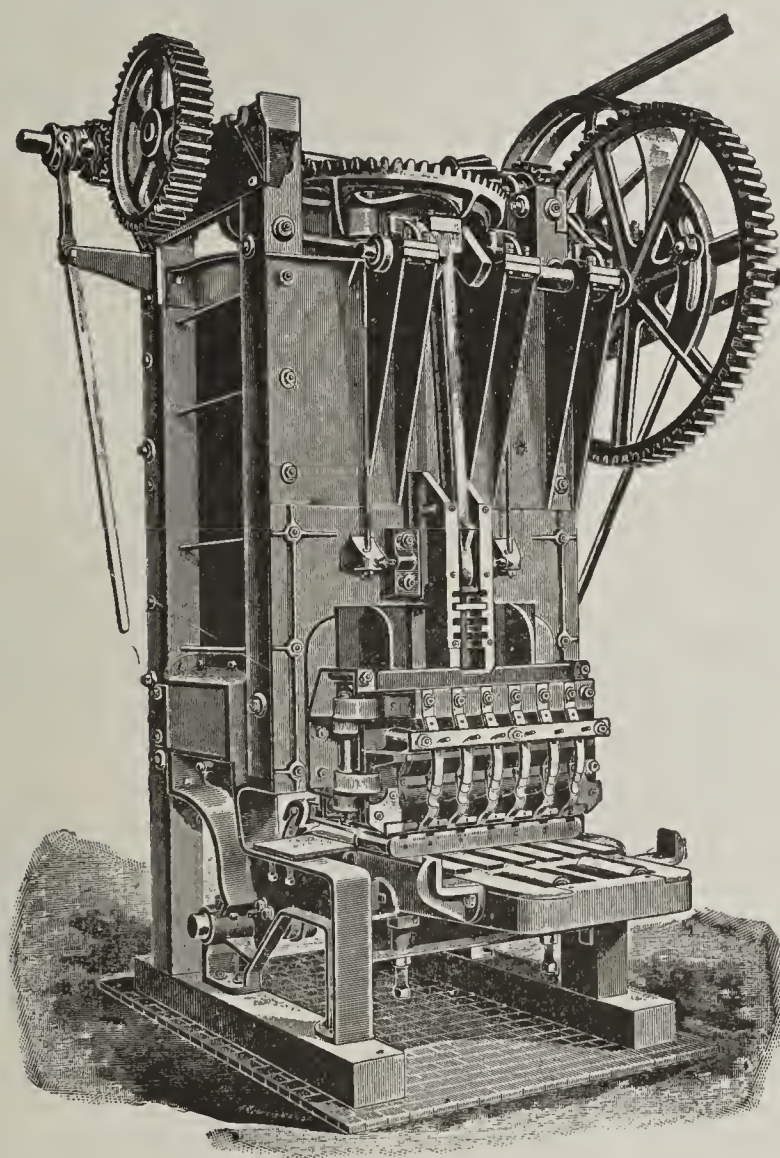
Dayton, Ohio, U. S. A.

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DO YOU KNOW

that more than eighty-five per cent of all the brick made in New England today are made on the New Haven Brick Machines made at New Haven, Conn.?

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and a good
Line of
Testimonial
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the Asking.



We will be
Glad to Tell
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"New Haven" Vertical Brick Machine.

We have made a good reputation for our New Haven Soft Mud Machines, and the Machines live up to that reputation, turning out Good brick day in and out, week in and week out, year in and year out, without breaking down. Repair bills reduced to a minimum. Brickmakers who buy of us get their money's worth.

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NEW HAVEN, CONN.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

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A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

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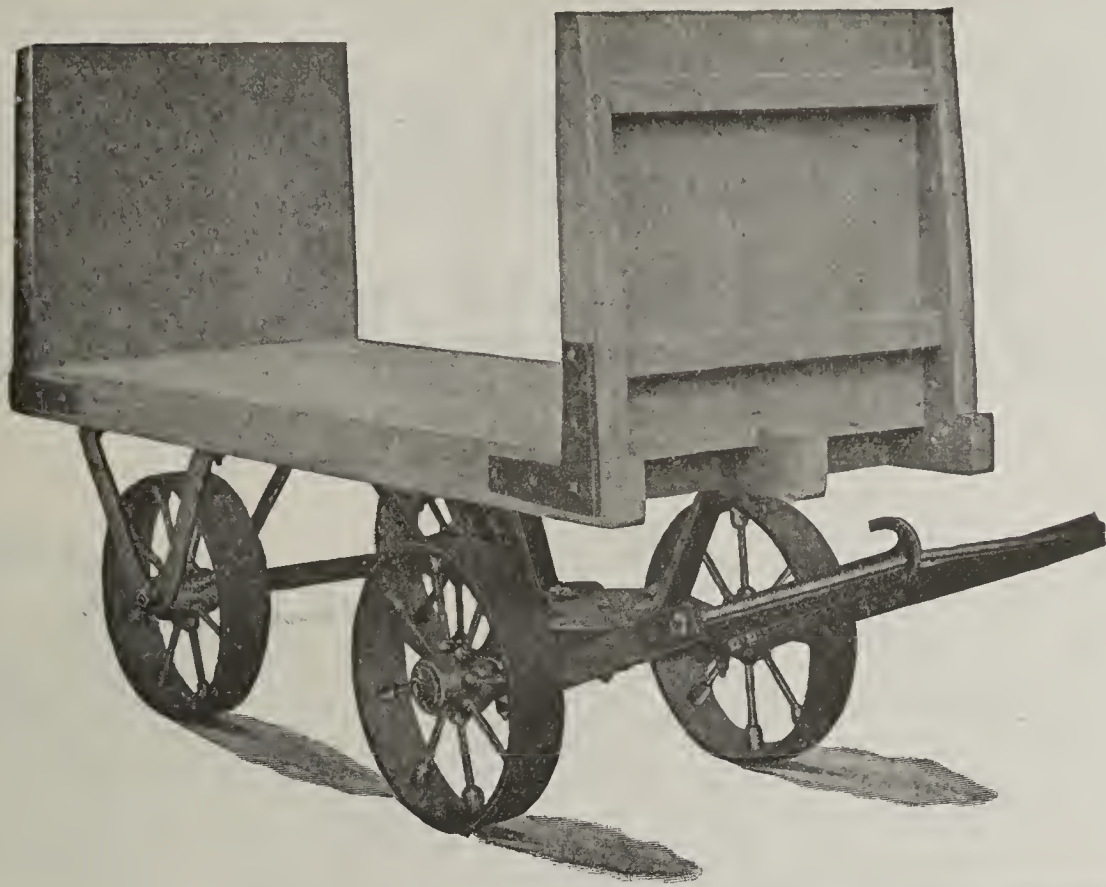
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T. A. RANDALL & CO.,
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Wheel your
Brick on
Mule Trucks.
Many yards are
doing it.

We have just
equipped an Ohio
plant with 7 of
these Trucks.

Try a Set of
Three.



Heavy Wheels
18 in. x 4 in.

Size of bed
68 in. x 30 in.

Ends 26 in. high.

Heavy, durable
Fifth wheel.

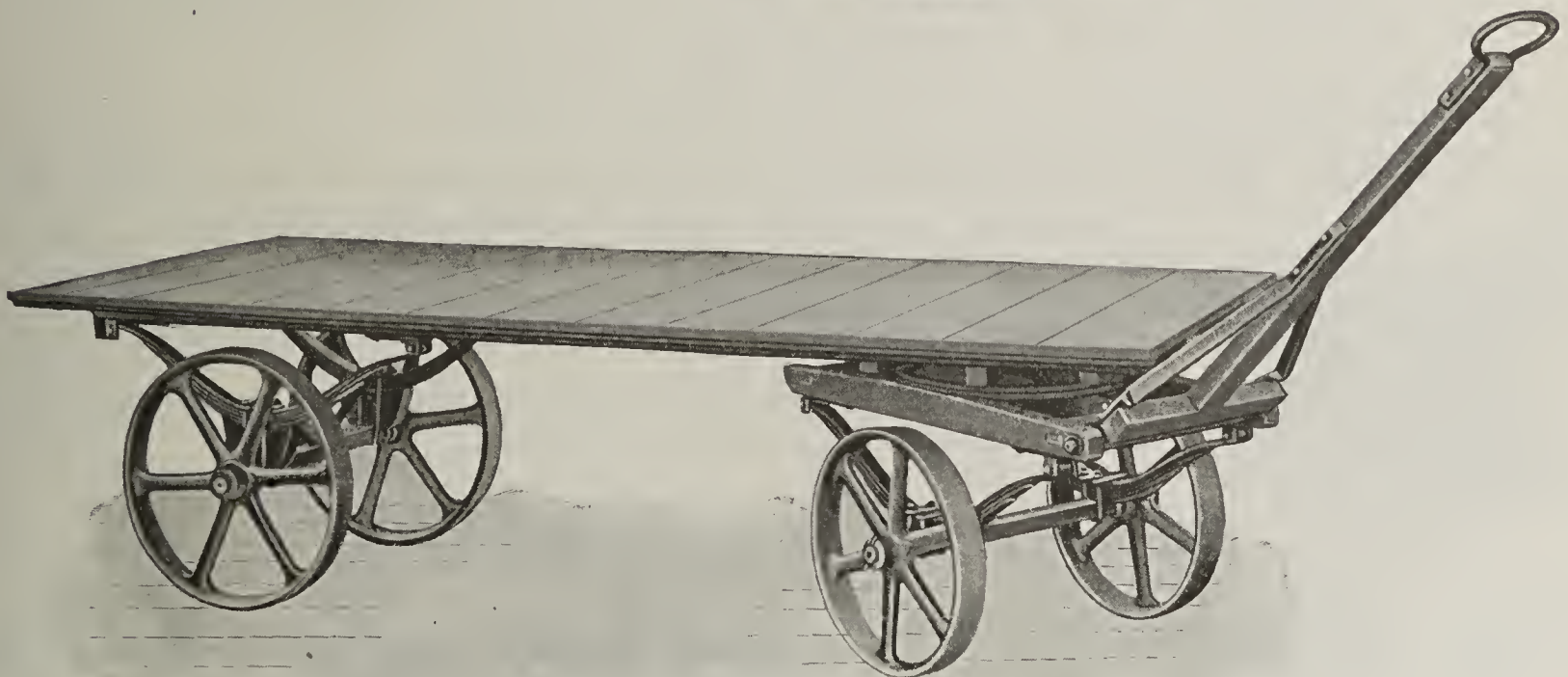
Made with
One or
Two
Wheels.

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or
Wood
Block
Bearing.



Brick-
makers
in every
Section
of the
United
States
Are
Using
Hundreds
of our
Double
Deck
Pallet
Trucks.

Twenty-
four
of these
Four-
Wheel
Tile
Wagons
in one
Recent
Shipment
to the
Far
West.



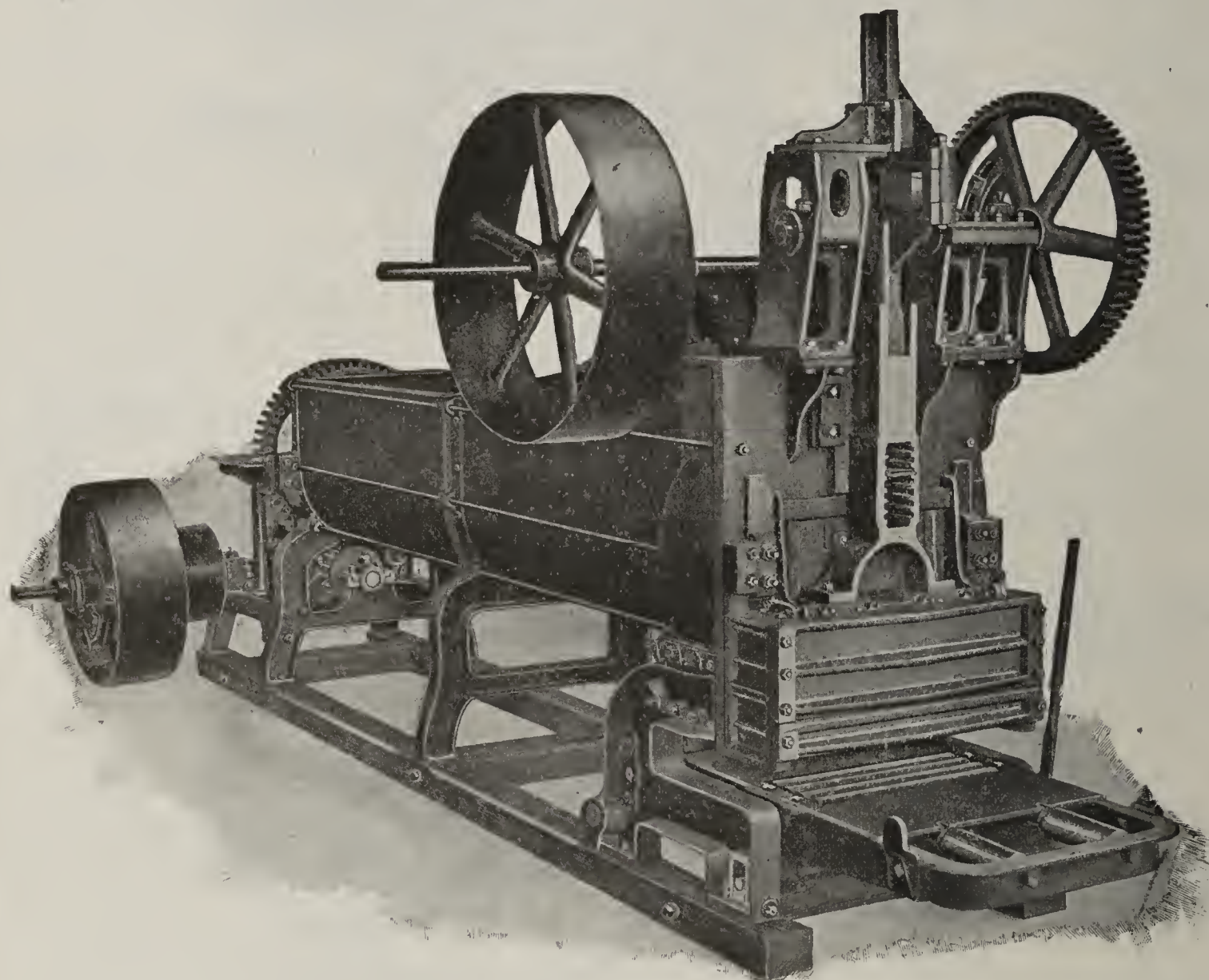
Platform
96 in. x
38 in.

26 in. from
the
Floor.

Substan-
tial
Fifth
Wheel.

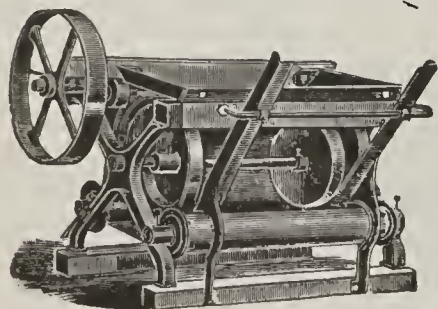
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The Potts Sand Mold Horizontal Machine



THE ONLY MACHINE HAVING CAST STEEL GEAR
THE BEST CONSTRUCTED MACHINE MADE

A machine well built, of the best material, by skilled workmen. You cannot make a mistake in purchasing this machine. It cannot be equaled for quality and quantity of brick made. It will run steadily every day, making a given number of brick with little or no cost of maintenance.



POTTS MOLD SANDER

We manufacture the most complete line of SAND MOLD machinery, and are prepared to erect modern and up-to-date plants of any desired capacity, guaranteeing results.

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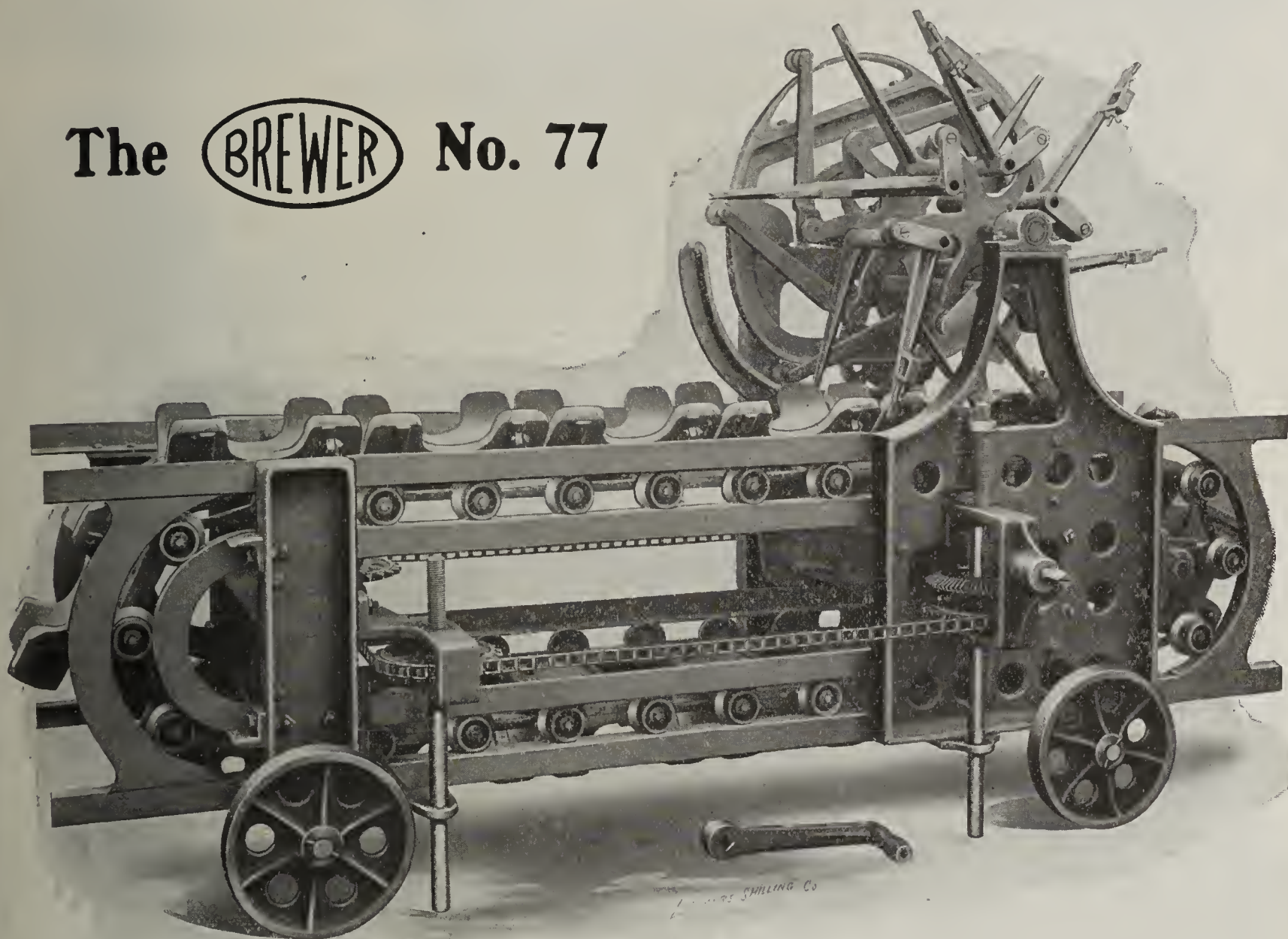
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Automatic Drain Tile Cutters

The **BREWER** No. 77



ADVANTAGES

No guide arms connected with the moving chain of carriers which interfere with the rapid removal of the ware.

Quick elevating and lowering device for adjusting height when changing sizes. Mounted on wheels, easily moved to and from its position in front of the machine.

Cutting reel and chain of carriers geared together—cannot get out of time. Wear confined to parts easily replaced.

A HIGH GRADE MACHINE IN DESIGN, CONSTRUCTION AND RESULTS.

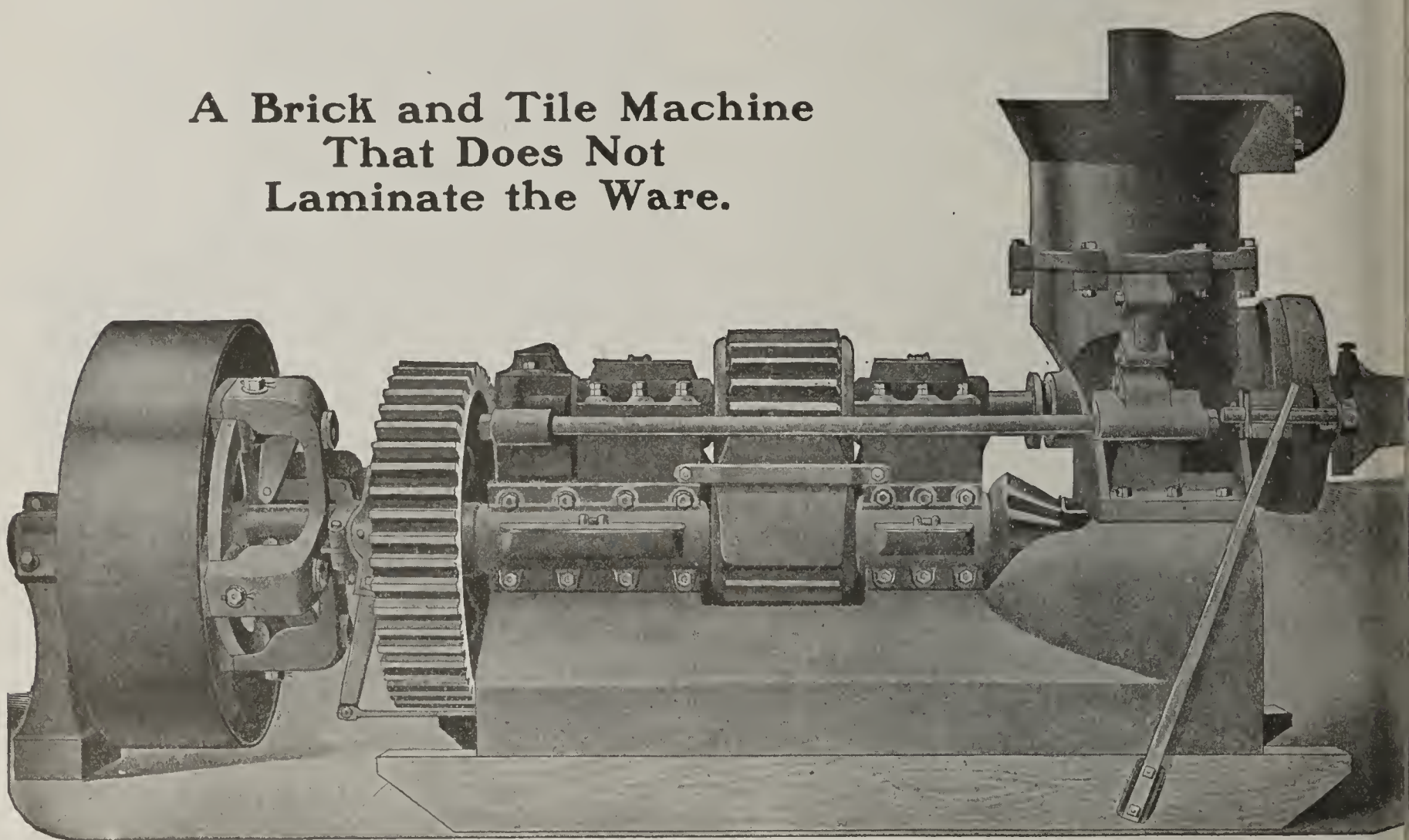
H. BREWER & COMPANY, Tecumseh, Mich.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

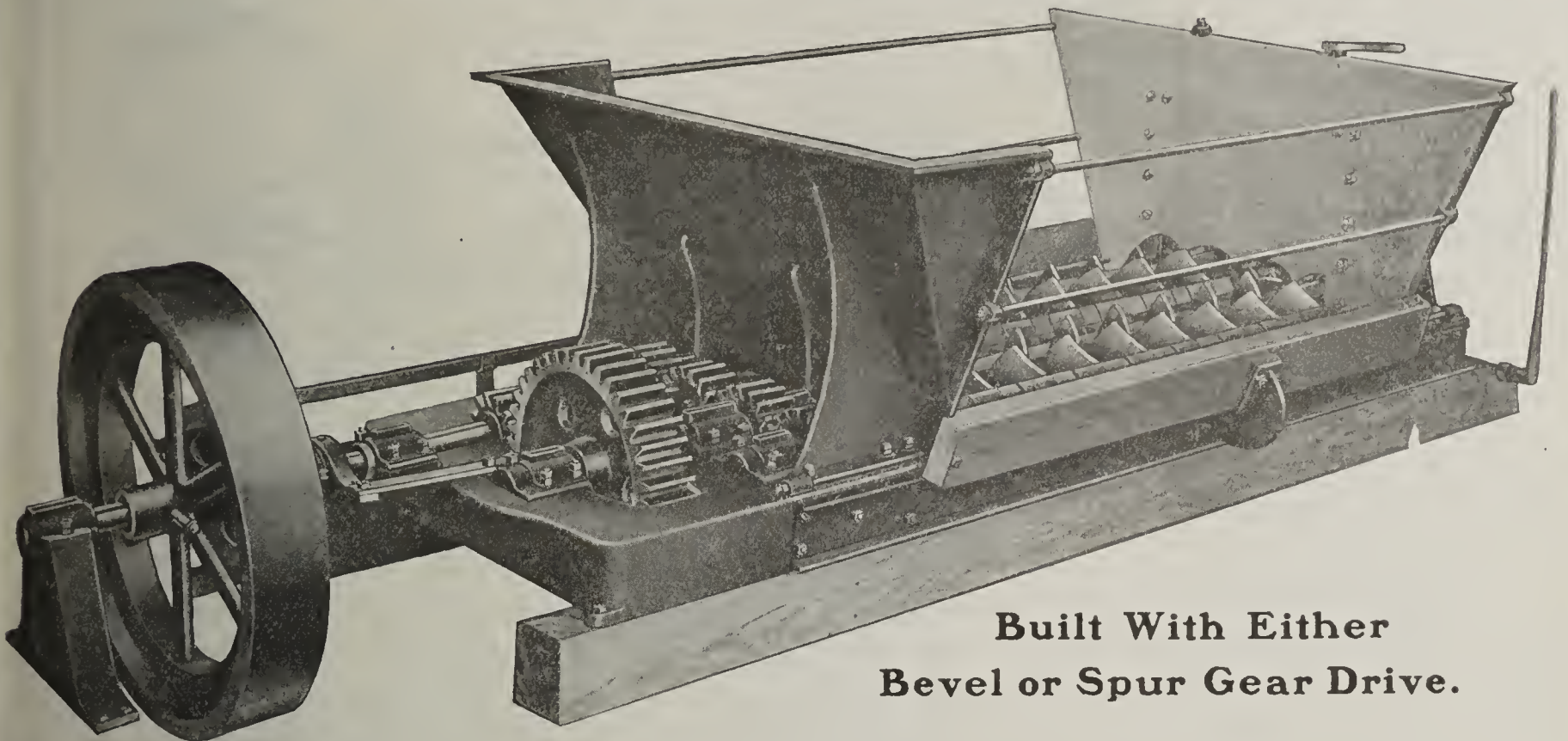
We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

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THE ARBUCKLE GRANULATING CLAY FEEDER.

A Great Addition to the MADDEN Line.

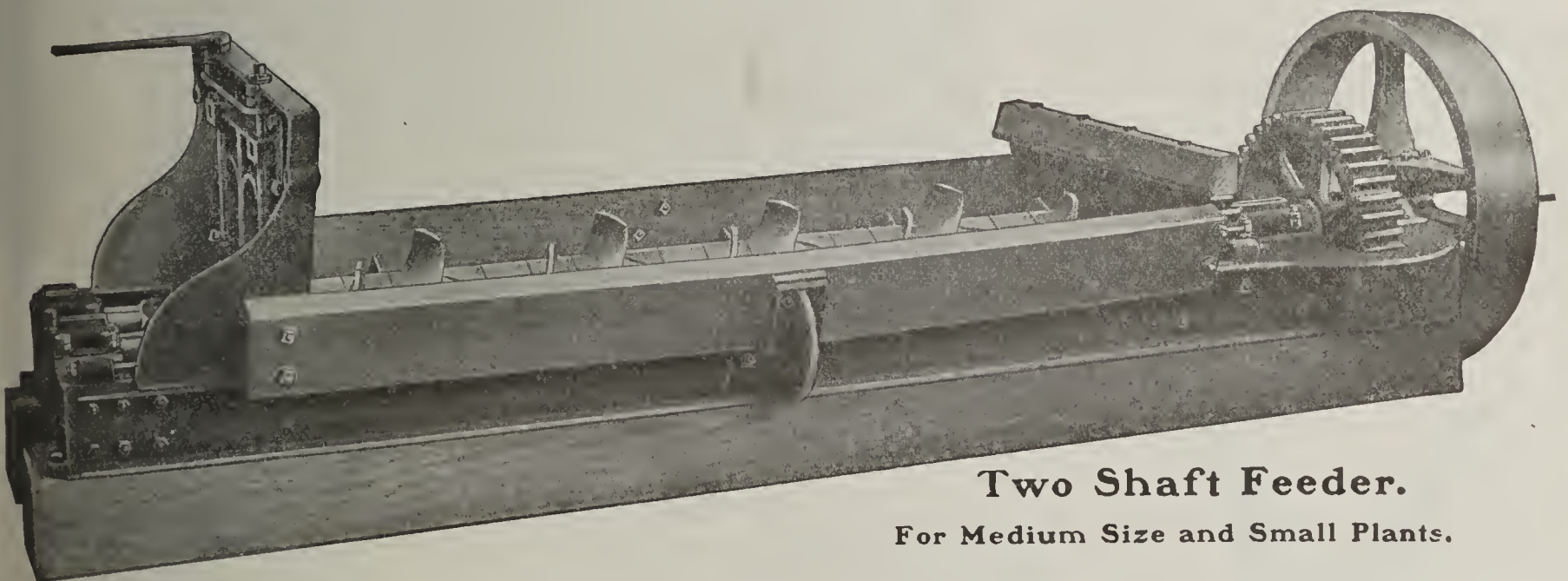


**Built With Either
Bevel or Spur Gear Drive.**

This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



Two Shaft Feeder.

For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 10,000 to 12,000 four-inch tile per day, or 15,000 to 18,000 brick, and will pug the clay up in fine shape.

Note the heavy Gears, Granulating Knives. Hopper can be built up to any height, and it will feed the clay just as you want it.

It is low in price, and no plant can afford to do without one. Write for prices.

Builders of
Madden Machinery.

ARBUCKLE & CO., Rushville, Ind.

Sold by Scott-Madden Iron Works Co., Keokuk, Iowa.

The C.-W. Vest Pocket Kit

The
Handiest
Combination
Ever
Invented

18 TOOLS IN ONE.



AN ARTICLE OF REAL MERIT.
CAN BE USED IN A THOUSAND WAYS
AROUND THE HOME AND OFFICE.

This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

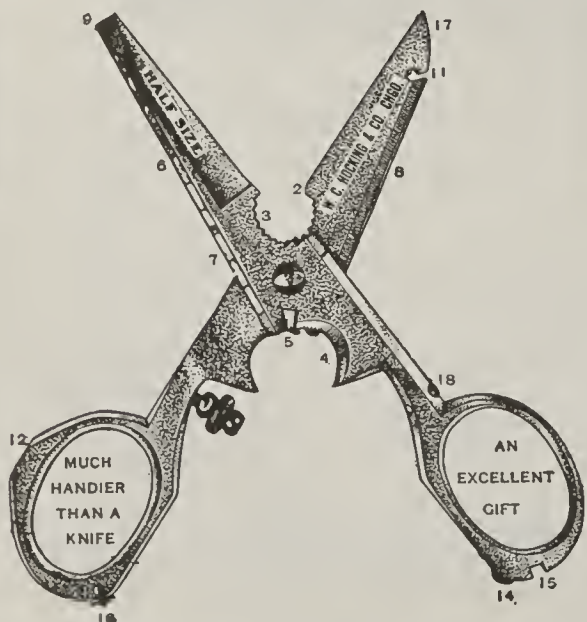
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every new subscription to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



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You will please send me THE C.-W. VEST POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued.

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Name.....

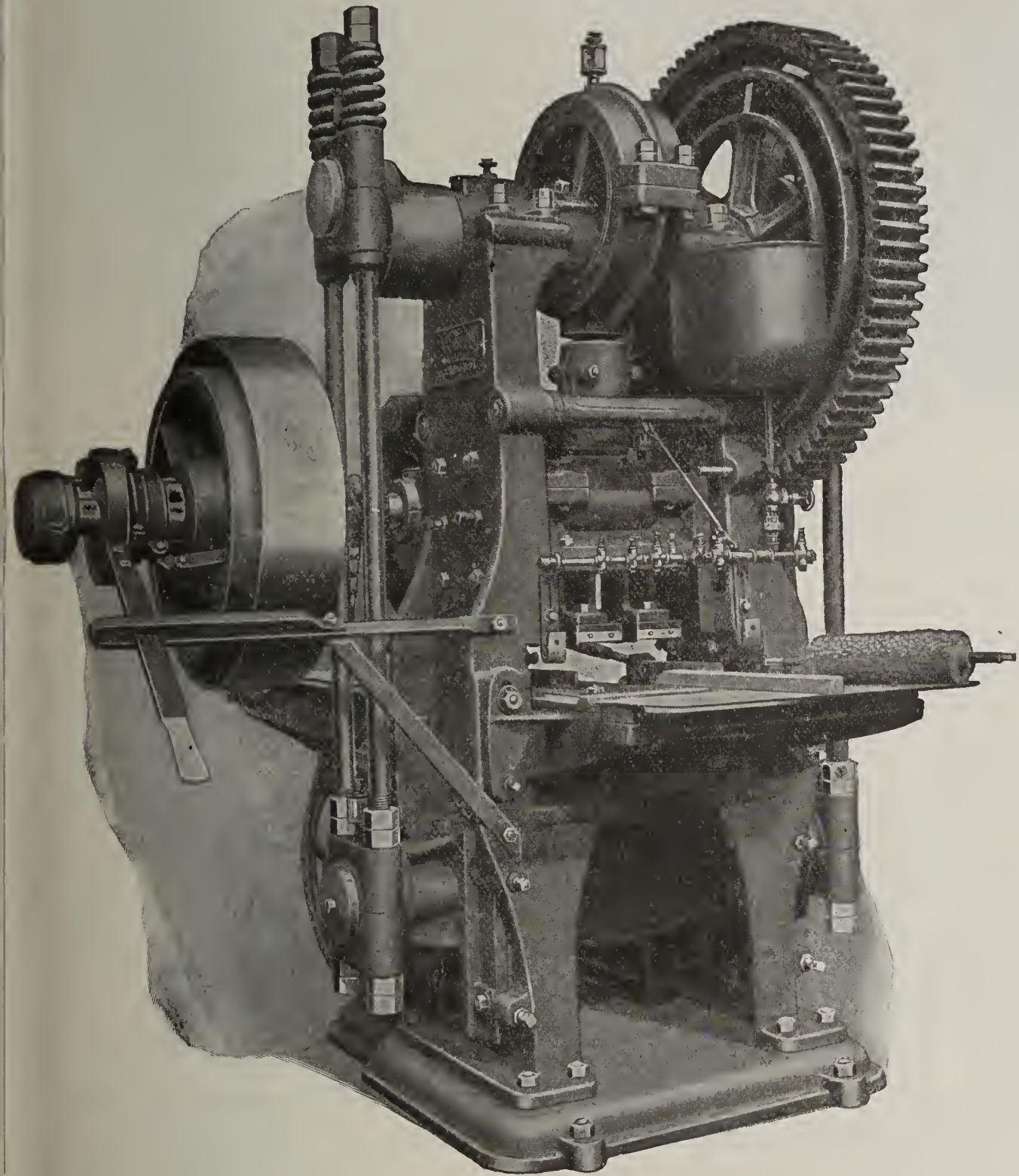
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Canton Repress—Ask Those Who Use It

Has a die of extra depth and brick are moving downward in the die while pressure is applied. Result—Smoother brick.



Capacity 20,000 to 25,000 brick in 10 hours.

Generally conceded by clayworkers to be the best repress built.

Continuous motion.

No links or toggles.

Wearing parts out of the dirt.

AUGER MACHINES, CUTTING TABLES, PUG MILLS,
DRY PANS, SCREENS, ETC.

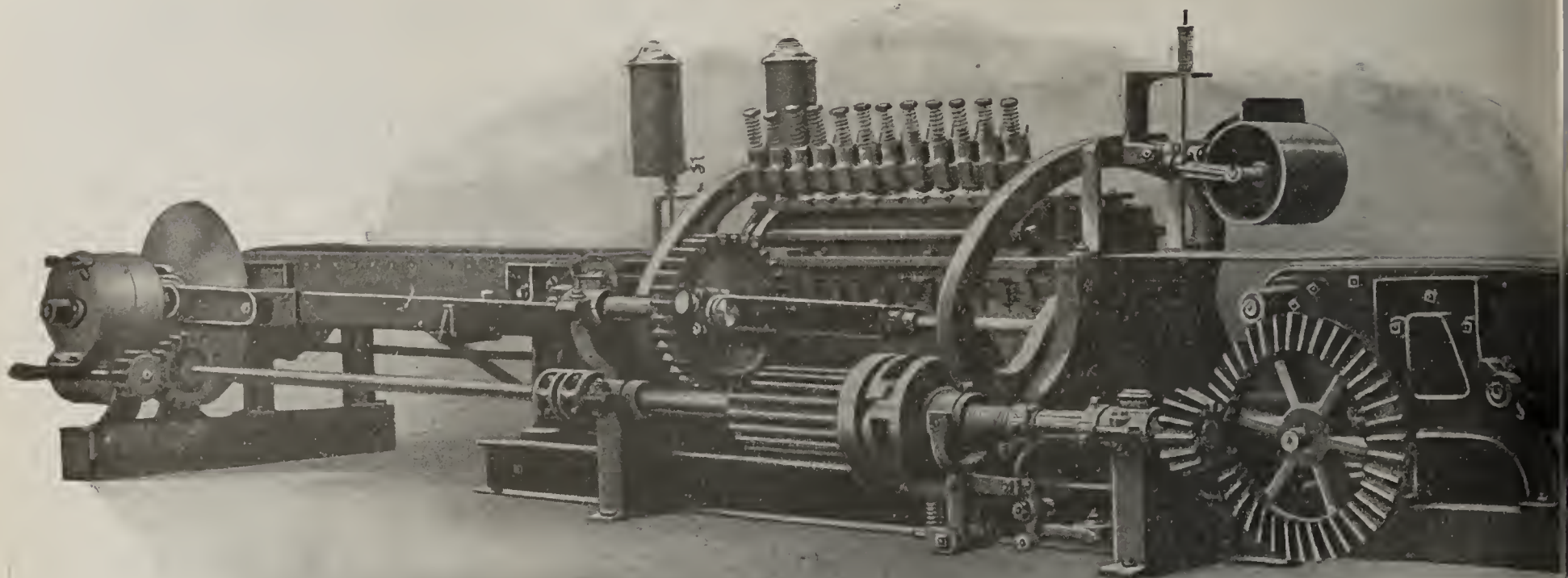
We solicit your inquiries.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

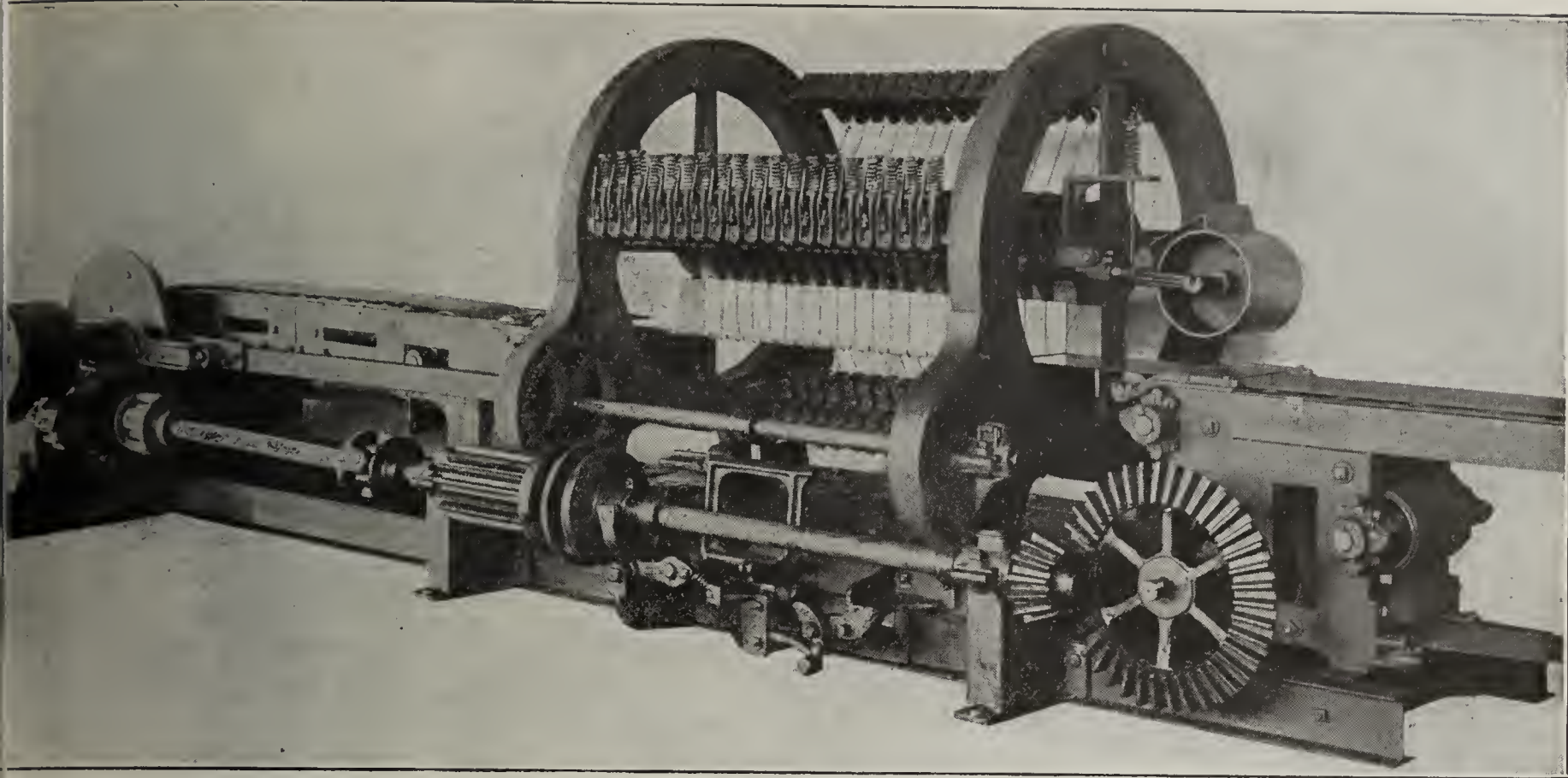
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

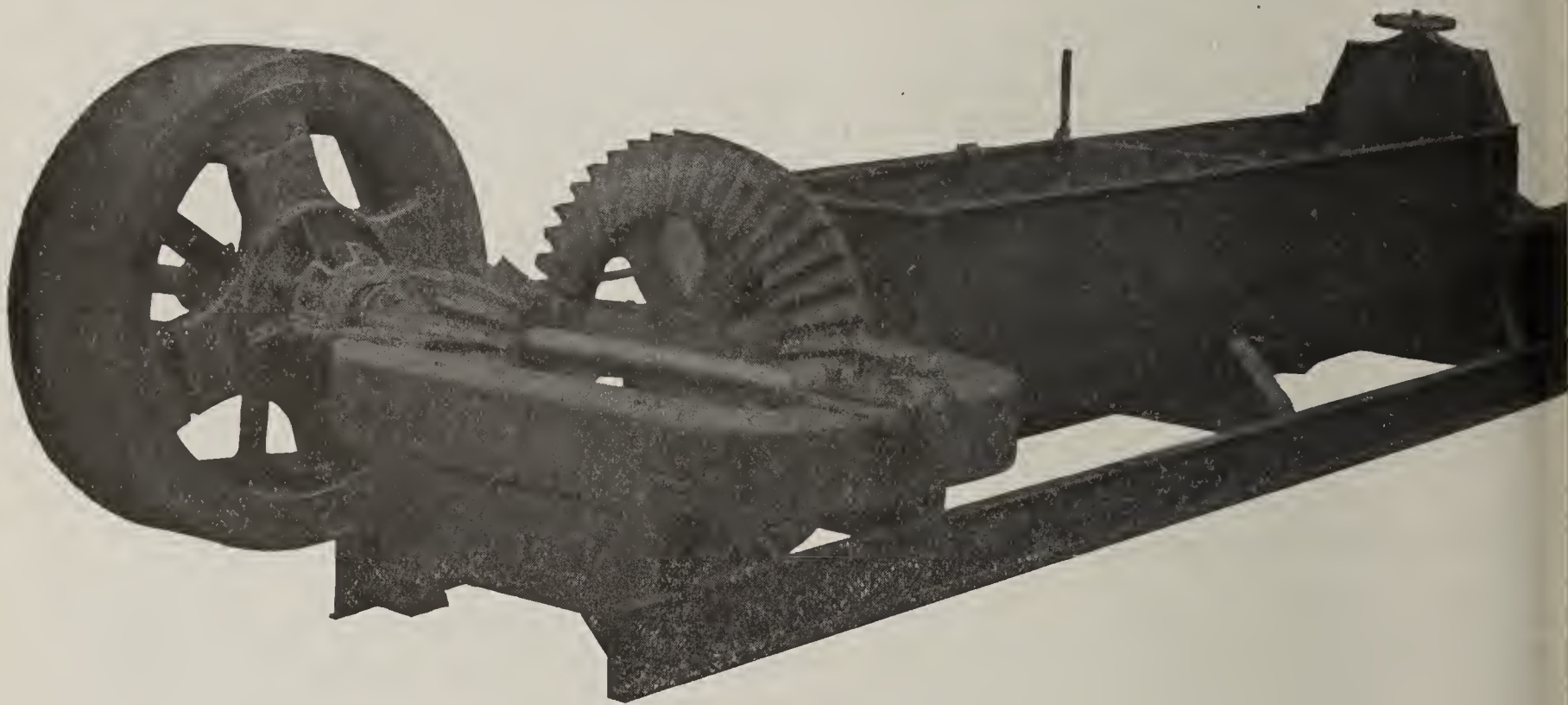
M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

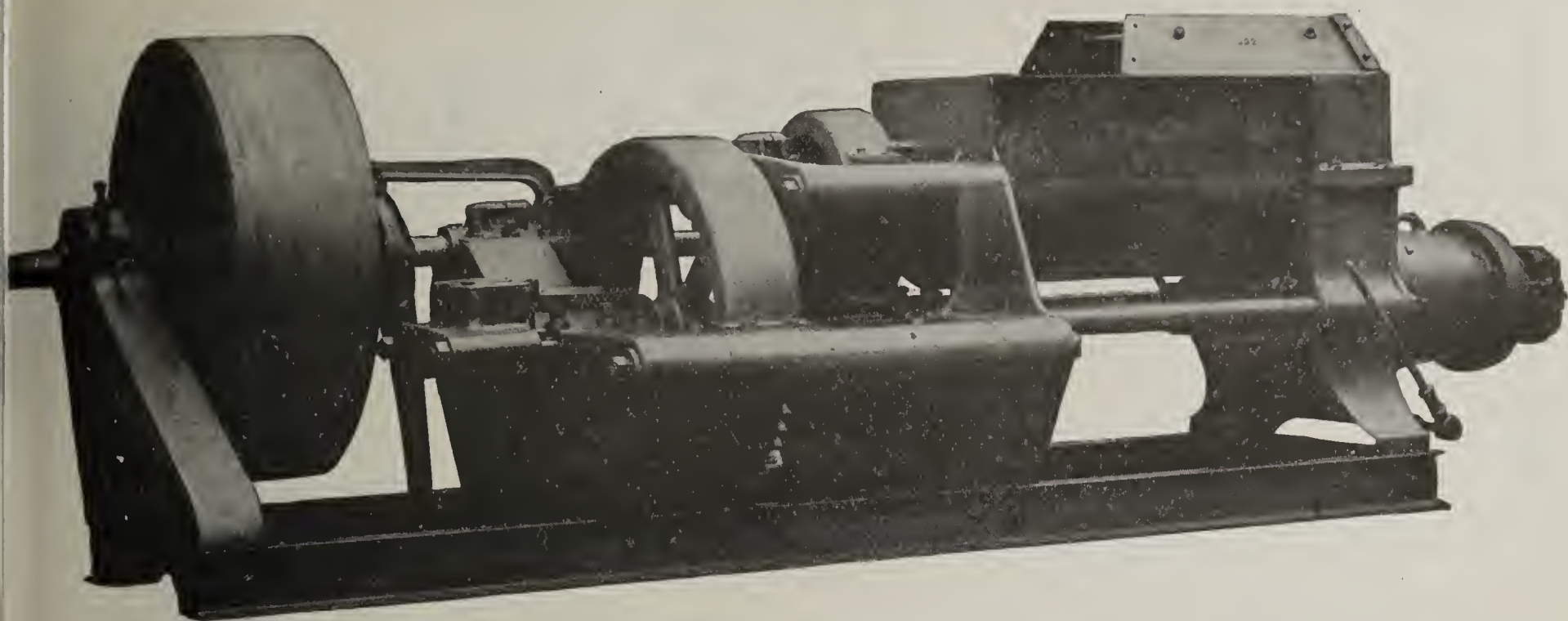


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

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STEVENSON PANS

Famous the World Over
for
Strength—Durability—Efficiency.

9 ft. iron frame

Grinding or Tempering Pan

Built for heavy duty grinding and tempering of silica, fire clay or limestone.

Frame extra heavy.

8 ft. iron frame

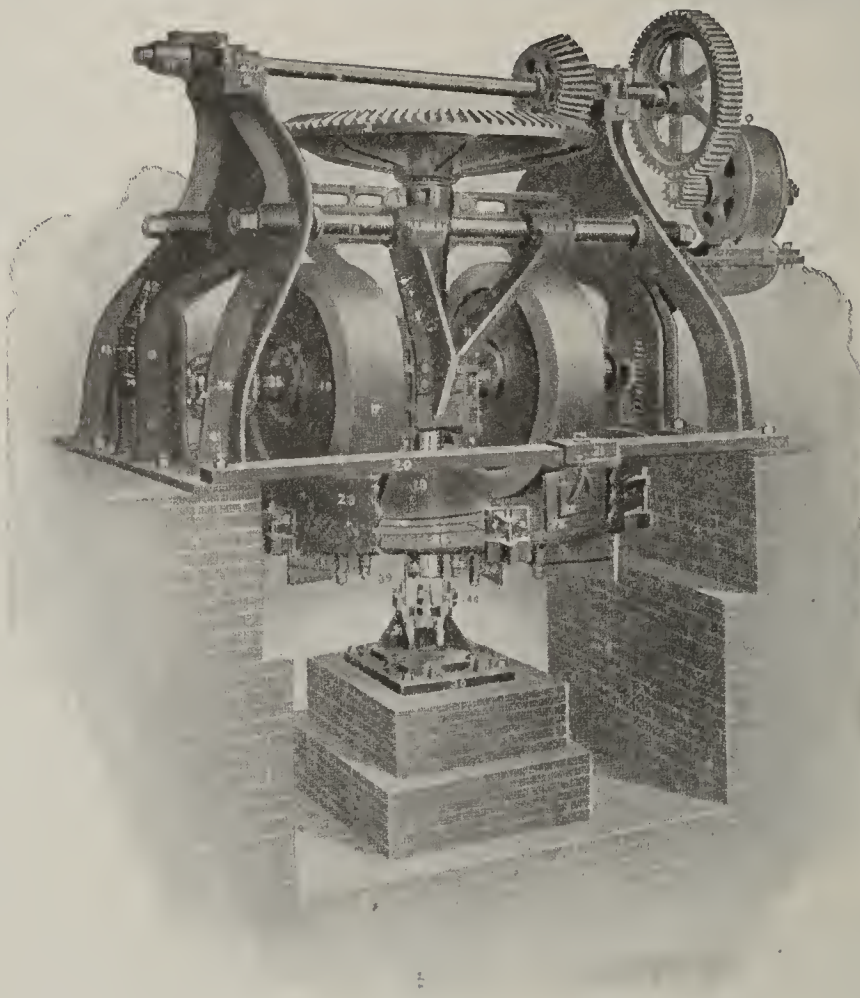
Tempering Pan

Specially adapted for tempering clay or shale, for sewer pipe, hollow ware and tile.

10 ft. iron frame

Heavy Duty Grinding Pan

One of the latest improved pans on the market. Constructed for heavy duty work and durability. Made with adjustable scraper and other improvements.



9 ft. iron frame

Grinding Pan

Pulley or Motor Drive. Rigid, and built to stand severe work.

7 ft. iron frame

Dry Grinding Pan

This is what is known as 7 ft. 7 $\frac{3}{4}$ in. pan, and is the same as 9 ft. pan, but reduced in width 18 ins.

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Grinding and Mixing Pan

Pulley or motor drive. Thoroughly efficient and especially adapted for sand and clay. Special adjustments for line shaft. Our wet pans same style excepting solid bottom instead of screen bottom.

Stevenson Presses

For Making Large Drain Tile or Sewer Pipe.

There is money in big tile, and the largest profits are made by plants which can turn out tile up to 36 ins. diameter.

The Stevenson Press will enable you to meet all competition and to operate your plant at a profit when others are losing money. Consult us about the making of big tile.

THE STEVENSON CO., = Wellsville, Ohio

For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

Thousands of Horse Power in
Frost Engines and Boilers used in
nearly all parts of the civilized world.

Our Dry and Wet Pans are being
operated in best yards of this and
other countries.

POWER EQUIPMENT
TO MEET THE NEEDS OF ALL USERS.

Write for Special Bulletins and Specifications.

The *Frost* Manufacturing Co.

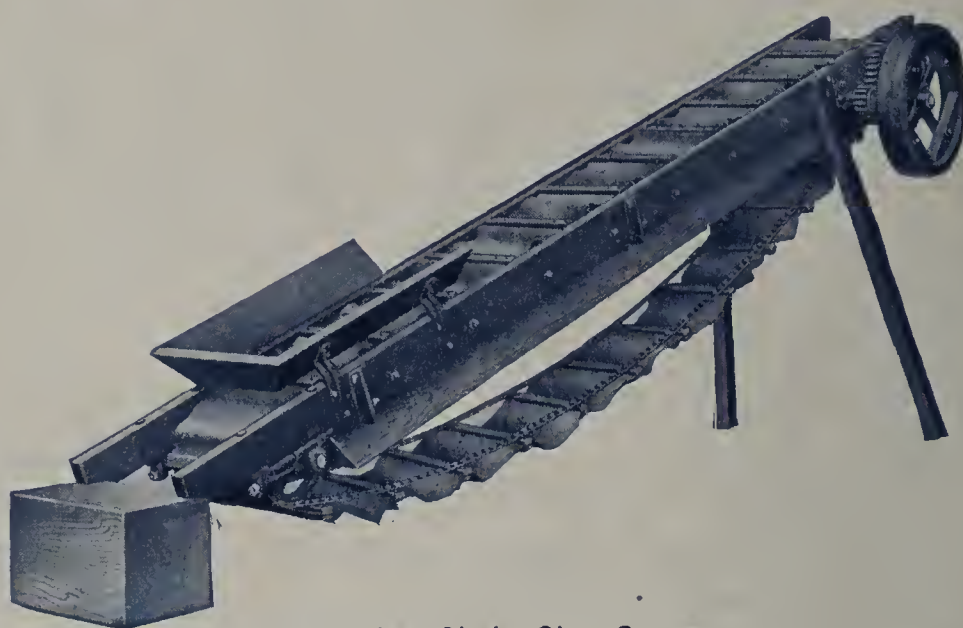
Works at
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CHICAGO OFFICE:
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Cable Address "FROSTMANCO," Chicago.

Mention THE CLAY-WORKER.



Drag Belt Clay Conveyor.



Sprocket Chain Clay Conveyors.



Bottom Dump Clay Car.

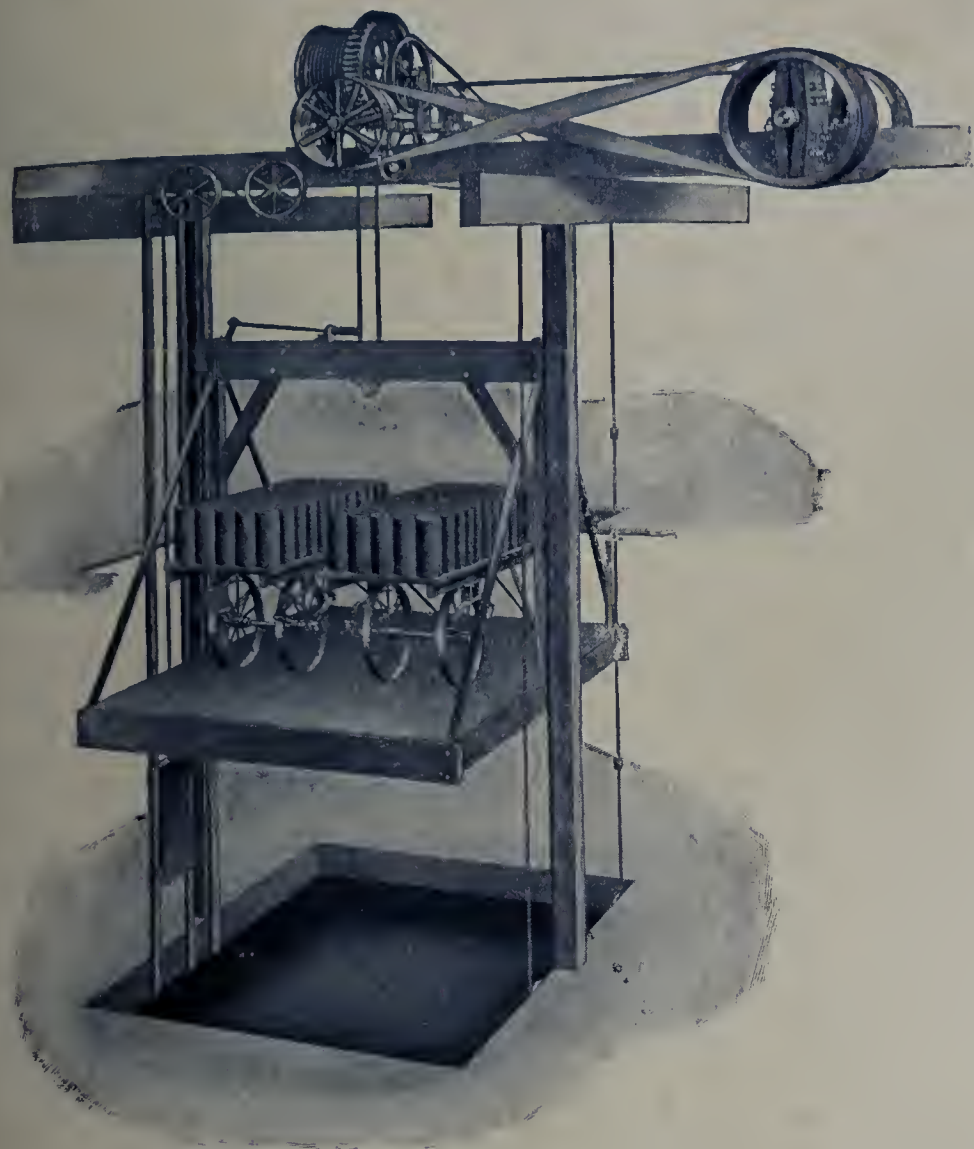


Side Dump Clay Car.

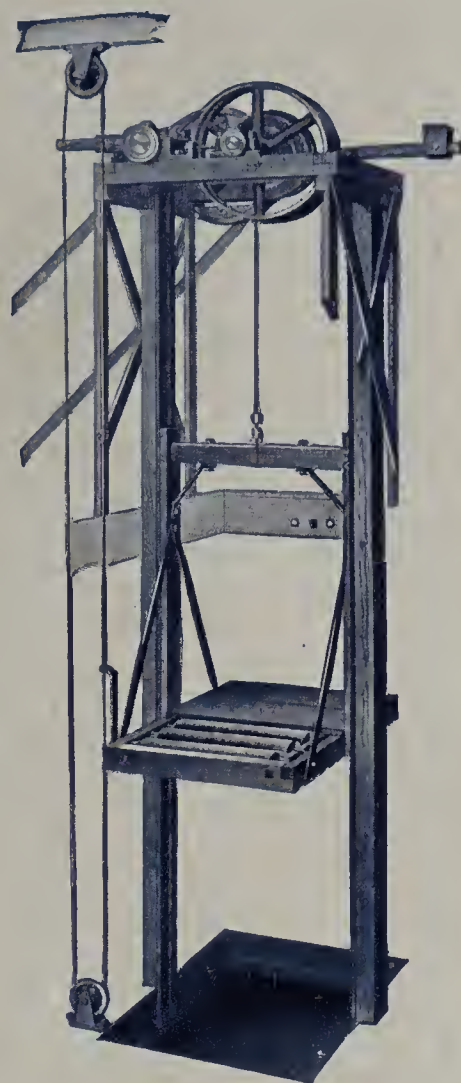
The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.
THE MANUFACTURERS EQUIPMENT COMPANY, Dayton, Ohio, Sales Agents.

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Platform Elevator.

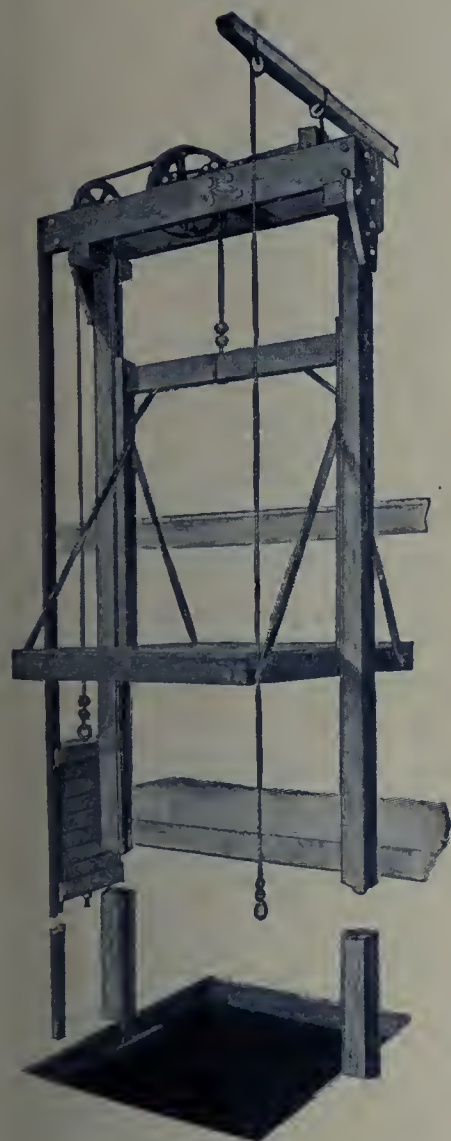


Friction Drive Elevator.

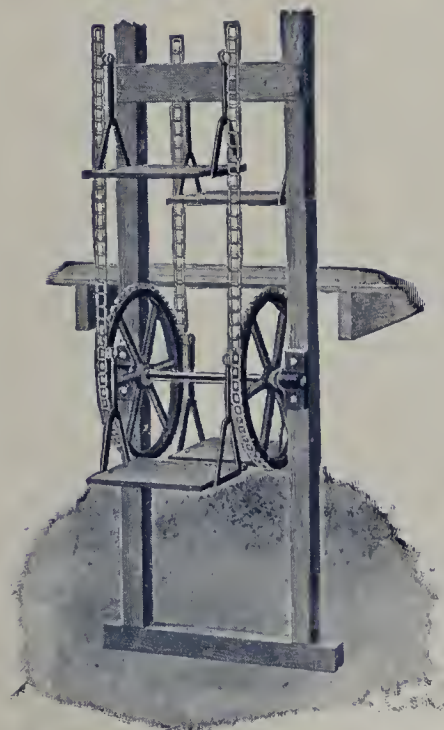
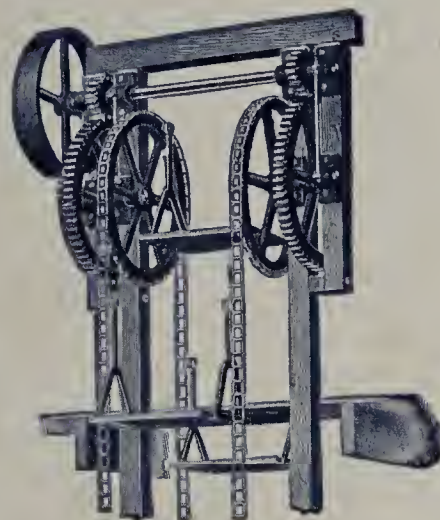
The J. D. Fate Co.

Plymouth,
Richland Co., Ohio.

A. E. Davidson, Eastern Representative,
Room 6060, No. 1 Madison Ave., New York
THE MANUFACTURERS EQUIPMENT CO.,
Dayton, Ohio, Sales Agents.



Gravity Elevator.



Small Tile Elevator.

WINTER IS COMING

Then screening clay becomes more difficult. If you have the
Perfect Clay Screen installed

Cold, Wet Weather

will not affect your capacity or the quality of your product.

The Perfect Clay Screen

relieves all screen worry. Now is the time to equip your plant and be assured of full capacity during the period which usually means decreased output on account of inability to screen your clay. We Guarantee Results.

Let us ship you one on trial.

DUNLAP MFG. CO., Bloomington, Ill.

EXTRACTS FROM MINUTES OF MEETING OF _____ COMPANY

September 13, 1909.

Usual monthly report presented by Manager. Orders on hand \$....., shipments \$.....
On being asked why shipments were not heavier, the Manager said that "with the present way of handling raw and finished material, no increase in shipments was possible—it was very slow and costly." The Manager was then instructed to study the problem and report as soon as possible.

October 14, 1909.

The Manager presented his report upon handling the raw and finished material. He recommended that **Portable Track with properly constructed switches, together with turntables, transfers and cars of the LAKEWOOD LINE** be purchased and installed.

The report was unanimously received and adopted and it was recommended that the equipment be purchased.

December 3, 1909.

The Manager reported that all the **LAKEWOOD LINE** Equipment had been purchased and that it was **working satisfactorily**. He expected to be able to show increased production at the next meeting.

The Manager reported on January 16, 1910, an increased production of 12% for the past month; on February 13, 1910, an increase of 15%; on March 14, 1910, an increase of 16¼%. On April 12, 1910, an increase of 16¾%, and said the Manager, "There has been no increase in Labor Account; **the increase is due to the excellency of the LAKEWOOD LINE.**"

The Ohio Ceramic Engineering Co.

CHICAGO, ILL.
1015 First Nat. Bank Bldg.

Cleveland, Ohio

PITTSBURG, PA.
1205 Fulton Building.



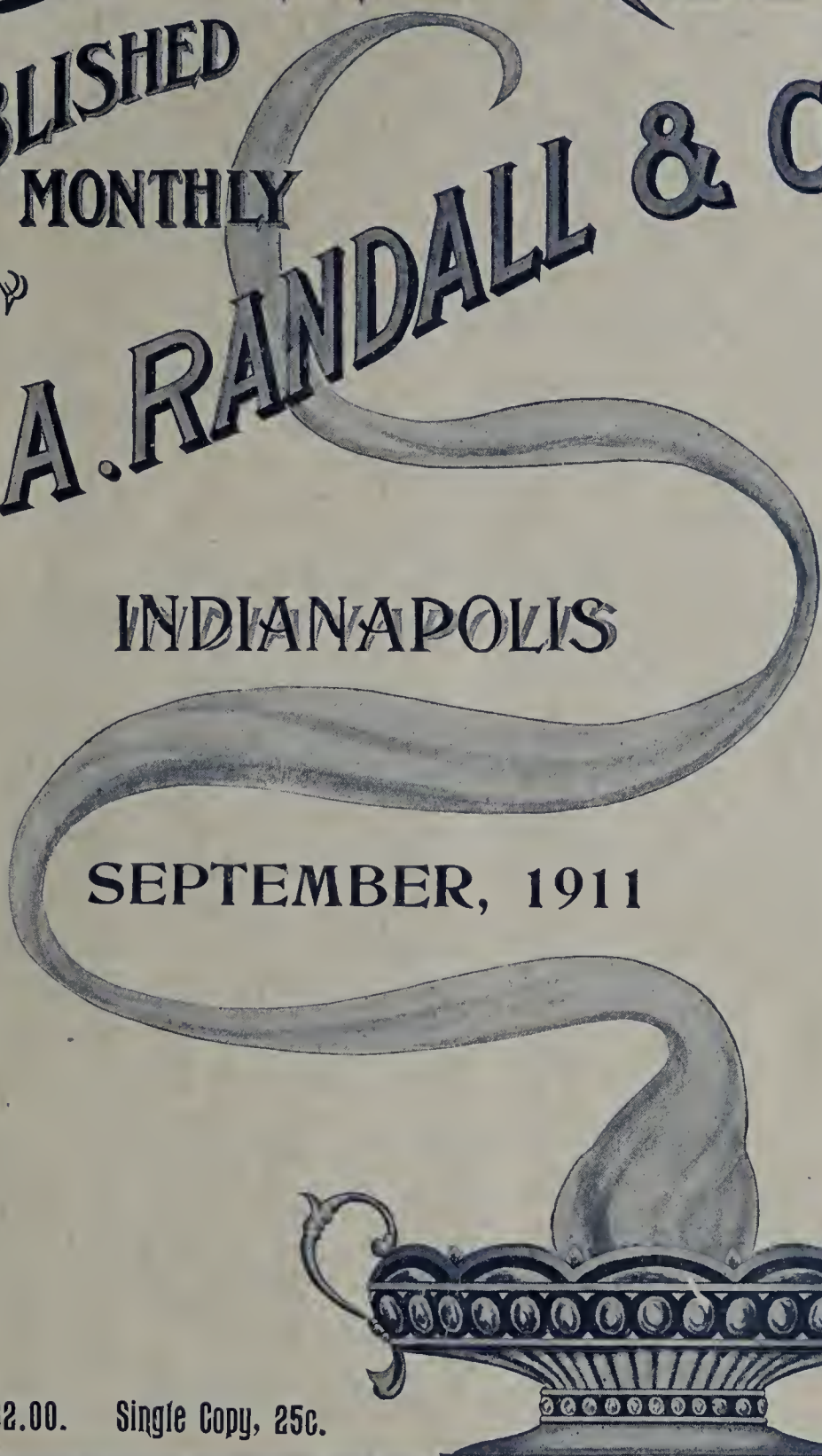
THE CLAY-WORKER

PUBLISHED
MONTHLY
BY

T. A. RANDALL & CO.

INDIANAPOLIS

SEPTEMBER, 1911



Subscription, Yearly, \$2.00. Single Copy, 25c.

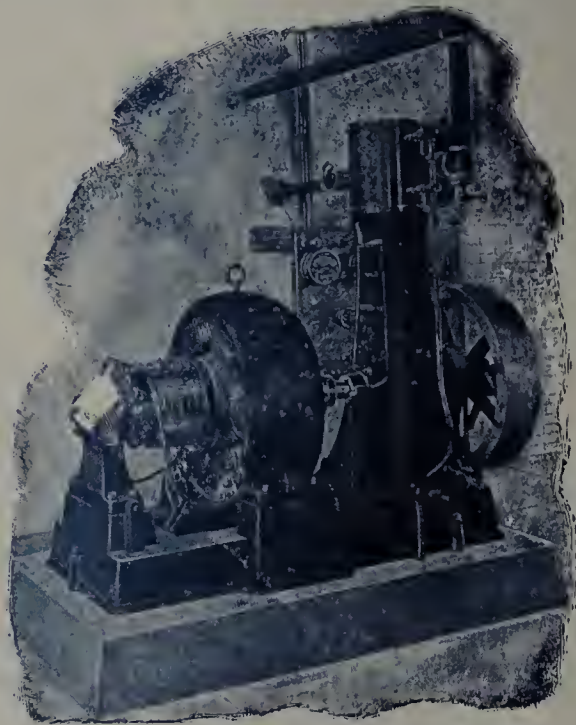
OFFICIAL
ORGAN
OF THE

NBMA

Electric Light at Minimum Cost

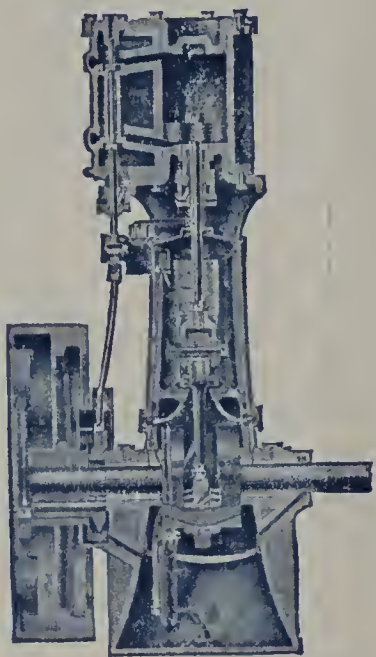
You can generate electricity at a cost of 2c. per K.W. by using an

"A B C" Vertical Enclosed Self-Oiling Steam Engine



direct connected to any good make of dynamo.

"ABC" Vertical Enclosed Self-Oiling Steam Engine direct connected to dynamo for electric lighting.



Cross-Section of "ABC" Vertical Enclosed Self-Oiling Steam Engine, showing patented oiling system.

The initial investment is moderate, and the operating cost shows a saving of at least **25 per cent** on this investment over the cost of buying electricity from a power company. One concern claims to have saved the cost of the entire outfit in considerably less than a year's time from date of installation. They add *"Our only regret is that we did not install this outfit long ago."*

The reason for this low operating cost lies in the patented lubricating system with which these engines are supplied.

Every wearing surface runs on oil, there being on direct contact between metals, so that the engines run from 3 to 12 months without requiring the addition of oil or adjustments.

Another Valuable Feature—Being fully enclosed these engines are dust and moisture proof—yet all working parts are accessible upon the removal of a single hand-nut.

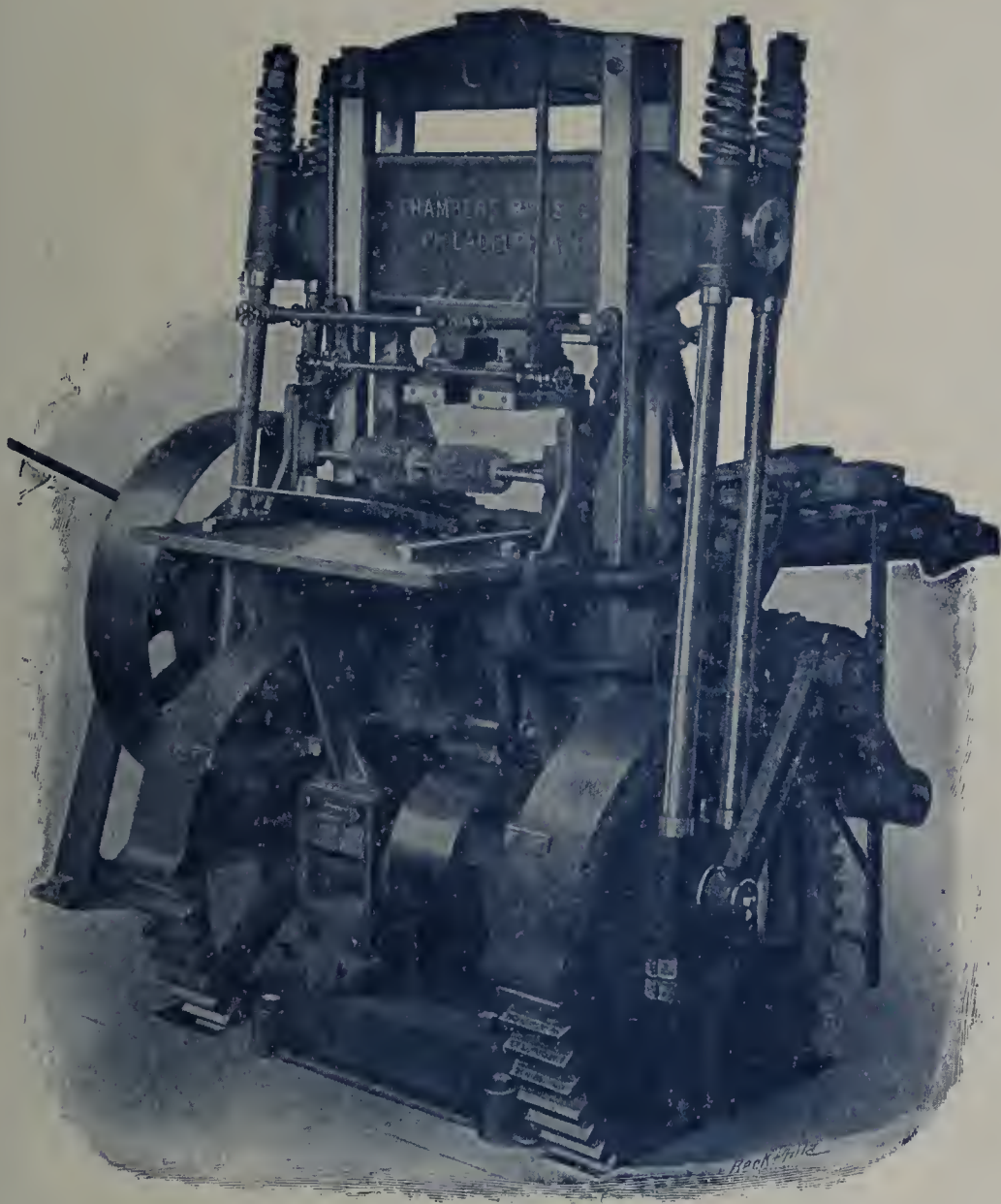
Let us send you Engine Bulletin No. 288-C.W. anyway—your address?

AMERICAN BLOWER COMPANY
DETROIT, MICH.
U. S. A.

End-Cut or Side-Cut Street Pavers

CHAMBERS THE LINE MACHINES

For Both Methods of Manufacture.



KEYSTONE REPRESS.

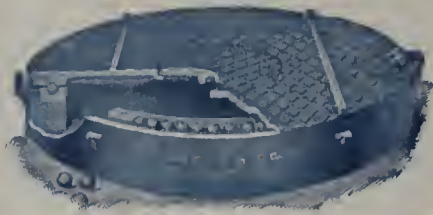
A direct acting Crank Press, with a very smooth and easy feed and delivery mechanism in exact time with the pressing machinery.

A strong and powerful press with shaft diameters and all wearing surfaces of liberal dimensions. Cam roller $5\frac{1}{2}$ inches diameter on pin of large diameter and of easy access. Hardened steel faced cam.

Chambers Brothers Company

PHILADELPHIA, PA.

CHICAGO, ILL.



RAIL,
SWITCHES,
FROGS.

TURNTABLES,
WHEELS,
AXLES.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Taplin, Rice-Clerkin Co.

The Machinery Folks of Akron, Ohio, U. S. A.

"The 'Pioneer' Wet Pan
Is the best known to man."

"Pioneer has no Peer."

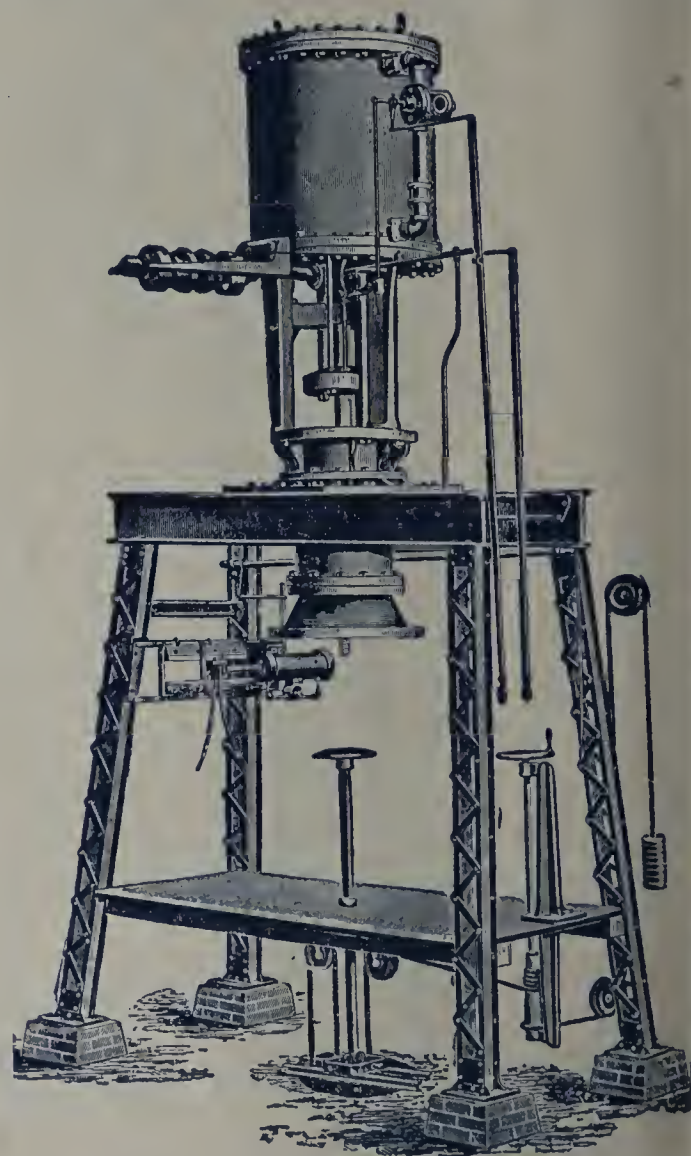
"Pioneer Machinery is simply the best,
And Used in Clay Products it stands every test;
Durable, high-class, efficient, and true,
It does for its users what others can't do."

"Make things from Clay the
'Pioneer's' way."

"Established Eighteen-Sixty
Five,
But growing fast and much
alive."

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National Drain Tile Co., Terre Haute, Ind.
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Lehigh Clay Product Co., Lehigh, Ia.
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The Gladding-McBean Co., San Francisco, Cal.
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Send for Catalog No. 29.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

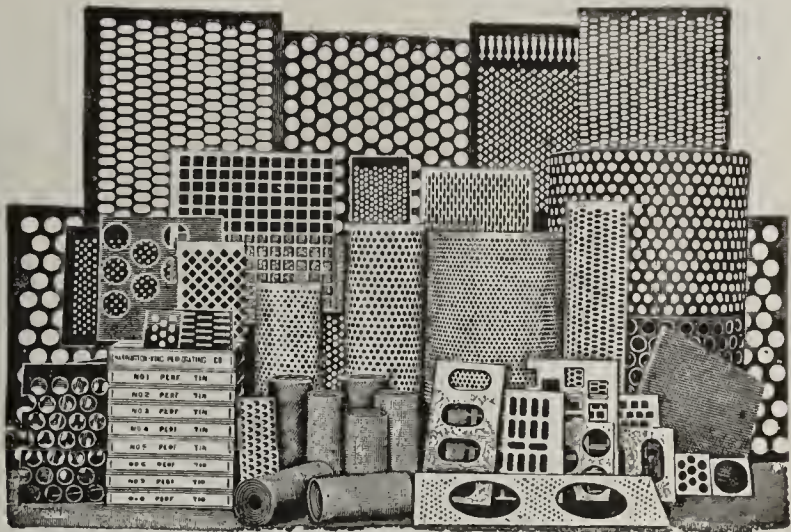
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

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No. 624 North Union St.,
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Up-to-Date Economy

is profiting by another's experience without experimental expense.

We have had many years of practical experience in the drying of clay products. Will you profit by it and become an UP-TO-DATE ECONOMIST?

The scientific and practical installation of WASTE HEAT DRYERS is our business, and as designers of the largest and most successful WASTE HEAT DRYERS in the country we are able to give you the best obtainable.

Become an UP-TO-DATE ECONOMIST, form the RODGERS HABIT, and the result will be more than satisfactory to you.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

30 North La Salle St.

CHICAGO.

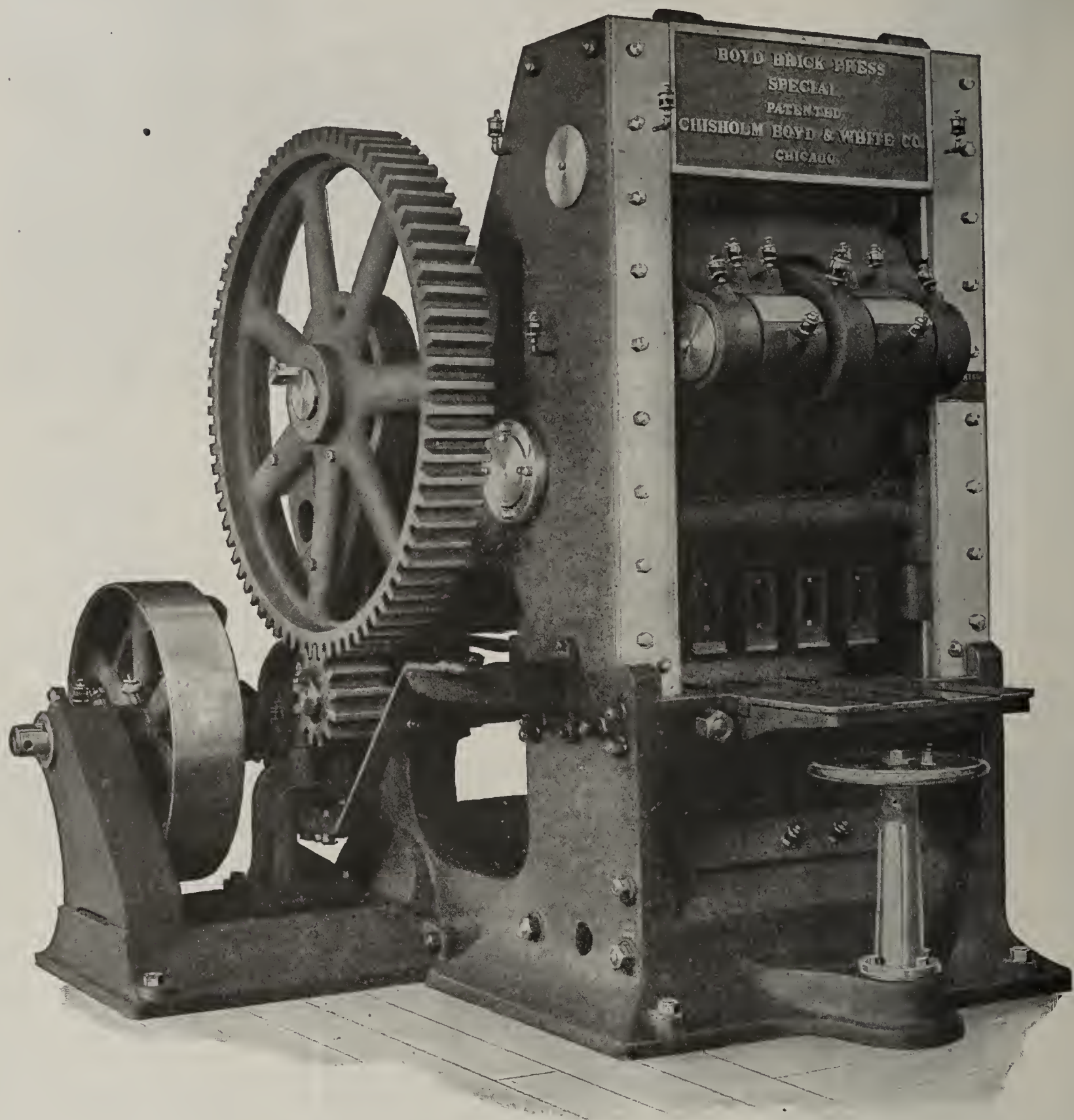


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Mention THE CLAY-WORKER.

The Boyd Brick Press



OUR NEW FOUR-MOLD "SPECIAL" HEAVY DUTY BOYD PRESS.

Our BALANCED-PRESSURE improvement automatically equalizes the pressure on the brick through from TOP to BOTTOM, producing brick of uniform density throughout and FREE from granulated surfaces or soft centers and with good, hard corners and edges. Full particulars upon request.

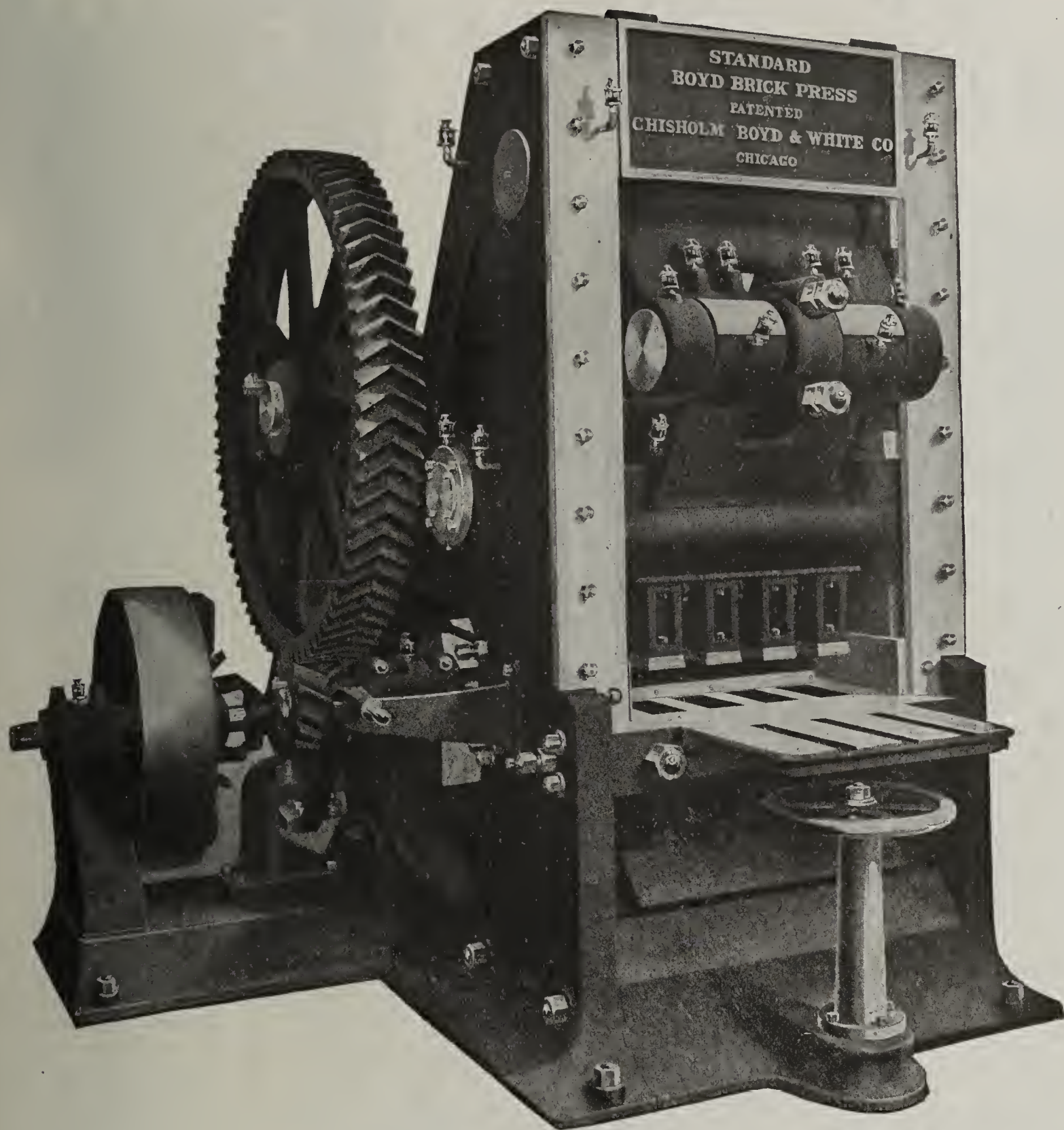
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Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

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STANDARD BOYD BRICK PRESS



BALANCED-PRESSURE

The BOYD is the only Brick Press having this feature. Patent on this improvement just issued.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

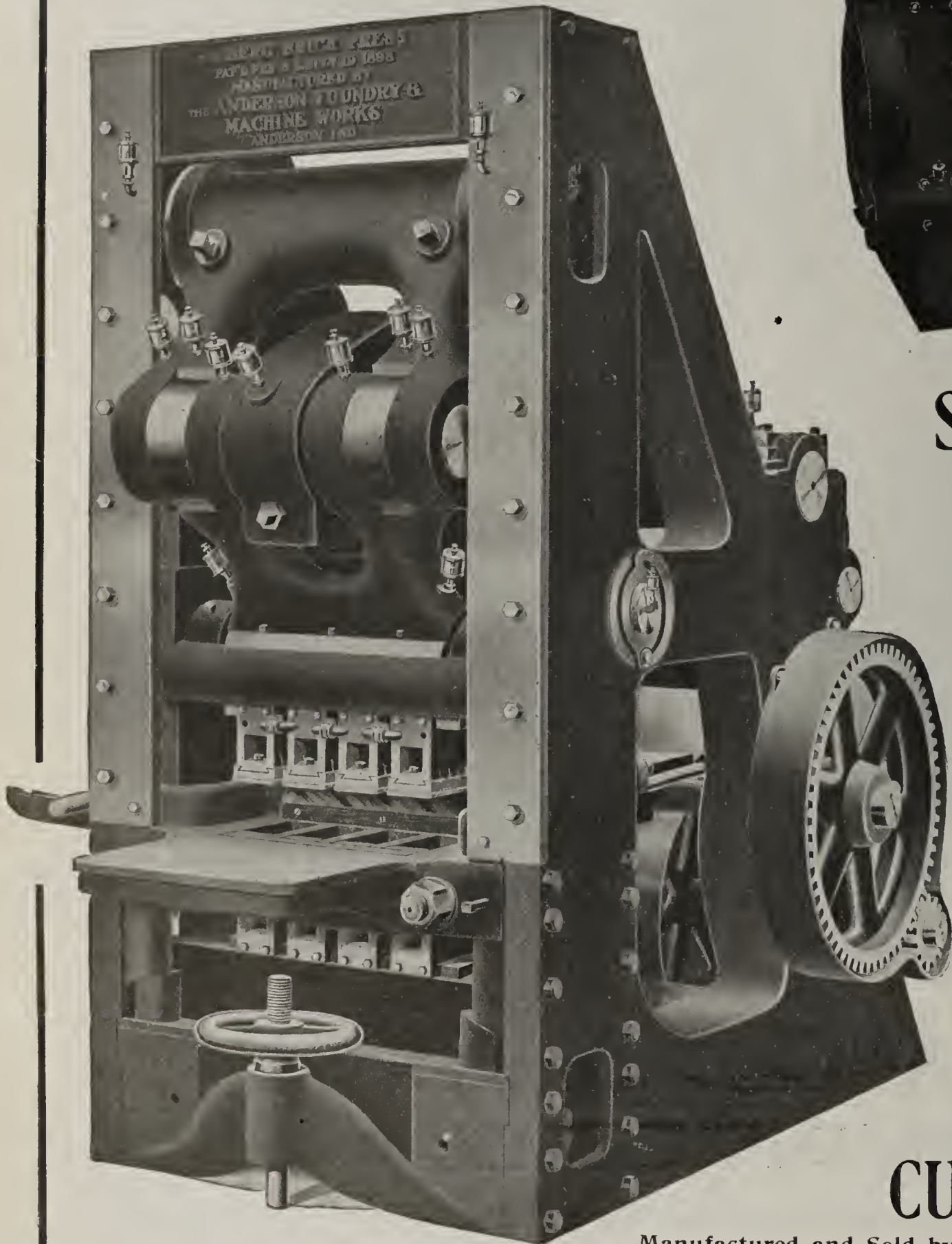
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New Model Berg Brick Press



Back View.

Still in the
Lead

and

One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

All Machines Are
Equipped With

CUT GEARING

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS,

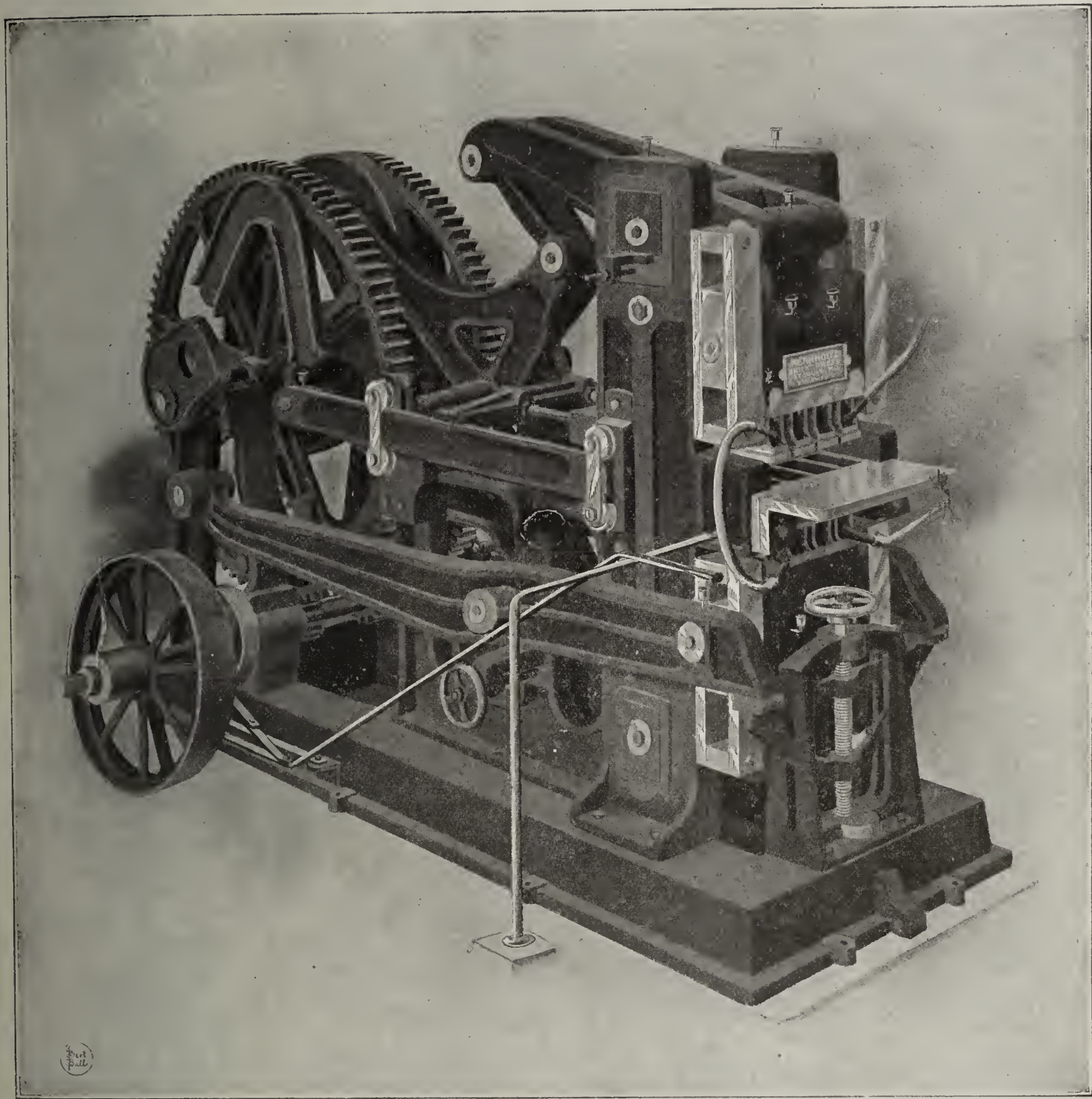
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Sold by the C. W. RAYMOND CO.,
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ANDERSON, IND.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.



If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

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Koch, J. J.
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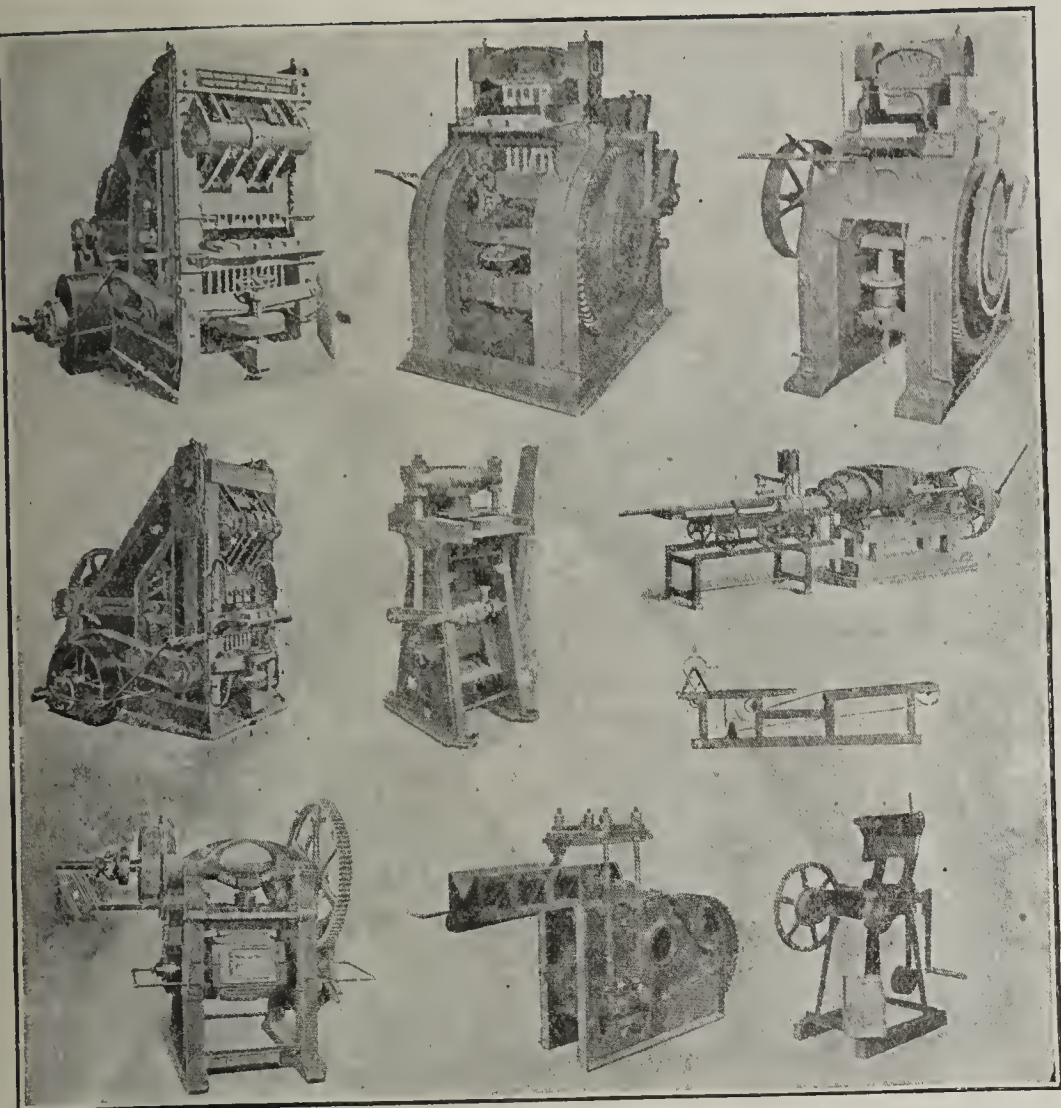
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(See Supplies.)

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(Continued on page 252.)



For Highest Grade Press Brick and Roofing Tile you must have The Best Machinery.

The Grath

Brick Presses and Roofing Tile Machinery

Are Best, Simplest and Strongest and the Prices are Right.

We Sell the

Schurs Oil Burners

for kilns of all kinds, also boilers.

The Schurs Burners are the Simplest in the market. Only three parts to burner. Will give better results with less oil than any burner made. **Price right.** Over 6,000 in use.

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Our Kiln Furnaces are simple, easy to handle, burn the smoke, prevent cracked ware and slack or pea coal will give better results than lump coal in ordinary furnaces.

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Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Eastern Brick Machinery Co.
E. M. Freese & Co.
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Ohio Ceramic Engineering Co.
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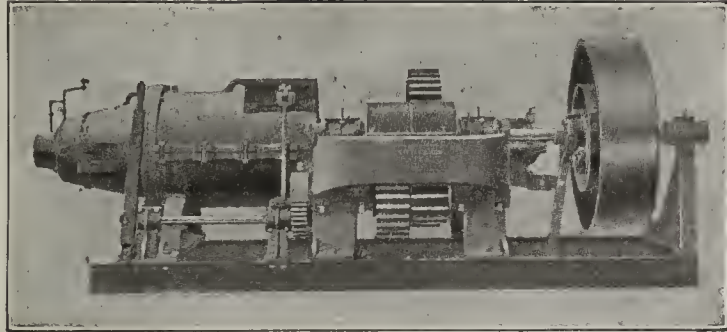
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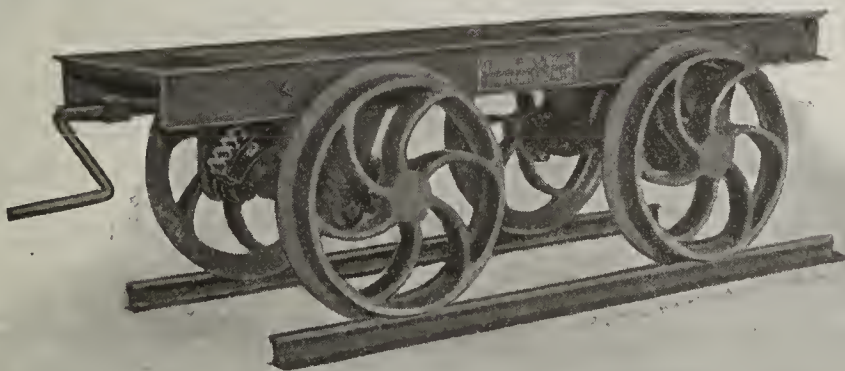
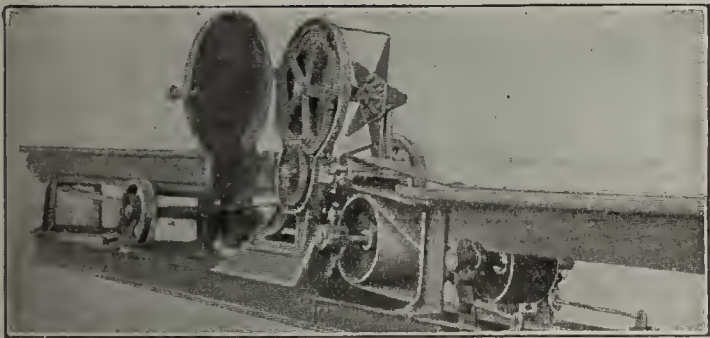
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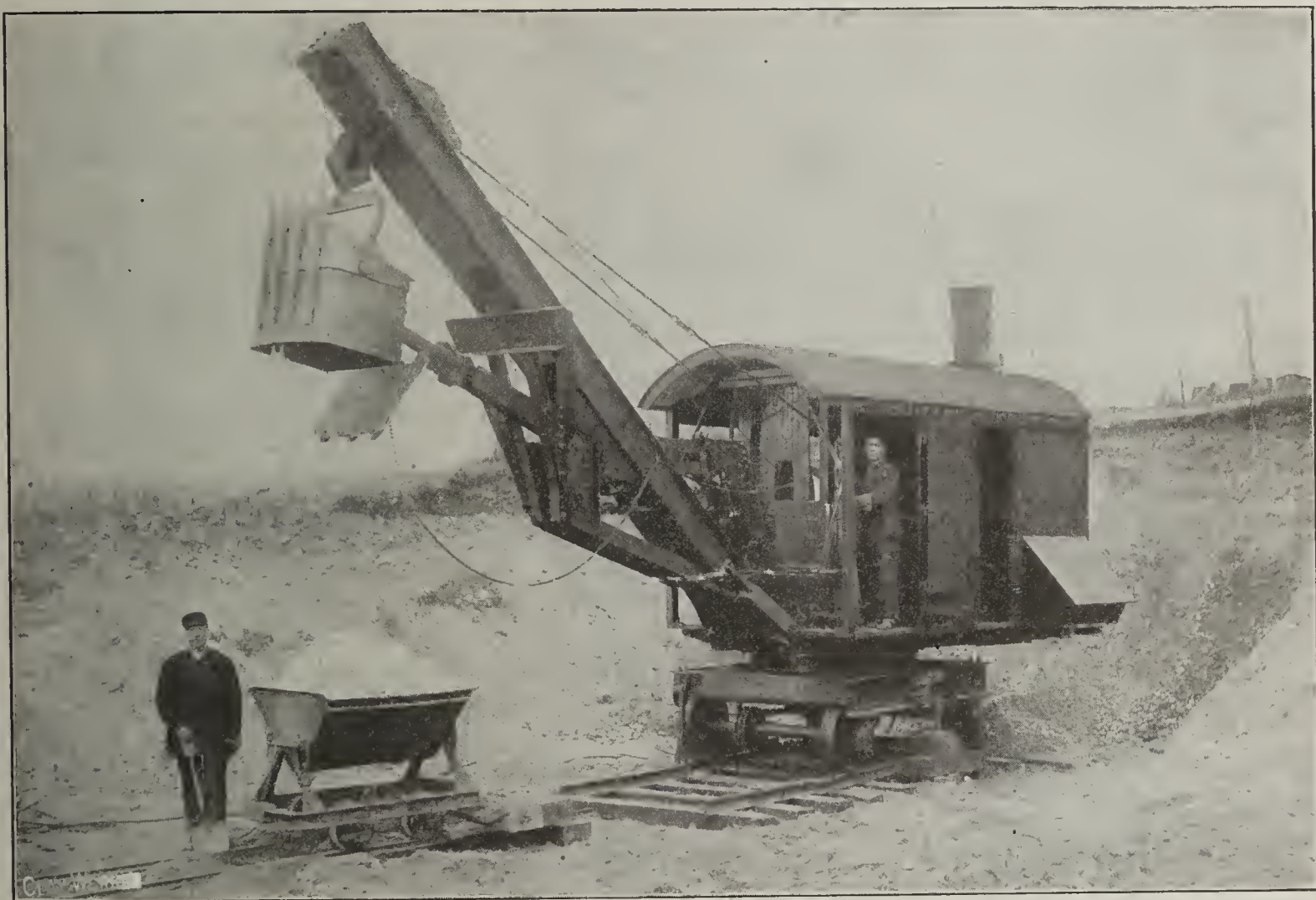
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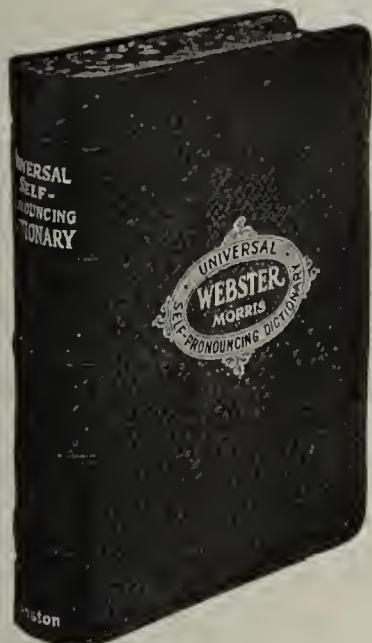
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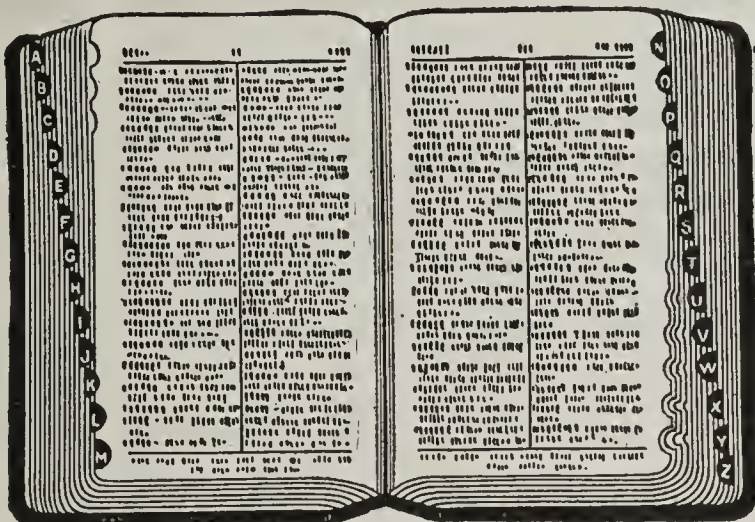
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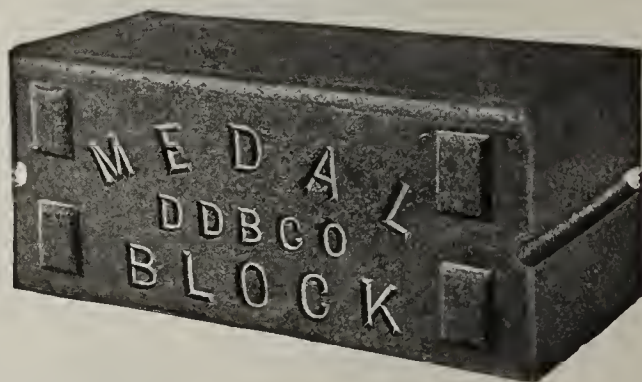
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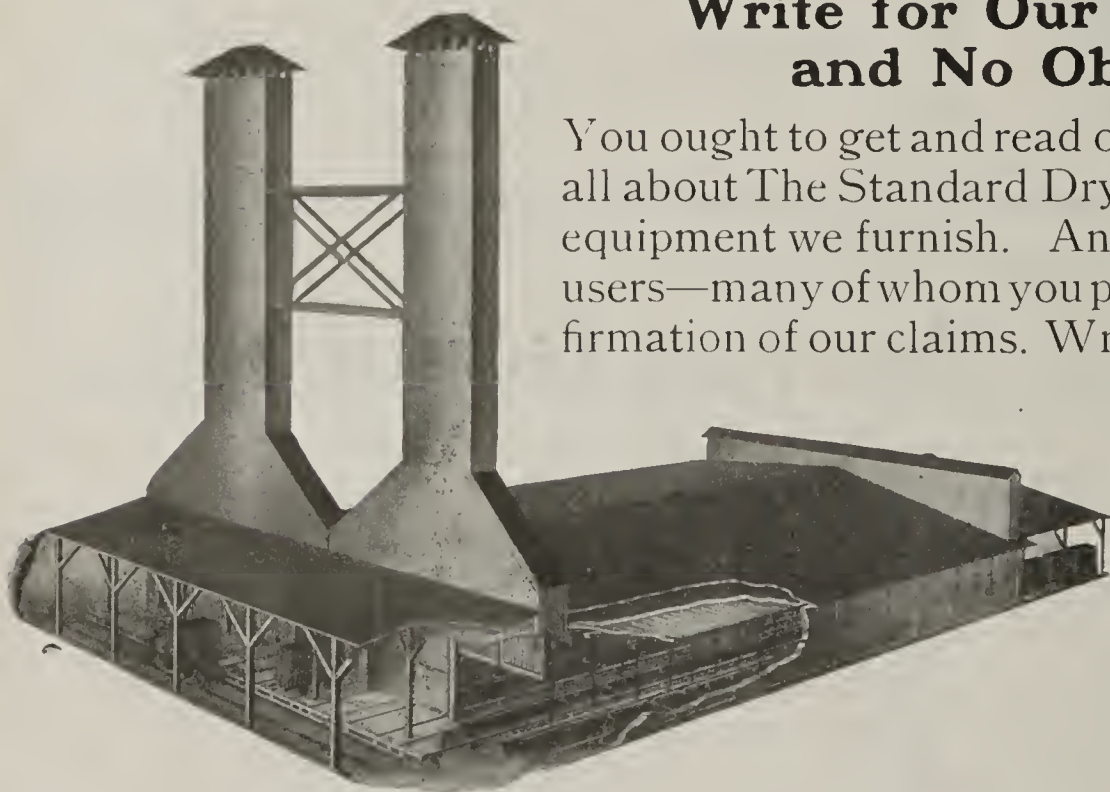
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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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INDIANAPOLIS, IND., SEPTEMBER, 1911

No. 3.

TILES: THEIR MAKING AND ORNAMENTATION.

Methods of Manufacture in Vogue in Japan, Where Tile Roofing is Used on All Substantial Buildings.

KOREA SUPPLIED old Japan with men and methods for making many things, and one of the most striking characteristics of the buildings of the present day, the roofing, dates back to the reign of the Emperor Yomei (586-87), and, like many other innovations of that time, was

Shomu (724-748), an order was issued compelling officials above the fifth rank, as well as wealthy people to cover their houses with tiles, but this was not generally adopted until a much later period.

The early tiles called fume gawara, were not the same as those now in use, being a great deal thicker and heavier, with fume at the back, but they remained in use until a late date, the style now so extensively manufactured having first been used in the fourth year of Tensho, 1576, when Ota Nobunaga built the famous castle of Adzuchi, and im-



Shipping Tile in Japan.—Courtesy of Japan Magazine.

introduced by the clever artisans of the little kingdom lately absorbed by the nation to whom she gave so much of her spiritual and intellectual worth, as well as knowledge and training in handiwork.

The first tiles used in Japan were brought from Korea for the covering of the Buddhist temples and at first were not used for ordinary buildings, the Palace of Olcamoto, built by the Empress Saimei (655-661), being said to be one of the first dwellings to be covered with tiles. Mention is made in ancient records, that during the rule of one Mikado,

ported several tilemakers from China, who produced thinner, lighter tiles having sasara at the back, and being far more convenient than the old fume gawara, were soon used by the general public, and a profitable industry sprung up in which nearly ten thousand proprietors are now engaged, the amount of business reaching approximately five million dollars annually.

Aichi, in central Japan, is the largest producer of tiles, and Hiogo stands second though with a greater number of manufacturers; but the Kyoto product ranks first in quality

(with the exception of that of Formosa), Owari and Mikawa provinces making the next best, the quality varying according to the kind of clay used in manufacture.

Clay differing from that used for earthenware or porcelain in that it produces an article much less brittle, is used, the color being immaterial, as the firing process changes all to the same uniform slate color. It must be smooth and dense to make tiles impervious to water, and though the roof tiles are seldom glazed they are so polished as to give them the same surface as slate, which they otherwise closely resemble. The powdered clay is mixed with water to a proper consistency and thoroughly kneaded with the feet, after which it is formed into a block six or seven feet long, three feet wide and one foot thick, and cut with wire into plates of the required size and thickness, which are placed on wooden moulds sprinkled with clay dust, and carefully patted to take out any pores and press them into shape. These are allowed to partially dry very slowly, sometimes being covered with straw matting to prevent too rapid drying, then replaced in the mould and treated as before, and mica powder rubbed into the surface which is smoothed and

kind, harder and thinner than those made in the main island, and of a pleasant reddish color, are manufactured, and form the common roofing to be seen everywhere; though there is no variety in form, only the flat ones being general; whereas, in Japan there is a diversity of sizes and shapes suitable and especially designed for different buildings and the nature of their roofs. These may be classified into flat, round, ridge, and special tiles. Of the first there are four kinds: those used for dwellings (nagoryomono), size 4x10 in.; for temples and palaces (hiromamono), size 7x12; for turrets (yaguramono), size 5½x13; and very small ones called ankokumono. The round tiles are of several kinds and are used at the angles and eaves, for covering joints and hiding seams, those for the latter purpose being generally termed tomoe tiles, taking the name of the decorative form which originally appeared on them, though they are now often perfectly plain. Ridge tiles are of curved shapes of numerous sizes, the end pieces usually being very ornamental and called oni ita, or devil tiles; because this was the first form used the name is still applied to end pieces, though they may be of different designs. Their outline is



Interior of Japanese Tile Factory.—Courtesy of Japan Magazine.

flattened, the edges trimmed and all thoroughly polished; after this they are exposed until entirely dry and set upright in a kiln, the temperature of which is gradually raised until the tiles are well fired, when the draughts are closed, an excess of fuel put in the furnace and the whole thing tightly closed. A fine coating of carbon is the result, which produces the slate color of the tiles. Wet straw mats are thrown over the furnace to reduce the heat; when quite cool, the tiles are removed. For glazed tiles the firing is much the same as for porcelain. These are used chiefly in provinces bordering the Japan sea, and in northeastern Japan, where the winters are severe, as glazed tiles offer better resistance to frost.

The roof which is to be covered with tiles is first laid with boards, sometimes cryptomeria bark instead, then with a thick layer of mud into which the tiles are at once set. In some parts of Japan bamboo, covered with straw mats, is used under the tiles.

Tiles are now little used in Korea except by people of means above middle class, but in Formosa a most superior

nearly always the same as shown in the illustration, and they range in width from one to several feet, according to the ridge tiles for which they form the finish. The edge of these oni ita is sometimes set with plain or waving iron spikes one or two feet long, producing an attractive effect.

Special tiles are those used for embellishing only, called tome buta, and take various forms such as figures of animals, birds and fish, images of saints and gods or goddesses, mythical creatures, dragons, shishi, et cetera. Their place is usually at the four corners near the eaves of a roof with curved lines, as seen on temples, shrines, palaces and ornamental gateways, and also at either end of the top ridge; those at the corners are often mistaken for gargoyles, which are not used in Japan, but between which there is a close similarity. The largest and most striking of the special tiles are the shiachi, or dolphins, resting on their heads, with their bodies in a sweeping curve and tails aloft, forming very graceful lines. These are sometimes smaller, but on palaces and castles, or temples, for which they are principally used, they rise six feet or more in height, and are invariably covered with gilt

and are most decorative. Very much the same in general appearance are the shibi, but they are less attractive in detail, and the detail ornament on tiles is their most fascinating phase.

In the early Nara epoch, the lotus flower was the motif employed, following which was the karakusa, a vine pattern of Chinese origin, and during this period the decoration was rich though delicate, showing the influence of the Tang art. Later, Chinese characters were added to the karakusa, and the tomoe, or ball-with-tail form seen so often in Oriental designing, but whose source is not positively known, was introduced; but during the last decades of the Nara era, the art saw a decline, and the Heian period witnessed a degeneration into actual coarseness, which but little improved throughout that following it, the Kamakura period, when the craft itself deteriorated; but it was then that the round tiles with a fixed decoration at the end were first made.

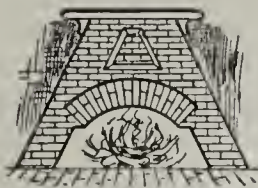
During the regime of the Ashikaga Shogun, the art some-

and are of the glazed variety in various colors, blue and white predominating, with a wide range of designs, sometimes incised in the case of those for exterior paving. They are made of brick clay, porcelain clay or Majorca, and of similar qualities, but the demand for these is not great.—Reprint from Japan Magazine.

Written for THE CLAY-WORKER.

MEANINGLESS ART.

BY F. W. FITZPATRICK.



ARTIST though he be, and a Beaux Arts man in the bargain, the architect must bow to the business exigencies of his situation. His lot is hard and the alternative with which he is confronted is humiliating to his self-respect. Either he must reject a commission when he finds that his ideas do not coincide with those of his prospective employer, or he must consent to violate the dictates of his artistic conscience."

So wails an art journal, bemoaning the unappreciativeness of the "crude" lay employer of the architect. The wail is natural, though not justified. For ages the archi-



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tect has mistakenly considered himself essentially an artist, a designer, a creator, whilst he is, should be, rather, an artistic specialist, a skilled builder. And he loses nothing of dignity or power or glory in the transition.

In the purely decorative arts it is different. A painter or a sculptor dreams and then proceeds to put his fantasy upon canvas or into marble. The painting or the figure is beautiful, it may be any one of a dozen things, the figure can do duty as a fountain, stand in an art gallery or embellish a drawing-room, and the painting may become an altar-piece, or adorn the lobby of an hotel. Not so with the architect. His is not the function of merely interpreting a dream, giving tangible expression to his thoughts and selling the product to whomsoever has the price, he does not build fantasies, buildings, and then place them upon the market. His function is more specific, more real, more commercial, if you wish. The purpose of a building is decided upon before he is called in, it is very definite, it rarely is purely a monument, and generally is erected to produce revenue, or to house some special commercial plant, or as a home, or house of worship, whose occupants have especial needs or notions and limitations that should be catered to and served. His is the task of putting those ideas into reality, of producing that revenue, of making convenient and easy of operation that factory or school. Advantage must be taken of the site already selected or owned, consideration must be given to the surroundings; a perfect

what revived, and styles prevailing in both the northern and southern dynasties of China were introduced and their excellent designs were readily adopted.

With the Tokugawa rule, came the great renaissance in Japanese art, and tile ornament quickly rebounded, but has since again suffered retrogression, and the old pieces from the palaces and castles of former times show decidedly higher and purer art than that expressed in later designs.

The chrysanthemum tile is restricted to use by the Imperial family and for shrines especially named by it. The Tokugawa crest of three hollyhock leaves decorated tiles used by that family, and others made use of their crests in a like manner.

Beside roof tiles, several other kinds are made; wall and pavement tiles, for exterior use, and a floor and wainscoting tile for interiors, such as bath rooms. These are square, rectangular or sometimes hexagonal, with six or eight-inch sides,

structure, with all its complexity of details and specialties, must be produced, and the whole must be kept within a limit of cost that has been prophesied, anticipated by the architect. On top of all that, if he be a true architect, he will make that building beautiful, whatever its purpose, whatever its cost, however humble it may be. And such a task elevates that work into the most ideal, the noblest, the grandest, the finest of the Fine Arts, and, without exception, the greatest and most complex of all the sciences. For it must take into account and actually comprehend at least the rudiments or some of the details of them all.

Sad to relate, however, distressingly few practitioners in our profession look at it that way. They, particularly the "Beaux Arts" product, seek ever to invert the process; they mistakenly put what they deem the "art" before the essentials, looking upon the later as irksome, burdensome restrictions the owners of property cruelly put upon their great talents. To such an extent, indeed, that seven out of ten of them will begin a "design" by blocking out a sketch of a beautiful exterior, a fine colonnade and artistically balanced "voids and solids"—windows and wall spaces—and then do their blesseddest to beat the interior requirements into shape that will fit that exterior, however dark the rooms may be or ill adapted to its purpose the structure is in general. For all the world like going into a tailor's shop to have one's self adjusted and padded or cut down to the suit of clothes the tailor wishes to sell, rather than to have him make one that fits the figure. And, by the way, without disrespect to our noble profession, it seems as difficult to get an architect to do just the right thing with a building as it is to get ourselves properly fitted at the tailor's. Invariably the latter "artist," too, wants his way and arranges it so we sit down with difficulty, or fear to move an arm, or realize that the collar and the shoulders "hunch." One difference, the tailor, or some successor, can generally remedy the fault in the clothes, but a building, once completed, is there for good and all.

If any set of men need checking-up, "auditing," so to speak, it is our architects, particularly the truly "artistic" ones, the Beaux Arts product, those who constantly strain at the bit and chafe at the restraint imposed upon them by artless and heartless clients who are not particularly concerned in building monuments to their architects' artistic emotions, but who cruelly insist upon buildings that, to some extent, at least, serve the purposes for which they are built. It is passing strange, too, that such clients so often let a zealous architect go ahead and spend thousands before realizing that he is simply doing an artistic "stunt" at their expense. It would seem that ere this business men would have devised, thought out, some scheme of auditing or revising plans that would have counteracted the too artistic, the solely emotional tendencies of our super-enthusiastic brethren.

No system of bookkeeping or of banking is so perfect but that it is not benefited by an auditing. In every other branch there is an auditing. At law a court finds the flaws in a lawyer's plea, and in medicine a doctor always calls in another to consult anent an important case. Only in architecture is a practitioner supposed to be supreme, the final judge and critic of his own work!

And it must be conceded that in few other arts or callings are so many and such atrocious bungles made. They say that a doctor buries his mistakes; not so the architect, they glare at him, they are conspicuous monuments to his fallibility and have a bad habit of staying on earth sometimes for a very long while. Who has ever built, be it a house or a more important structure, but who has suffered as a result of these "professional errors?" How many people, who build twice, employ the same architect in both buildings? In some cases it is almost pitiful to see how an owner's money is wasted, unintentionally of course, but wasted nevertheless. So few laymen really understand a plan when

they do see it that it is not reasonable to expect them to know whether those plans really supply their needs, whether they conform to the building code or not, whether the building will receive a high or low rate of insurance, whether it really will be fireproof or not, whether the construction is regular or expensively special, whether the light will be good or poor, all those things are left confidently to the architect. Sometimes he manages to take good care of them all, and other times he falls down miserably in one and often in a dozen particulars. A very beautiful church may be completed, or a theatre, only to find that its acoustics are horrible, and thousands of dollars have to be spent before it is fit for use, and the corrections usually mar what there is of "art" about the building. Probably not one in a thousand architects knows anything about acoustics anyway. So in fireproofing. They will spend much money in providing elaborate fire-resisting construction in some particulars, and then make some foolish slip—unprotected windows or some details—that nullifies all the good points and permits fire to destroy all the contents of the building and damage even its structure to the tune of fifty per cent or more. It is conceded that not one architect in a hundred appreciates the importance of fireproof construction, and not one in a thousand knows all about its very simple essentials. At least they assuredly do not apply that knowledge if they have it, for authorities affirm that there are perhaps but twenty really fireproof and not over 8,000 fairly fire-resisting buildings in all the thirteen million structures our architects have designed!

The profession's sins of commission and omission are indeed many and costly. Ornament misapplied and where it adds absolutely nothing to the appearance of a building, just increased cost, waste; materials excessively strong in one place and barely adequate in another; so many rooms crowded in that the light space is insufficient for the entire building, resulting in large unrentable areas; arrangement sacrificed to external appearance, cases are common where one or two rooms to every story are utterly spoiled in order to get in a column or arch on the "front" (I've known of a sacrifice of over \$5,000 rental a year being made in order to have a few pet columns); everything is subservient to that "front;" and there's the inadequately heated building and the overheated building, the leaky roof, the damp walls, the undrained cellar; oh, there are errors and "bulls" galore. And, to sum up, how often is a building completed for anywhere near the architect's estimate of cost? The forgotten details, the hastily written specifications, the inaccurate plans, the "extras," the rows with the builders, the loss of time, rent and interest!

No art or science involves as many details, as much complex interweaving of specialties, and requires as masterly handling, far-seeing, almost prophetic, vision and wide information as does architecture. It is indeed the comprehending, the application of a hundred arts and crafts in one entity, and requires genius, skill and experience to handle it successfully. Few men in the profession have the native talent or have had the time or opportunity to perfect themselves, to be really thorough. A fine body of men, collectively, no doubt, and, individually, some of them have rare ability in some one line or other. But, to claim that any one's plans are above revision, that auditing is a superfluity and is not a great advantage to both architect and client is positively senseless, preposterous and denotes a conceit as fatuous as it is without foundation.

Some offices turn out uniformly good work but, again, one building may be excellently designed and the very next one by the same author, may sin in endless ways. Architects' sins are apparently not consistent nor habitual, they break out in unexpected places. The underestimating habit, however, seems to be the most general and ingrowing. They know how many things the owner would like to have and they try to give them to him and probably hope against hope that they can achieve the impossible in getting something for nothing, and undoubtedly estimate and promise accord-

gly, basing their calculations not upon facts, but hopes. It is a most ordinary sin to make plans that would cost to execute anywhere from thirty per cent. to even one hundred and fifty per cent. more than the estimate, or the sum the owner has available for the investment. Cases are not infrequent where this underestimating has proven an absolute disaster to the owner, turning what was hoped to be a profitable investment into an initial and continual loss, a building that not only did not produce commensurate returns, but that could not be disposed of for anywhere near the amount invested, and all on account of either the architect's culpable lack of accurate information or his moral cowardice in not frankly telling the owner that neither he nor anyone else could possibly get him ten dollars' worth of building for six. And here it may be well to remark that an extra \$2,000 on an \$8,000 house is as important to the man who has skimmed and saved for years to get the \$8,000, and has only that, as the \$150,000 or so extra to the bank or corporation that has figured its returns upon a \$1,000,000 investment.

Lack of real, practical education, of training, of a willingness to give a client what he really needs, rather than what we want to give him, is what does it. Our ranks are cluttered up with fellows who have had less preparation for the profession than a carpenter has to have to become a journeyman. Indeed, it is so open a profession that in most States the purchase of a sign, "So and So, Architect," is all that is needed to have one enrolled in our "gallant ranks."

And if one did go through a regular architectural course, what did he get? Frills and furbelows, a splendid training in the orders, the most exact proportions of moldings, familiarity with ancient and should-be-obsolete styles. He was so saturated with classicism that if a client wanted a dog kennel it had to be a be-columned, pedimented and marble affair; he had grand projects to deal with, palaces for kings, and \$10,000,000 theaters in the middle of national parks; he dealt only with things lofty; he soared above things merely mundane, the cost was nothing—revenues? la-la, what cared he for such earthly details? Was not the front superb? Arrange the plan to suit that front. Were not clients made solely that architects might put on a noble front? *Mais qu'ils sont droles ces gens la!*

Of late some of the colleges have tried to hammer in a trifle more practical work, more facts, some fireproofing. The next generation may be a bit better. Even this present generation may improve itself if it will take the trouble. We can hardly expect our architects to give up business and go back to college, but they can get some schooling via that most popular route of instruction, a correspondence course—matter put into tangible, concise form, easily available and readily "assimilable." Take in the matter of fire prevention, for instance. Several of the correspondence schools may be doing good work in that line, but I know positively of one great correspondence school, the American, of Chicago, that has gone to endless expense in securing data, the very highest authorities, splendid illustrations and all that sort of thing, in the preparation of a special course on fire prevention. I can recommend it very highly, for I know that nothing better can be done in that line. Even if the architects do not care to go through the form of answers, the regular student-routine, a close perusal of the text books (and keeping them as references) is bound to elucidate many points, to be of the very greatest benefit to them and their clients.

But to get back to our art. It should be plastic, adaptable; the tendency has been to make it unyielding during the duration of any fad. For instance, some twenty years ago a great artist flourished. No man before or since his time cared less for what was wanted and insisted more unswervingly upon his own ideas. Considered as mere "exteriors," regardless of the problems he was supposed to solve, his buildings were beautiful, in an adapted style of which he was a past master. They say that however lovely his fireplaces may have been, you could never build a fire there, they smoked so abominably; you may have had to use a stepladder to look out of a window, but what mattered it, was not the sill-line at the right level to work into the general scheme of external beauty? The exterior was impressive and the interior decorations artistic; if the house was a delusion and a snare, "unlivable," why go to a hotel; the house served its archi-

tect's purpose, for was it not beautiful to look at? And he was such a vogue that every other architect attempted to follow his example. There are still standing, that I have seen and counted, and heaven knows how many more, one hundred and eighty dark, gloomy court houses, city halls and postoffices, feeble copies of his "masterpieces."

Then another stellar light shone, and he worked in replicas of Greek temples and baths and such. Today we build of steel for support and ask for all the light we can get into our rooms. Being of steel, the wall supports need be very small and the openings can be very large. But, because that artist's style took deep root, we must perforce incongruously garb our modern requirements in that ancient dress. We still stick to huge classic columns and great overhanging granite cornices because he did it that way and it took our eye. These huge columns support nothing, they are plain lies, in many instances they are tied and supported to the light steel frames as we would hang bird-cages. We farcically build our great railway stations in replicas of the baths at Caracalla, and our skyscrapers with details robbed from the Temple of Juno, and our dog kennels like unto the Circus or some other ancient Greek or Roman pagan. To be consistent we should garb our ticket sellers in toga and sandals and our elevator men with buckler, helmet and spurs. It is ridiculous. Our paucity of expression is appalling, our lack of adaptability, of consistency, of skill, in coping with present-day problems with present-day art, is pathetic.

Another of our great architects is lauded to the skies, is deemed great and waxes fat and in abounding prosperity because his "magnetism" is so great, his persuasion such that when a man humbly goes to him and says he has a lot down in the manufacturing district, and has been offered a splendid rental if he will build a modest sized factory there, he, the Great One, pooh-poohs the project and hypnotizes the said owner into erecting a cathedral or a monument to his grandmother there instead, whatever the Great One happens to wish to design for the nonce.

Of all our four thousand practitioners and over, there is just a little handful, and they in Chicago, who are bold enough, fearless, progressive, modern and truthful enough to face their problem squarely and treat our noble art as it deserves. They have realized and appreciated the trend of the modern, the tall building, the demand for light, the adaptability of the structure, and they frankly build their buildings of steel columns and steel beams and then clothe that skeleton with just enough stone or brick or, preferably, terra cotta (on account of its plasticity), to cover that steel, and they make that outer covering as ornate and beautiful as they can. The form of ornament is Oriental in its spirit, but it is modernized in its application. There is no forcing, no *tour-de-force* to adapt it. It is not a case of transplanting a temple or a tomb and trying to make it do duty as a retail store or bank, but is simply using a detail, a scheme of applied ornament, that was beautifully handled by the early masters and is now equally as applicable on new forms in our new needs. To my mind, the work that has been done by the little band of Chicagoans is real architecture, the nearest approach we have made to an American style.

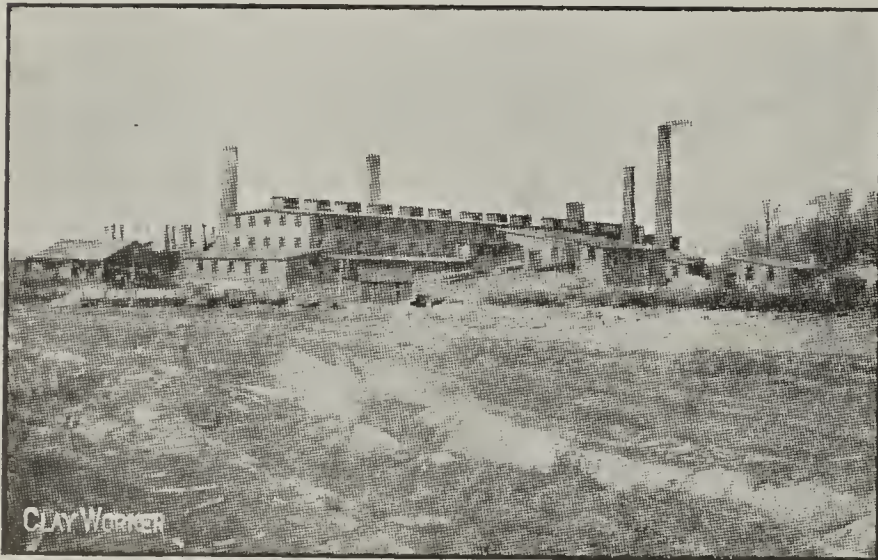
I am not clamoring for a slavish following of that particular style of decoration, it is individual and few can handle it as successfully as those Chicago chaps, but I do vociferously pray and beseech my fellows to get out of the thralldom of the antique, the fetish of the Greek temple, the worship of what has been done. We have new problems—the ancients never dreamed of them—we have new materials to work with, we have novel and complex conditions to cope with, commercial, domestic, religious; let us face them like men, let us give the client what he really needs, what will produce the very best results in facilitating his business operations, or in producing the greatest profit. Doing that, we will prove our claim to being "economic engineers." Then let us build of the best materials, let us make those buildings truly fireproof—we can if we only take the trouble to know how, and it is most simple. And then let us forget our classic columns and the other follies of our youth, and proceed to decorate that simple structure in a dignified, truthful, consistent and artistic manner. Then, and then only, will we graduate from the class of mere copyists of antiquity, jumblerers of our problems, hack-workmen, and be truly artists and real architects.

Written for THE CLAY-WORKER.

THE E. BIGLOW CO.'S FINE DRAIN TILE PLANT.

ONE OF THE finest drain tile factories in the country today is that of the E. Biglow Company, located in New London, Ohio. It is an up-to-date plant, is ideal in nearly every way and has many unusual features.

Mr. E. Biglow, the president and general manager, is a pioneer clayworker and has been identified with the trade for over thirty years. He is one of the few men who are considered authorities on land drainage. He has been an active promoter of tile drainage and has delivered many addresses on the subject at numerous conventions. He began his career in the tile business at West View, Ohio, where he owned an interest in a small horsepower machine yard on which they made brick and tile in a crude fashion. At first the production was hardly sufficient to keep two kilns under fire. Within a short time after he was in full control of the management of the plant, a third kiln was necessary and the three were used constantly. Mr. Biglow managed this plant for sixteen years and then purchased a plant at New London, Ohio, which was formerly owned by Mr. A. Ruse. To this site he moved the West View plant. This was only a small affair, with only one kiln. The plant was slowly developed and enlarged until today it has a capacity sufficient to keep the eight large twenty-eight-foot down draft kilns going con-



The E. Biglow Company's Plant.

stantly. The plant has been in continuous operation for nine years, even during the reconstruction period.

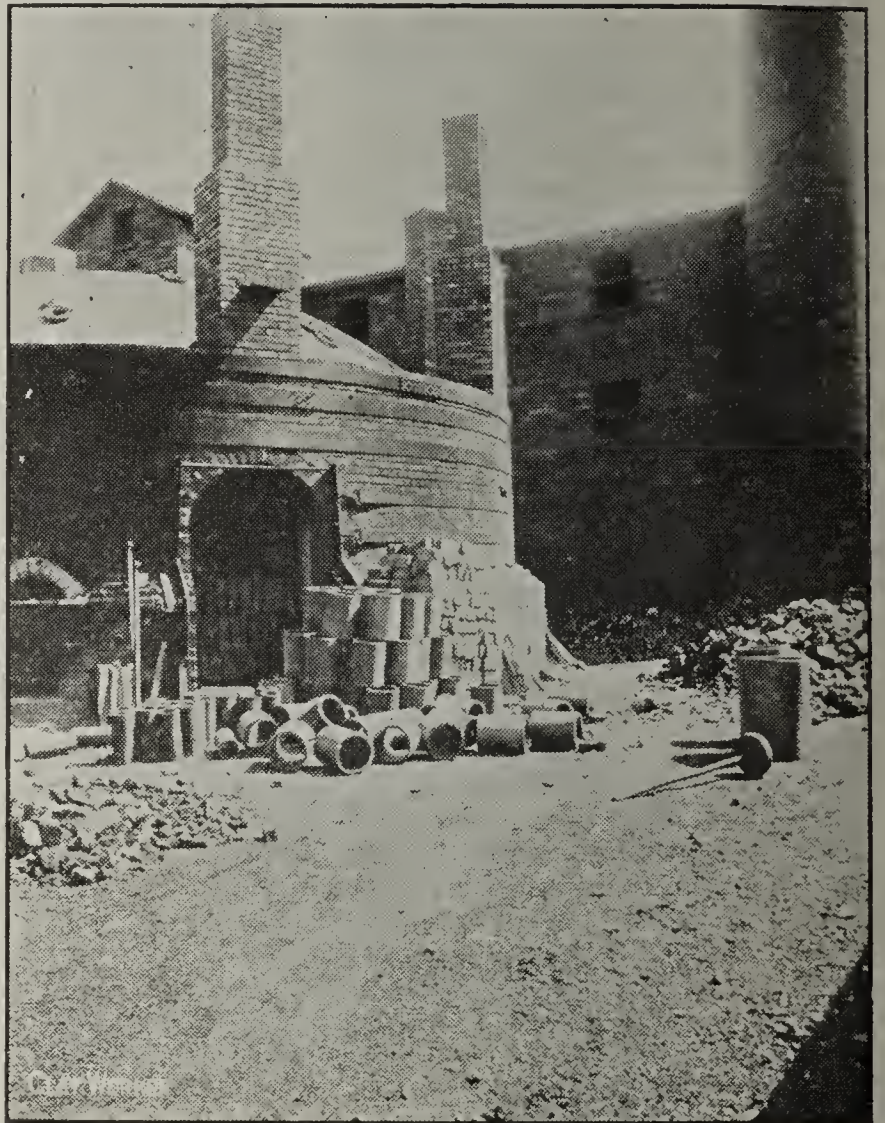
Two years ago, the plant for the most part was reconstructed. A new dryer was installed and the plant made ideal in nearly every particular. In place of the old main building, a fireproof factory 260 feet long, 40 feet wide and three stories high was erected, also engine, boiler and clay storage building, was erected, built of hollow block made on the old plant. These buildings house the engine, boiler and machinery rooms, the storage bins, drying floors and dryer.

The plant proper and storage yard occupies five acres of ground, while the clay land surrounding the plant covers thirty acres. The raw material is all surface clay ranging from five to fifteen feet in depth. The formation is peculiar—it is thought that the base at one time was a valley which was filled up with water due to floods and the clay brought in from some foreign point and deposited there. Burnt clay has been found imbedded in the clay field which was caused, no doubt, by the burning of flood wood. In some parts of the field there is a sandy clay which is used with the other clay for the manufacture of brick, as the most of the clay is too plastic for making stiff mud brick.

The general run is on drain tile ranging from two and a half inches to twenty inches. The largest runs are on threes and fours. The output of brick is about 400,000 a year, while

3,800,000 feet of tile are shipped annually. There are very few hollow block made, although the plant has the necessary equipment for making same.

In the winter time the clay is dug by hand and in the exceptionally cold freezing weather, blasting is sometimes necessary. During the summer months the drain tile clay is gathered in the field by means of a Buckeye clay ditcher, which digs two feet wide and five and a half feet deep. An accompanying illustration gives the reader an idea of the manner in which this ditcher is used. Two clay dump cars are loaded at a time and drawn to the bottom of the incline by a twenty-horsepower gasoline locomotive which has proven a very economical item in hauling the clay to the plant. From the bottom of the incline the cars are taken to a point above the clay storage bins by means of cable and winding drum. Automatic switches are located at the bottom of the incline so that cars may be switched to any point and connected with any track desired. The brick clay is dug by hand, for



One of the Tile Kilns.

the sandy clay deposits are small in extent and are only worked occasionally.

The storage bins are two in number, 24 x 50 feet. The stored clay is wet down with a hose in midsummer owing to the heat drying out the clay and making it difficult to work in the dry state. In the spring this is not necessary, so the clay is worked through the plant without much preparation. The storage bins are equipped with systems of steam pipes running horizontal in the bins. One is set at the bottom on which three feet of clay is dumped. On this three-foot level, a second set of pipe is placed. These pipes are perforated with small eighth-inch holes which allow the steam to percolate through the clay. One hundred feet of pipe are used for this steaming system in each bin. In the winter time the clay is spaded out and mixed with cold clay in the proportion of one-third of hot to two-thirds of cold clay. The bins are located in one corner of the building and in pairs, the dumping tracks being located above, while below the bins, under loose

boards, are two conveying belts on which the clay is taken to two Fate conical roll crushers as needed. The loose boards or planks which cover the belts are removed one at a time allowing the belts to be loaded partly by gravity. From the crushers the ground clay drops onto a belt conveyor which takes the material to two J. D. Fate Company's Imperial machines. One of these machines has a down delivery attachment for the making of a large sized pipe, while the other is a horizontal machine on which the smaller sizes are made. Several of the Fate automatic cutting tables are used, the different styles being employed for the making of different sizes of tile, block and brick. The larger sized pipe made with the down delivery attachment, are cut, of course, in the usual

dried in the dryer, while all of the larger sized tile are dried on the drying floors. The dryer is that of the Richardson-Lovejoy Engineering Company type and holds 45,000 tile, that is, 120 cars on the ten tracks. It is a waste heat exhaust steam dryer and requires but three days in drying. The drying floor space covers three floors, 40 x 260 feet. Five elevators are employed in elevating and lowering the green and dry ware. It requires from three to five days to dry the ware on these drying floors, which are heated by steam pipes. Exhaust steam is used during the day and live steam and waste heat at night. Over 10,000 feet of one-inch pipe are used on the second and third floors in the heating. The heat for the dryer is obtained from the waste heat from cooling kilns.



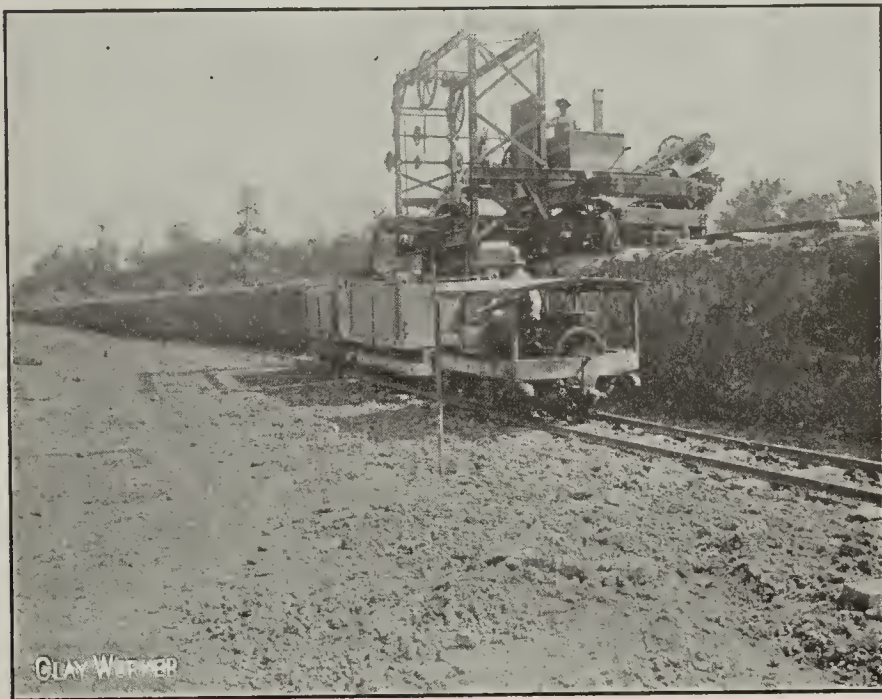
View From the Stock Yard.



Digging Brick Clay.



Buckeye Clay Digger at Work in Field.



Filling Clay Cars.

way. The method of handling the large pipe from machine to drying floor, however, is somewhat unusual, for the pipe are pushed onto a roller platform and same is taken to second floor on a small elevator where the pipe are pushed off the roller platform onto a roller stand. From these they are put onto spring trucks and taken to any part of the building.

In making the brick, the green ware is taken from the off-bearing belt and placed on a pallet on the floor. Seventy brick are piled up on this pallet, which, when loaded, is picked up by a two-pronged truck and carried to the drying floor. Some times the brick are dried in the dryer, the brick to be dried in this manner being loaded on steel dryer cars which hold nearly four hundred brick. The three-inch tile are all

Two fans, one of the American Blower Company and the other a Crawford McCrimmon, are used in controlling the heat for the drying.

The ware is burned in eight 28-foot round down draft kilns. The drain tile is set nine tiers high, while brick are set around the eight bag walls from three feet up to one foot above the top. Two of the kilns are connected to a large 36-inch flue stack which is 60 feet in height and built of brick. The other six kilns have individual stacks, eight to each kiln. There are two stacks at either end of the main building used in connection with the dryer and power plant. The dryer stack is 48 feet high, while the other is 70 feet in height. Both have four 4-foot flues and are built of radial blocks.

For several years the company used two down draft kilns, 22 feet and 24 feet in diameter respectively on which brick flues were built up the side and over the top to the center of the crown for taking the heat from kiln into an underground flue which leads into and around the drying floors. A fan was used to force the heat through the building in this system. The fan did its work well, but too much heat was lost by radiation and the system found impractical and abandoned. Now, the underground system of flues is used to carry the waste heat drawn from a fire box in each kiln to the dryer. A sheet-iron box arrangement connects the fire box with the flue after the kiln has cooled two or three hours.

The power of the plant is furnished by two engines, one 60-horsepower and the second 100-horsepower and two 100-horsepower boilers. Each of the two Fate machines have independent engines. A 30-horsepower engine is used in connection with a dynamo for supplying the lighting of the plant and operating the digging machine and the power for the running of the winding drum. The water supply is furnished by a large reservoir located on the company's grounds. Gandy belting is used throughout.

A little thing which does not amount to so very much in itself but shows how carefully the Biglows watch every detail in the manufacture, is the home-made wooden dauber box,



The Unique Dauber Box.

a view of which is shown in one of the illustrations. This box can be wheeled to any kiln door and the clay and water mixed and door daubed up without the carelessness and mess generally incident in such work.

The transportation facilities are excellent, the company owning its own switch and depressed tracks, the banks of which are built of brick culls and broken pipe.

Mr. E. Biglow is the president and general manager of the plant, while his energetic son, E. O. Biglow, is vice-president and treasurer. Mr. J. L. O'Hara is secretary and sales manager.

PEAT IN RUSSIA.

Peat constitutes about one-third of the fuel used in the central industrial districts of Russia.

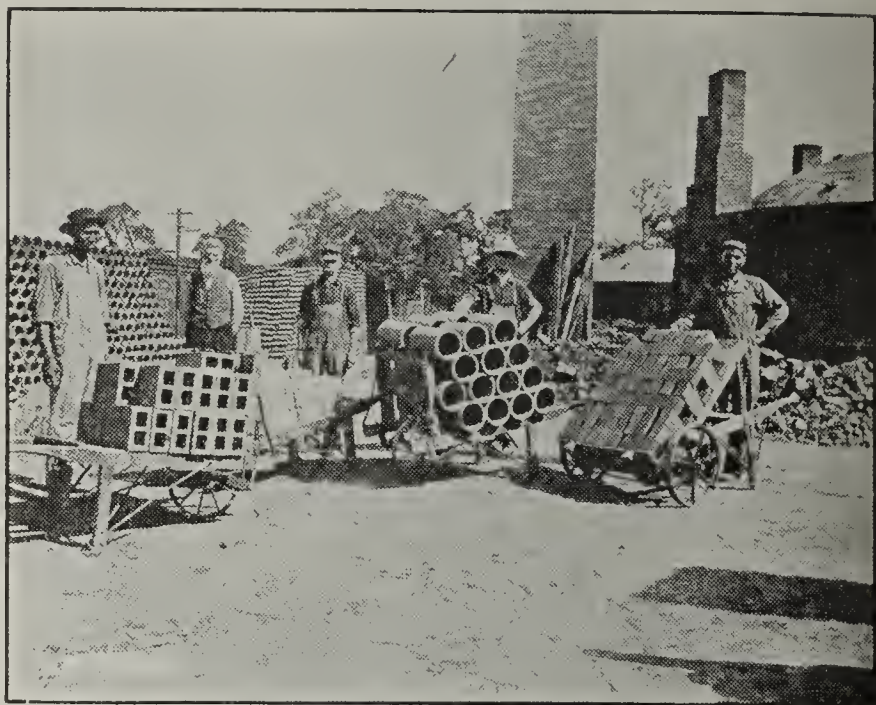
Peat is the ordinary fuel of the greater part of Ireland, where estimates place the lowland bog area at 1,576,000 acres and the highland at 1,254,000 acres. While it is not at all likely that the use of peat for fuel will ever become general in cities, its use in rural districts may become common. Its use for power purposes with power plants located at the beds and operated by producer gas is an assured success beyond the experimental stage.

Do not be in a hurry to drain peat bogs but be sure that they will be worth more after being drained than for fuel purposes.

BRICK COMING INTO ITS OWN.

With the increasing desire in our country that all things about us shall be simple as well as beautiful, brick is again coming into its own as a building material. Brickmaking as an industry is being superseded by brickmaking as an art. The ancient Egyptians, Assyrians and other races of the Orient wrought their palaces and temples of brick with marvelous skill and effects of beauty that we have yet hardly equaled. Some of the most beautiful Italian and French palaces were built of brick during the Renaissance, and the history of England can be traced in its mansions, manor houses, palaces and churches of soft red brick.

In our country brick for a time was rejected by all lovers



Trucks Full of Green Ware.



Filling a Kiln With Tile.

of beauty, because its manufacture sank into a mechanical process whereby hard, tight, flat cakes of hideous color and mathematical precision were turned out by machinery to provide a building material that should be at once cheap and durable.

Within the last twenty-five years, however, architects have been forcing on the manufacturers a demand for beautiful bricks. Architects, designers and manufacturers are now working in unison to produce bricks that shall meet every demand for beauty. The result is bricks of rich, variegated color and texture that charm the eye and that are in active demand for exterior construction.—Myra Emmons in "Arts and Decoration."



SIXTH PAPER.

Cutting Stiff Mud Bricks.

BECAUSE of the difficulty of grinding stiff mud bricks, and perhaps because of the less cost, it is customary to cut stiff mud bricks from the unburned blanks.

The first step is to determine the shrinkage of the clay and make provision for it in laying out the arches.

Suppose the shrinkage is one inch in twelve, or 8 1-3 per cent, then a block twelve inches long when burned would have to be 13.9-100 inches green. We lay off on a ruler the latter dimension and divide it into twelve spaces, and each space into halves, quarters and eighths, etc. We now have only to use the dimensions on the architect's detail, or as given by the contractor, but laying them off in our drawing with the scale just established.

This method may introduce some slight errors on account of the variation in shrinkage, but it will give results sufficiently accurate for all practical purposes.

The only other method would be to lay off the arch the burned size, and increase each unit in it the amount of the shrinkage, which introduces working difficulties, and chances for errors not to be considered.

Cutting Machines.

There are numerous contrivances in use for cutting arch bricks, some of them patented, yet, strange as it may seem, we seldom see any advertisement of them, and in consequence we do not find them widely used, but on many yards will be found some home made rig which answers the purpose.

The simplest rig is a box, like a carpenter's mitre box, with adjustable sides. If a wedge brick is to be made, the sides will be lowered at one end the proper angle, and the bricks placed in the box and cut by a draw knife or a bow wire. For side arch bricks, the sides would be kept level, but one side lower than the other.

Another simple rig consists of a box with wires stretched across it at any desired angle and which is adjustable. The bricks are fed into the box at one end and forced past the wires by a plunger.

If the blanks are soft, they can be cut by wires, but if leather hard, or dry, they can only be cut by a draw knife or rigid blade of some kind.

The usual type of arch brick cutter has a wire, or knife, attached to a frame and working vertically in suitable guides. Such devices have been in use for many years, and the patented devices are some modification of these machines. The first of the kind was simply a knife in a frame operated by a foot treadle. The bricks were marked to the pattern

by one operator and placed under the knife and cut to the mark by a second operator.

The addition of adjustable stops increased the amount of work that could be done. After the stops had been set to the patterns, the bricks could be rapidly placed and cut without any marking.

In any machine which must be set to a pattern, we can as quickly cut a few bricks by marking or by holding the pattern on them and placing them under the cutting wire, as we could adjust the machine to do the work, but for circular arches where there are many bricks from the same pattern, the adjustable machine is an advantage.

Every yard should have some kind of a machine, because contractors can not cut the impervious products as they formerly did the dry pressed products and a larger part of this kind of work will now come to the factory.

In one machine the frames holding the wires were adjustable and two frames are used instead of one, as in the ordinary machine. By closing up the frames on one side or spreading them on the other, any degree of angle can be cut at a single stroke, and on both sides, which would be an advantage where the work required perfect wedges.

A recent machine has some novel features. It has vertical guides holding the cutting wire frame. These guides are attached to a rotating disc set in a table so that the top of the disc is flush with the table top. The cutting wire can be turned through any angle by the disc.

The mechanical features of operating and clamping the disc are of no importance in this connection. There is a stop, or guide, which fixes the position of the brick on the disc relative to the cutting wire. There is a pointer on the stop which can be set for any angle that may be desired.

Special drawings are made up on a small scale to fit the machine, and these drawings are placed under or at the end of the pointer, and by moving the pointer from cut to cut, as indicated in the drawing, the several angles can be cut without using any patterns for the work. The use of a rotating disc is not a new feature, we believe, but the mechanical setting from a scale drawing is entirely new so far as we know.

How far such a machine may be applicable to general arch work where a great variety of shapes are to be made, we do not know, but it is claimed that it will cut any shape.

In any machine of this kind, accuracy is of greater importance than speed. The quantity of arch bricks which a plant is called upon to make is relatively small, and the advantage of having the work well done more than offsets any slight saving in the cost which mechanical methods offer.

The price obtained for arch work is always good, and if enough work could be done, it would be very profitable, but, as a rule, it is done in order to sell the standards for the job, and the better it is done the more certain we are to get

future jobs from the same source. We look upon the work as good advertising which does not cost anything, and we prefer to do it well rather than quickly.

Setting the Bricks.

Setting the bricks for burning is a feature which no one likes. They interfere with the regular work in no small degree, and if it were practical to have special kilns for such work, it would be a decided advantage. In the regular kilns they take up the best part of the kiln, and in setting them and protecting them with standards, many of the latter come from the kilns only culls and their lost value must be added to the cost of the arch bricks.

Wedge and arch bricks can be set with standards with little trouble and loss since they can be faced just as are standards, or they may be set flat for flashing by reversing them.

Flat arch bricks and various irregular shapes give the most trouble because of their irregular shapes and sizes. As far as possible the bricks should be faced using a right and left together, which protects the points, but many of the bricks, such as the soffits, can not be faced but must be set on the flat. To avoid flashing such shapes must be boxed in.

Where the arch bricks are set low in the kiln in order to get a certain shade they should be set in stands, or boxed in so that the weight of the upper courses will not come upon them in order that they may shrink uniformly and maintain the relative shape.

In many instances they may be set in saggars, or fire block stands, which leaves them free to shrink properly and at the same time protects them from the flame, where such protection is necessary. Saggars can not be used where it is desired to get flashed effects.

The small kiln above mentioned for such work is alluring, but we have not found it satisfactory. On many products, it is impossible to get the same color effects and shades in a small kiln that are had from a large kiln. Standards must be set around the sides and ends and over the bottom and top, and these result only in a cull product, and the loss in this way is greater than in the large kilns.

If the arches must be set in saggars, the small kiln is more adaptable and may be used to good advantage. The small kiln can be filled twice or more times to one burning of the large kilns, which enables one to turn out the work quickly, which is of importance in many instances. Contractors are apt to overlook the arches in the job until they are ready for them, and quick work is required in order not to delay the work too much. In this regard the grinding methods have the advantage over those in which the bricks must be burned before the order can be filled.

It is always necessary to make extra bricks of each shape to provide for breakage and bad burning.

After the bricks are burned they should be tried with a pattern of the proper shape, and touched up on the corborundum wheel to insure proper fitting in the arch. Apparently this would require a new set of drawings, but we do not find that this is necessary.

In the case of circular arches where the patterns are few in number, the patterns of the proper size can easily be made from the enlarged drawing, but with flat arches where there are many patterns, the burned bricks can be laid on the drawing as a complete arch, and the bricks which are unquestionably out of proportion taken out and ground or be replaced by the extras.

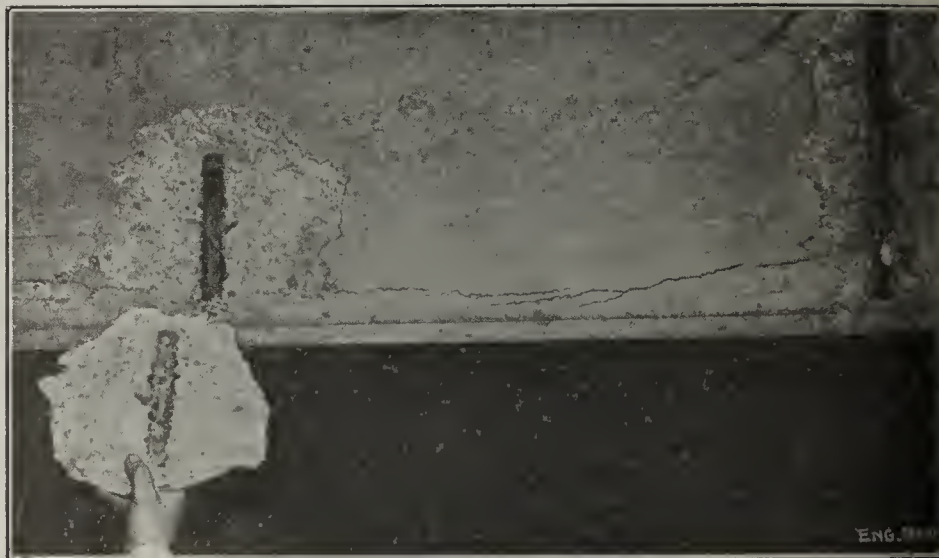
(The end.)

Every time we hear of a manufacturing plant burning out we can't help but wonder if they won't build it with brick and other fireproof material the next time. If they do, the loss brings some good return, even though it seems a burden at the time.

A NEW DANGER IN REINFORCED CONCRETE—ELECTROLYSIS LIABLE TO INJURE THE BEST CONCRETE.

Written for The Clay-Worker by H. A. Wheeler, E. M.

WHEN ENGINEERS resorted to the device of imbedding iron and steel rods in concrete, making what is termed "reinforced" or "armored" concrete, they enormously increased the uses of concrete, as it could then be used in tension as well as compression. Previous to this innovation, concrete was only used by conservative engineers and architects in compression, or where it carried a simple crushing load as in a foundation. For its uncertainty and weakness in tension, coupled with the grave strains set up by its large co-efficient of expansion, made it too dangerous to use in floors, arches and beams, or where tensile or pulling strains are dominant. By freely imbedding rods of iron or steel in the concrete, which were specially roughened to strengthen the bonding with the concrete, the concrete could then be safely used in tension, as the metal rods would take up the tensile strains. This combination gave a low cost product in which the concrete was admirably adapted for compressive stress, while the steel bars safely took care of the tensile strains. As steel when imbedded in concrete does not cor-



Concrete Forced Off at Stirrups of Beam.—Courtesy of Engineering News.

rode or rust, it gave every promise of being a durable building material whose use has been growing by leaps and bounds, since American portland cement has become so cheap and of such general excellent quality.

A new and very grave danger has recently been presented by Mr. Harold P. Brown, an electrical engineer, in a paper recently published in "Engineering News." He was called in consultation over a threatened lawsuit for heavy damages that the owner of a modern re-inforced concrete packing house proposed to bring against an electric railway, near New York, whose power house adjoined the packing house. For within a year after the completion of the packing house in 1906, many of the girders and columns began to show bad cracks that kept steadily growing. In a number of cases the concrete was forced off, or shelled away from the metal, leaving the reinforcement exposed and the latter always showed a thick coat of rust. As the tracks of the electric railway passed in front and on one side of the concrete packing house to the power station in the rear, a number of engineers had advised suing the railway company for the threatened destruction of the building, as they were satisfied that it was caused by electrolysis, that is, the oxidation or rotting of the metal caused by stray or leakage electric currents that passed through the concrete building to the power house, similar to the destruction of water pipes along trolley roads where proper provision is not made for the return electric current.

A careful examination was made by Mr. Brown of the entire premises, which showed that the trouble was local, or confined to certain places, and was not general throughout the premises. This showed that the trouble was not due to the concrete or the materials therein, which he further confirmed by having complete analyses made of the cement, the water used therein and of the steel used for the re-inforcing. On examining the basement, he found a small water pipe entering from without and on testing this for an electric current, he found a feeble current that was undoubtedly due to leakage from the trolley system, but it was too slight to account for the trouble, especially as none of the cracks occurred in the basement.

On examining the steel re-inforcement in some of the upper floors where the damage was greatest, he found quite a strong current was passing through the metal that promptly explained the cause of the electrolysis. The next step was to find where this dangerous leakage current came from. First the trolley power house current was shut off, but this did not affect or reduce this strong current, although the feeble current that entered by the water-pipe in the basement at once disappeared. Then the local dynamo that furnished light and power for the packing house was shut down, when immediately the current that had caused the electrolysis dis-



Exposed Rods in Girder.—Courtesy of Engineering News.

appeared completely. Here, then, was the origin of the trouble, or leakage from their own lighting system, which had the same voltage (110) as the stray current found in the steel re-inforcement. Yet it was with the greatest reluctance that the owner of the building could persuade himself that the trouble was caused by his own system, as it was a two-wire direct system in which the copper wires were insulated with the best quality triple-braided rubber-cover and carried in japanned steel conduits. Yet enough moisture had condensed from the steam and vapor in the building to get into the openings of the conduit, at the switches and fixtures, that resulted in sufficient leakage as to threaten the complete destruction of the building from the oxidation of the steel re-inforcement on which the concrete depended for its strength and integrity.

As electricity for lighting and power is now almost universally used in all buildings for every purpose and as its use is steadily growing, Mr. Brown has most forcibly called attention with the care and thoroughness of a scientist to the ever present danger to which re-inforced or armored concrete buildings are exposed. While a new building may be provided with such careful and thorough insulation of the wires that carry the electric currents as to be safe from electrolytic destruction, yet in time the insulation decays, or

may be injured by mice, vermin or accident, or become so saturated from moisture condensation, as to result in leakages that will start electrolytic destruction of the re-inforcing metal in armored concrete.

It is a new, complex, difficult problem that is liable to appear at any time and which adds another grave uncertainty to reinforced concrete—even if when success is attained in securing what is so simple in theory and so difficult in practice—i. e., reliable concrete.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



ONE ITEM of news in Kansas City this week which overshadows all other news matter, in the opinion of his many friends, is the death of Nathaniel Dickey, founder of the tile industry in this city, and father of W. S. Dickey, of the W. S. Dickey Clay Manufacturing Company. Nathaniel Dickey was eighty-five years old, and died August 22 at his home in this city, after a stroke of paralysis which came three weeks before. He came to this city thirty years ago, after having spent a number of months investigating the western and southern part of the United States, looking for the point which he would consider best for the establishment of his tile factory, and opened here under the name of the Kansas City Sewer Pipe Company. The outgrowth of this company is the W. S. Dickey Clay Manufacturing Company, with plants in seventeen western and southern States, and his sons have always claimed that it was the foresight of their father which made the present large business possible. Mr. Dickey was born in Lisburn, County Antrim, Ireland, and was one of the eight children of Adam Dickey and Margaret McCurry. He received his education in Belfast, and served an apprenticeship of five years in the Soho foundry and machine shops of that place. He came to the United States when he was twenty-two years old and then went into business in Toronto, Canada, operating a large machine shop. He was married to Miss Elizabeth Simpson, of Barrie, Ontario, in 1860, and was the father of nine children, all of whom have resided either in or about Kansas City. They are: Walter S. Dickey, Adam H. Dickey, Alfred E. Dickey, Nathaniel A. Dickey, Fred L. Dickey, Harold E. Dickey, M. Louise Dickey, Lillian G. Dickey and Florence M. Dickey.

Business conditions in the brick line are improving quite a little bit, and a good fall trade is looked for by almost everyone. The fact that the long talked of contracts on the new union depot building are really being let, and that work has begun on the excavation for the foundation, has stimulated other building operations, for this depot matter had been dragging along for such a time that some people began to think it would not be taken up for years. There will be almost an entire remodeling of that section of the city, the present warehouses, lumber yards, coal yards, etc., being succeeded by buildings suitable to take care of the different lines of business attracted by a depot. There will be several good sized hotels, and before the change is completed the most of that part of the city will be rebuilt and this should alone cause the use of much brick. There will be much building in all parts of the city caused by this depot, however. Already a man is asking bids on a large apartment house south of the depot, and much is expected in the way of developing the outside manufacturing districts, which will now have union freight depots, so they can just haul their load of freight to one depot and unload it, no matter what railroad it goes out of the city over. As soon as these are established the outside manufacturing districts will be more convenient than those right down in the heart of the city.

The brick plants in the country are informing their city correspondents that they are tired of making brick for noth-

ing, and that they are going to stop it. This indicates that some advances are to be looked for early in September. Whether enough of the plants will hold off to cause this, remains to be seen, but one thing is sure, all the plants are not going to continue to turn out common brick at a loss.

One factor in the stiffening feeling is the fact that the season is here for the gas to be turned off on short notice, and then a higher priced fuel will be used and a corresponding increase in cost of production will be made. A good many are turning their attention to oil. Some of the plants which have been using oil for a good while, such as that of the Buffalo Brick Company, report that it is the best fuel with which to burn brick, that the heat can be regulated exactly as wanted and that it is absolutely the best they have ever tried. They would not think of using gas again, even if it saved them considerable more money than it would. This is interesting others, and possibly we may soon have plants equipped to turn out a uniform brick of a quality to command a price above the market.

It is stated in a good many sources that brick companies using gas supplied by the big gas companies will have to stand a raise of two cents per thousand this fall. One company raising the price September 1 and one October 1.

The Coffeyville Shale Brick Company is about to reconstruct its plant, especially the kilns, with the belief that the cost of production can be considerably decreased by the use of the most modern methods in this direction.

The Pittsburgh Vitrified Brick and Tile Company announces that it has the contract for 1,500,000 brick to be used in resurfacing a street which was paved by the bitulithic people some four or five years ago. While they feel sorry for the people who pay for this pavement, as they only have the old pavement about paid for, and must begin to pay on the new, they are glad of this opportunity to prove the value of brick as compared with a bitulithic pavement. Fifteen or twenty years from now they expect the pavement laid out of their brick to be a good advertisement for the brick business.

K. A. W.

BRITISH LAWS GOVERNING LEAD POISONING.

One recommendation made by the committee appointed by the British Home Office to inquire into the dangers of the use of lead in the manufacture of earthen and chinaware, will attract wide and general attention. It is as follows:

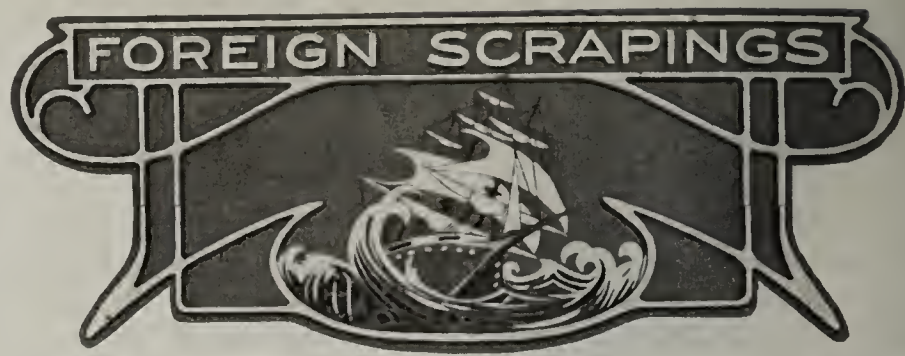
"A supply of milk, or cocoa with milk, shall be provided for all women and young persons working in scheduled lead-poisoning processes, who commence work before 9 a. m. Not less than half a pint shall be provided for each worker, at the expense of the occupier. It shall be compulsory on the worker to drink the milk or cocoa, unless a medical certificate is produced, stating that such nourishment is unsuitable."

The cases of lead poisoning in the United Kingdom fluctuated in twelve years as follows: 457, 249, 200, 106, 87, 97, 106, 84, 107, 103, 117, 53.

The committee, judging from the potteries visited, attribute lead poisoning to the imperfect conditions under which the workers labor, and the very casual observance on the part of the employers and employes, of many of the special rules in force.

The lead is absorbed through the alimentary system, by the dust being swallowed, or through the respiratory system, by its being taken into the lungs—the opinion being divided as to which of these channels is the principal mode of entry. The poisoning is due more to glaze, than to lead in colors. The probability is that leadless glazes will be more and more adopted, especially as they are cheaper.

It was established that pottery of excellent quality can be obtained with leadless glaze, and low-solubility glazes. A Bristol firm failed to secure sufficient labor as long as it had cases of plumbism, but when it abandoned raw lead glazes, it had no further difficulty with labor.



Clay Car Brakes.—In many brickyards the clay is hauled from the clay pit by cars on an incline, and very seldom we find any arrangements to stop the running down of the car in case of accident. In Fig. 1 such a simple arrangement is shown. It consists of a piece of 6x8 about five feet long, bolted to the track, and placed so that when the car passes over it, it will tip level with the track, and when the car has passed it will project above the track. In Fig. 2 is shown a

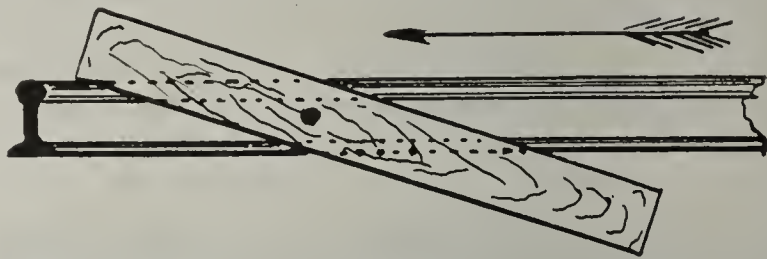


Figure 1.

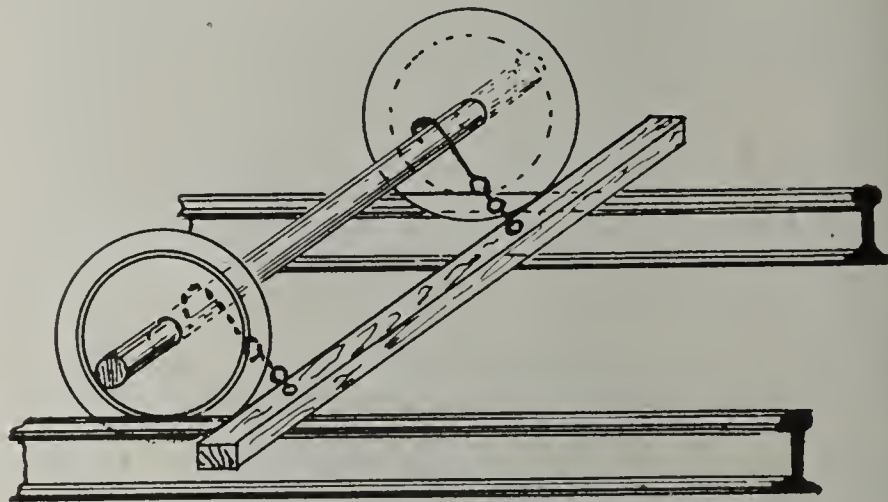


Figure 2.

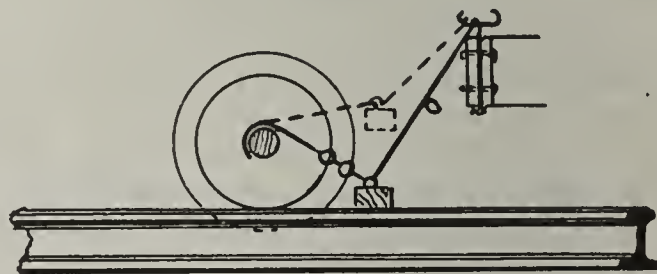


Figure 3.

simple brake beam arrangement which drags over the tracks and will stop the car the moment it will run back. In Fig. 3 is shown the same arrangement with a provision to hang the brake beam up in case it is not needed. Any of these arrangements can be easily attached to any car, and will prevent many troubles.—Deut. Topf. & Z. Z. No. 46, 1911.

The Cost of Hauling Brick in Automobiles.—The cost of hauling brick in auto trucks for a distance of 10 kilometers (about 6.2 miles) is about 4.80 to 5.20 marks (\$1.15 to \$1.25) per 1,000 brick, if the daily hauling amounts to between ten and fifteen thousand brick. The road must be good, otherwise the cost is much higher. The first cost of an auto truck is 15 to 16 thousand marks (\$3,600 to \$3,840) and the cost of a trailer about 2,000 marks. The life of such a truck is ten years. Since the government has taken such great in-

terest in the moving of heavy loads over country roads, the installation of an auto truck has been made very much easier than before. The Prussian Royal War Department assists every installation, and pays from the government funds for every auto truck upon being purchased 4,000 marks (\$960.00) to the owner. The Department pays further an annual subsidy of 4,000 marks for the operation of the auto truck. These subsidies are paid annually under certain conditions which are easy to fulfill. A cost division of the operating expenses of an auto truck are as follows for a load of 5,000 kilos (11,000 pounds) per kilometer (.62 miles): Gasoline, 6.5 pfennig; oil and waste, 2.5 pfennig; rubber tires, 26.2 pfennig; repairs, 4.5 pfennig; depreciation, 4.5 pfennig, making a total of 44.2 pfennig (10.6 cents).—*Deut. Topf. & Z. Z. No. 44, 1911.*

Roof Construction for Clamp Kilns.—In many cases we find that the roofs over clamp kilns are only temporary arrangements, and are built up and torn down frequently. In

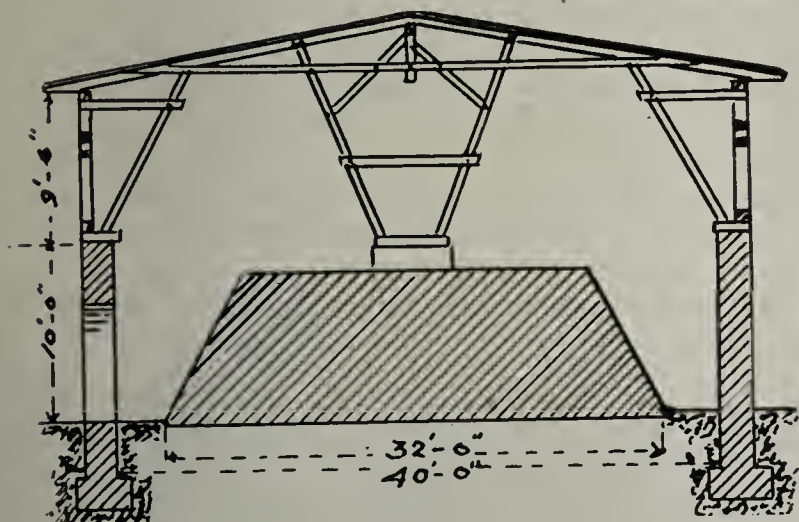


Figure 1.

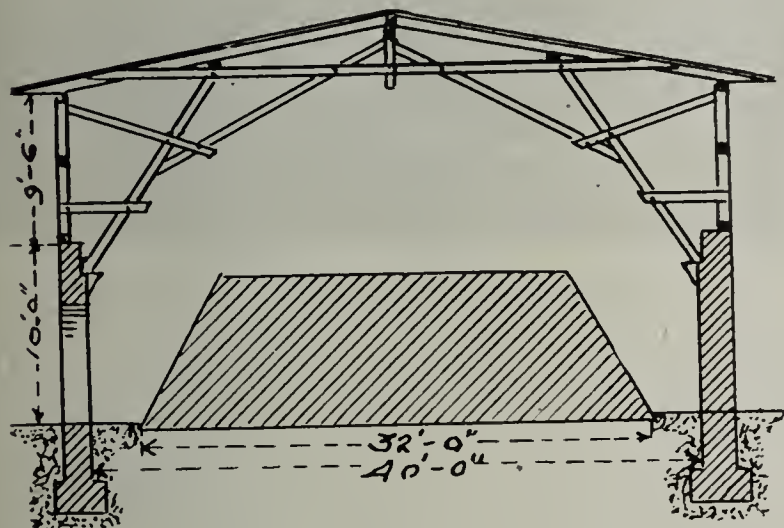


Figure 2.

order to construct something which will be permanent, and at the same time can be handled in the same manner as such temporary arrangement, the two cuts herewith shown will give an idea of the roof construction. The cost of the construction as shown in Fig. 1 is 314 marks (\$75.00) and for Fig. 2, 262 marks (\$54.00) for every kiln units of 4.50 meter (14.75 feet). The width of the kiln is 32 feet, and the width between the posts is 40 feet, the height of the post wall is 10 feet and of the posts above this wall, 9.5 feet.—*Tonind. Z. No. 69, 1911.*

The Drying of Sand.—Among the methods of drying sand, the pipekiln system is the most used one. These kilns have a large capacity, and take very little fuel. The arrangement is a system of iron pipes of six or eight-inch diameter, which are placed from three to four inches apart. Through these iron pipes circulates the hot air from a furnace which is placed direct under these pipes. The firing can be done

with cheap coal. The sand is thrown on the top of the iron pipes, and it will run down through the several layers of the pipes as it gets dry. From three to four carloads of sand can be dried per day with such pipekiln.—*Sprechsaal No. 24, 1911.*

Scandinavian Brickmakers' Convention.—The sixth annual brickmakers' convention of Scandinavian clayworkers was held in Helsingborg from June 30 to July 2 last. There were 228 delegates from the various parts of the country, and their meeting was a great success. After the meeting special train excursion was made to the various brick plants in the vicinity of Helsingborg.—*Lerindustrien No. 15, 1911.*

Plasticity of Clays.—According to Henri Le Chatelier, the plasticity of clays is due to very fine scales or plates, which are found in clays. His description and the data on which he bases his conclusions are published in Van Bemmelen *Gedenboek* for 1910. He also finds that the combined water leaves most kaolins at a temperature between 600 and 700 degrees centigrade.—*Revue des Matériaux de Construction No. 74, 1911.*

Artificial Brick Drying.—The cost to dry about 6,000 bricks which contain about two pounds of water each every twenty-four hours, would cost with a steam dryer \$1.44 per 1,000 brick, while for a direct heat dryer the cost would be \$1.56 per 1,000 brick. In case the dryer has a larger capacity the cost by direct heat drying will reduce materially, while with a steam dryer it will remain about the same.—*Tonind. Z. No. 68, 1911.*

Producing Gas for Burning Porcelain.—The porcelain manufactory of Bauscher Brothers in Weiden has done considerable experimenting with the burning of porcelain with producer gas. According to the results it has obtained, the method is entirely feasible, and the application with a success. They have only used it so far for the gloss burning, but they will install the whole system under biscuit and glaze kilns.—*Sprechsaal No. 25, 1911.*

Dark Glaze for Sewer Pipe.—In order to obtain a dark body for sewer pipe, especially when fireclay or stoneware clays are used, it is necessary to get first the right proportion by which the clays are to be mixed. The mixture for sewer pipe must be a large range between vitrification and melting point, and this range should be at least from five to six cones so that the pipe will stand up well under fire. A finishing temperature of cone 8 is very good for salt glazing, but lower temperatures can also be used. When the pipe are burnt in a continuous kiln, the burning should be done by reducing atmosphere, or very smoky fire. Two chambers which are just finished are filled with an excess of fuel, and then closed up, so that the cooling will take place in a reducing kiln condition. If the kiln is opened too soon, the color will not be dark.—*Tonind. Z. No. 76, 1911.*

Mechanical Draft in Firing.—After some experiments with the application of mechanical draft under grate bars, it was found that the gasifying of an ordinary grade of coal per hour with one square meter of grate surface (about 10 square feet) with poor draft was 40 kilo, with strong draft it amounted to 75 kilo, while with mechanical underdraft the gasifying was 90 kilo (kilo=2.2 pounds). The chimney has no relation to the application of the mechanical draft. When it is taken into consideration that 21 parts of oxygen of every 100 parts of air carry 79 parts of hydrogen, and that for proper combustion only oxygen is necessary, while the hydrogen is only retarding the burning, it will be admitted that the burning should be done with the small amount of air necessary for burning in order to save the fuel. The application of mechanical draft increases proper combustion, and at the same time regulates the amount necessary for burning to the smallest amount possible for proper combustion.—*Sprechsaal No. 20, 1911.*



IRRIGATION STATISTICS.

In a recent interview, Mr. C. J. Blanchard, statistician of the Reclamation Service, said: "National irrigation has gone beyond the stage of prophecy, and in nine years, at an expenditure of \$59,580,000 the Service has built 5,621 miles of canals, many of which carry whole rivers. It has completed three of the largest dams in the world, and as a result of the work, water is available for 1,000,000 acres of land, with an increase in land values of more than \$105,800,000."

SIZE OF TILE REQUIRED.

It is impossible to give any rule or set of plans for the sizes of tile to be used that will fit in all cases, as the soil conditions are quite different on similar appearing surfaces. Some soils have good natural drainage, while other soils have poor natural drainage, consequently a table giving the size of tile required to drain a given area is not of much value.

Tile drains, as a rule, give best results when laid from 3 to 5 feet deep and should never be laid less than 2 feet deep. The distance apart at which the lateral drains should be laid varies in different soils. In open, porous soils, with the laterals from 3 to 4.5 feet in depth, good drainage can be secured with laterals 200 feet apart, while in close, fine-grained clay soils it may be necessary to place the laterals at intervals of 50 feet apart in order to secure good drainage. Again, the size of tile necessary depends upon the fall in the lines. Water runs faster in drains with good fall than in those nearly level or with little fall. The amount of water that will flow through a given orifice or tile depends upon the velocity of the flow. Hence, larger tile will be required to carry the same amount of water in drains in level land than in lines in rolling land where the fall is greater and the flow of water through the tile more rapid. In some localities where the land to be drained is quite level, 4-inch tile are the smallest used even for the laterals, while in more rolling districts where the fall is great, many 3-inch tile are used and give excellent results.

PUBLIC DRAINAGE WORK.

Probably every State where much land drainage is required has enacted laws providing for the reclamation of the wet lands. These laws, based on the conditions and requirements that have been developed by experience provide for the drainage of lands belonging to the State; for joint action of State and counties where the benefits are shared by both; for county drains and joint systems between adjacent counties and for the organization of drainage districts including lands of any number of land owners and interests that may be benefited by the work contemplated.

The laws in some States where there are State lands requiring drainage provide for the appropriation of State funds to be used in the promotion of drainage work, and for the establishing of a State drainage commission who shall have charge of State work. These State drainage commissioners may be authorized to co-operate with the Federal Government in the execution of drainage surveys and in the planning and execution of public drainage, levees, etc. The State

drainage commissioners are authorized to expend money in the construction of ditches and improving streams where such improvements would benefit State lands.

The laws also provide for the vesting of authority in proper persons for the execution of drainage systems, usually county officials; for the issuing of drainage bonds to provide funds for the execution of the work; for the assessment of cost to the lands benefited and for the awarding of damages for injuries done to any on account of the construction of the work.

DIGGING CLAY BY HORSEPOWER.

Many clayworkers at the smaller plants are still digging clay by hand. Filling clay cars and dump carts by manual labor is out of date and should be abandoned. Even the farmer, who is considered extremely conservative, is doing nearly all of his hard work by horsepower or the gasoline engine.

Now that the labor problem has become a vexing one and the cost of living higher, it behooves employers to install methods that will reduce their pay roll to a minimum.

We show herewith an illustration of an outfit for digging clay with a team of horses. A common ten-inch plow is used to loosen the clay. In the particular case where the photograph was taken the clay varies from black loam on top down through different shades of clay to a bed of sand be-



Simple Method of Delivering Clay to Car.

neath. The bank is plowed on a slant from top to bottom so that the different strata can be mixed. An ordinary steel slip scraper is used and the clay is dumped through a trap into a car beneath. There is a hole about two feet square in the center of the platform through which the clay is dumped. The platform is wide enough for the horses to walk one on each side of the hole. The car can be seen beneath and in this case is drawn into the shed on a track by means of a winding drum and rope. Of course, dump carts, wagons, conveyors or any scheme could be used to take the clay from the trap to the shed.

As the trap is a simple affair it can easily be moved and the track for the clay car extended to another place when the clay is too far from the trap to be hauled profitably by the team.

This is practically the same rig as is often used by contractors in grading, and a scheme that is economical for a contractor might save money for a clayworker if properly installed and worked.

SEEDING A SLOUGH.

The following clipping from *The Farmer* gives a good idea of the condition of a piece of peaty land after being drained:

Mr. A. M. S., of Douglas county, Minn., writes: "I have a slough drained by a large ditch. The peat and moss in

places is about fourteen feet deep. I would like to know if it would be possible for me to raise a crop of flax on this land, or would you recommend that I sow it to some other crop? The ground is so soft that it will not carry horses after the frost is out of it."

Peat land will not usually produce a good crop of flax; it is inclined to grow an enormous yield of straw with but little seed. We would recommend seeding this land to clover and timothy, and the seed should be sowed while the frost is not thawed out more than two or three inches deep. The seed bed can be made by going over the moss with a sharp disc or spring tooth harrow.

STATE DRAINS.

PUBLIC DRAINAGE, either district, county, state or national, is directly connected with and should be treated with due consideration of the problems of conservation and water supply, water power, navigation, irrigation, public roads and sanitation. In the carrying out of the plans and solution of the problems pertaining thereto, surveys of rivers, creeks or streams and lakes for the purpose of securing data from which plans may be made for their improvement and the best utilization of their waters.

In general, it may be considered unconstitutional to expend state monies for the construction of drains, except where such drains would benefit state lands.

Federal aid in the investigation and development of state drainage work may be obtained through the United States Geological Survey in the obtaining of topographical surveys of the country under investigation, and from the United States Department of Agriculture, Department of Experiment Stations, which has given valuable aid in many instances where extensive drainage improvements have been planned. Mr. C. G. Elliott, chief of drainage investigations, who is personally known to many readers of THE CLAY-WORKER, has rendered valuable assistance to several states and will be found ready to render valuable assistance wherever work is to be done that may come within his jurisdiction. Any state which has formed a state drainage commission or has an authorized state drainage engineer, may apply to the United States Government for aid in any drainage work that is to be of public benefit.

One form of work of this kind consists in devising plans for the improvement of streams and preparing estimates of the cost of the work to the end that drainage work might be facilitated and disastrous overflows prevented. Thus state engineers, assisted by government experts, will be enabled to prepare plans, estimates and specifications of such drainage work as may be contemplated.

The state of Minnesota, during the years 1909 and 1910, has constructed, or has under construction, 15 state ditches, having an aggregate length of 460 miles, requiring an excavation of 6,828,378 cubic yards, costing \$605,837.30, or an average of 8.8 cents per cubic yard. These ditches will drain and reclaim 141,444.63 acres of state land and 403,640.81 acres of private land at an average cost per acre of \$1.25.

In the construction of ditches, public highways were constructed along the side of the ditches from the earth excavated from the ditch, wherever such construction was practicable. When the drainage work contracted for in the years 1909 and 1910 shall all have been completed there will be 400 miles of graded roads along the several ditches.

By the enactment of proper drainage laws, drainage work may be carried on so that the cost of the work need not become burdensome to the state or the individual owner. Drainage bonds may be readily sold and their redemption made by a series of annual installments running through a term of years long enough to make the payments easy for the land owner.

The use of the best and most improved types of machines

for excavating makes it possible to secure very low prices where competitive bids are received. Contract for a co-operative ditch in Steele county, Minnesota, was let for 5.9 cents per cubic yard. Very active competition in bidding takes place wherever contracts of any magnitude are offered, thus indicating that contractors can be secured to do such work as may be desired and at figures that are reasonable. Not only can the work be done at a very low cost, but the burden of the cost is distributed equitably over all lands receiving benefits. The Volstead federal drainage law provides for the assessment for drainage purposes of all lands. Entered and unentered government lands may now be assessed a just share of the cost of construction of any public ditch. Land held by railroad companies are assessed the same as private lands, when benefited by public ditches. Awards for damages to lands resulting from the construction of public ditches are awarded to the owners of lands so damaged.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

ALTHOUGH quiet prevails in the real estate circles, the building record for Seattle for the month of August promises to beat that of any month this year, and will run well into the million mark. The forty-two-story Smith building will surely start this fall. The L. C. Smith estate has been distributed, and the property on which the new building will be erected, at the corner of Second and Yesler Way, has been given to Burns Lyman Smith, and he has given orders for the architects to go ahead with the plans. The local Masonic bodies are preparing to erect a \$250,000 temple and the Elks are also planning a new home. The Hoge building is rapidly approaching completion as is the new Bon Marche building, and both of them will occupy a place as being the most attractive business structures in Seattle.

A condition which has attracted the attention of the tourist while in Portland, is the activity in building operations. Compared with the amount of building that is being done in Los Angeles, Oakland, San Francisco, Seattle and other Pacific coast cities, Portland is making a better showing than any of them. Seattle and Los Angeles have spent more on buildings in the past years than Portland, but that city has been leading both of them this year in building operations. The permits for August will reach about \$1,250,000 before the close of the month, and will compare favorably with previous months.

The three northwestern states, Washington, Oregon and Idaho, have greatly increased their resources, and the amount of new wealth created will amount to more than \$125,000,000 at the close of the year, and this will come mostly of their agricultural, lumbering, manufacturing and fishing enterprises.

The great scarcity of fire brick and fire clay along the coast cities was greatly relieved when several sailing vessels arrived on the Puget Sound and Portland from Scotland, with fire brick. The price took a sudden turn, and fire brick sell again at normal prices.

More than 2,000 cases of Japanese porcelain, which has been held at Tacoma pending an investigation into its valuation, were released by the Custom House recently. Complaint was made that certain Japanese firms importing porcelain into this country were not showing proper valuations on their manifests. The goods coming recently were, therefore, held up pending investigations. It is stated that the importing firms are to be penalized for under-valuation.

The Denny-Renton Clay and Coal Company have secured the contract for furnishing the terra cotta for the new Franklin high school, and will increase the capacity of their terra cotta plant at Van Asselt at once. The capacity will be in-

creased fully fifty per cent. and some boiler and engine equipment installed. The order for the high school also called for brick and partition tile, and the whole order amounts to over 9,000 tons of clay material.

The contract for the sewer improvements and the extension work at Victoria, B. C., was recently awarded for a brick sewer with vitrified pipe, and will cost about \$99,000. The new plant of the Fraser River Brick and Tile Company, on the south side of the river below Annieville, within a short distance of New Westminster, B. C., has now been completed. The first kiln of brick has been burned, and the product has been found to be a first class brick. Large orders have been secured for delivery in Vancouver and Westminster.

The Deer Lodge Brick Company of Deer Lodge, Mont., is now turning out a fine quality of brick. The new machinery is all installed, and power from the Missouri River Power Company is driving the plant. The plant is turning out 32,000 brick per day, and has orders on hand for over 300,000 brick.

The Forest Grove Brick and Tile Company, which was recently incorporated, has secured the contract for furnishing the brick on the new Carnegie library.

Mr. J. H. Murphy, of Portland, is contemplating the erection of a tile plant at Albany. He has found some good clay deposits there suitable for that purpose. Mr. Murphy was formerly connected with the Salem tile plant, and recently sold his interest in that concern.

The Ladysmith Pressed Brick Company has been incorporated at Ladysmith, B. C. The company has secured fifty acres of clay land with water front, and will erect a brick plant in the near future.

Dr. Heinrich Ries, the noted clay expert of Cornell University, Ithaca, N. Y., stopped off for a few days in Seattle after finishing up his work for the Canadian Geological Survey, on his way home through California to New York.

August 29, 1911.

SIWASH.

FORESTS IN RELATION TO CLIMATE AND FLOODS.

THERE has recently been issued from the Government printing office at Washington a report by Willis L. Moore, chief of the Weather Bureau, on the "Influence of Forests on Climate and Floods," in which the astounding fact is stated, and proved by statistics, that, so far as the records of this bureau throw light upon the subject, forests have no effect either upon the amount of rainfall, or upon the severity of floods. The report is rendered the more significant by Mr. Moore's statement at the outset that he himself originally believed that the cutting away of forests to some extent affected the flow of streams, and that it is the careful study of his own and other records of rainfall that has caused him to change his opinion.

The records of precipitation of the United States Weather Bureau fail to show any appreciable permanent decrease in the rainfall of any section of the United States. One of the best and longest records of precipitation is that made at New Bedford, Mass., by Mr. Samuel Rodman and his son, covering the period from 1814 to 1908; and an investigation of this shows that for the first fifty years, from 1814 to 1864, the average annual rainfall at that point was about 46 inches, while during the last 45 years the annual fall has increased to more than 47 inches. This indicates that in spite of the deforestation which has taken place there has been a slight increase, rather than the supposed decrease in precipitation.

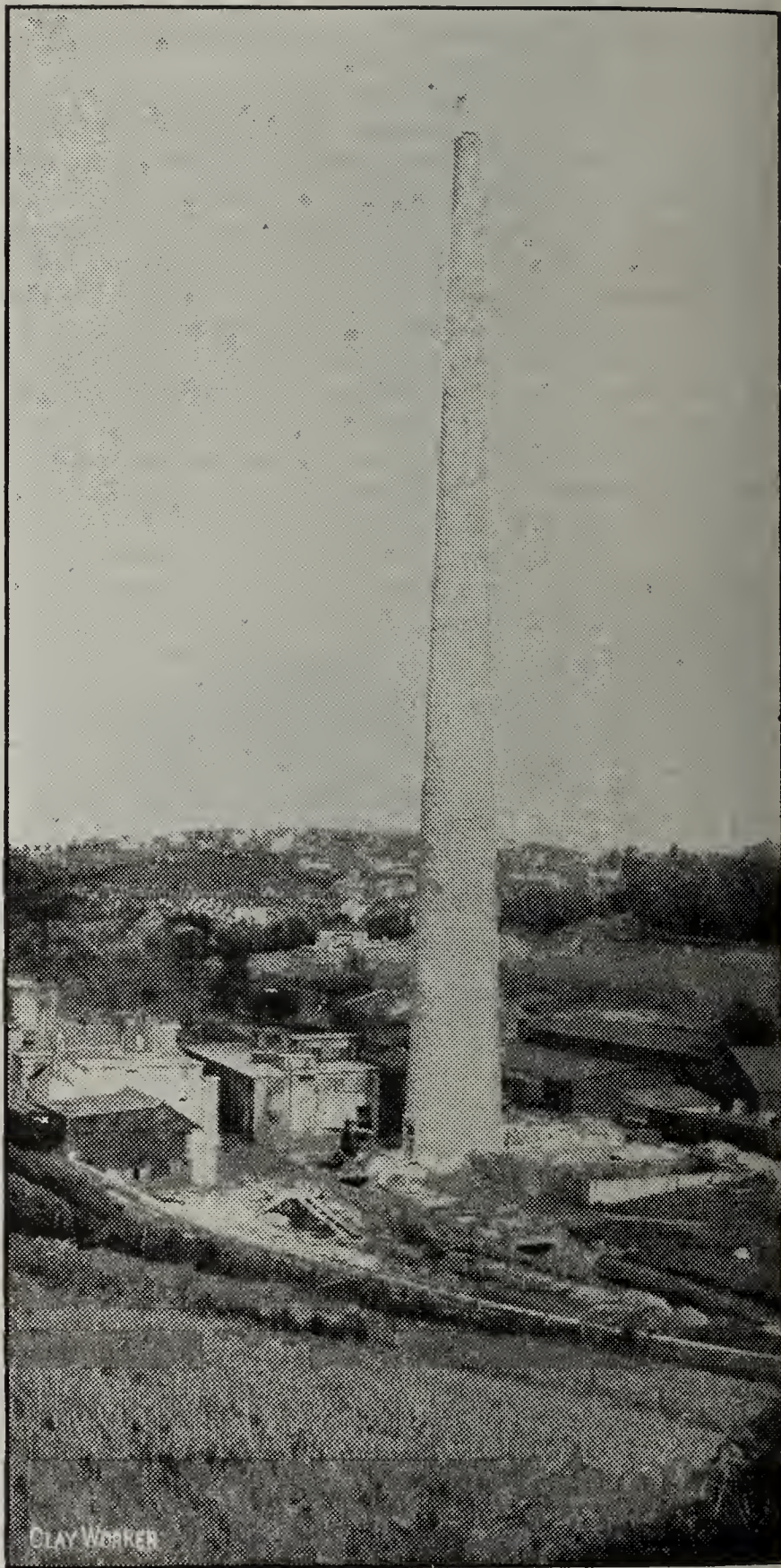
Mr. Moore states that he has always held to the opinion that the denudation of forests has had little or no appreciable effect on the amount of precipitation; but that until recent years he believed that deforestation did affect the run-off of the water. Study and investigation, he says, have caused him to modify his views, and he quotes Professor Abbe, as stating that the cultivated soil outside the forest, when plowed and broken down to a depth of eight inches, acts as a sponge to retain water quite as well as does the ordinary humus of a forest.—Scientific American.

Written for THE CLAY-WORKER.

C. K. WILLIAMS & CO. BUILD LARGE CHIMNEY.

THE SECOND tallest chimney in the western hemisphere, and the third tallest in the world, has just been completed at Easton, Pa., U. S. A. It has a height of 375 feet above the top of its foundation and an internal diameter at the top of but 7 feet.

This structure was built at the dry color plant of C. K. Williams and Company, the largest factory of its kind in this



One of the Tallest Chimneys in America.

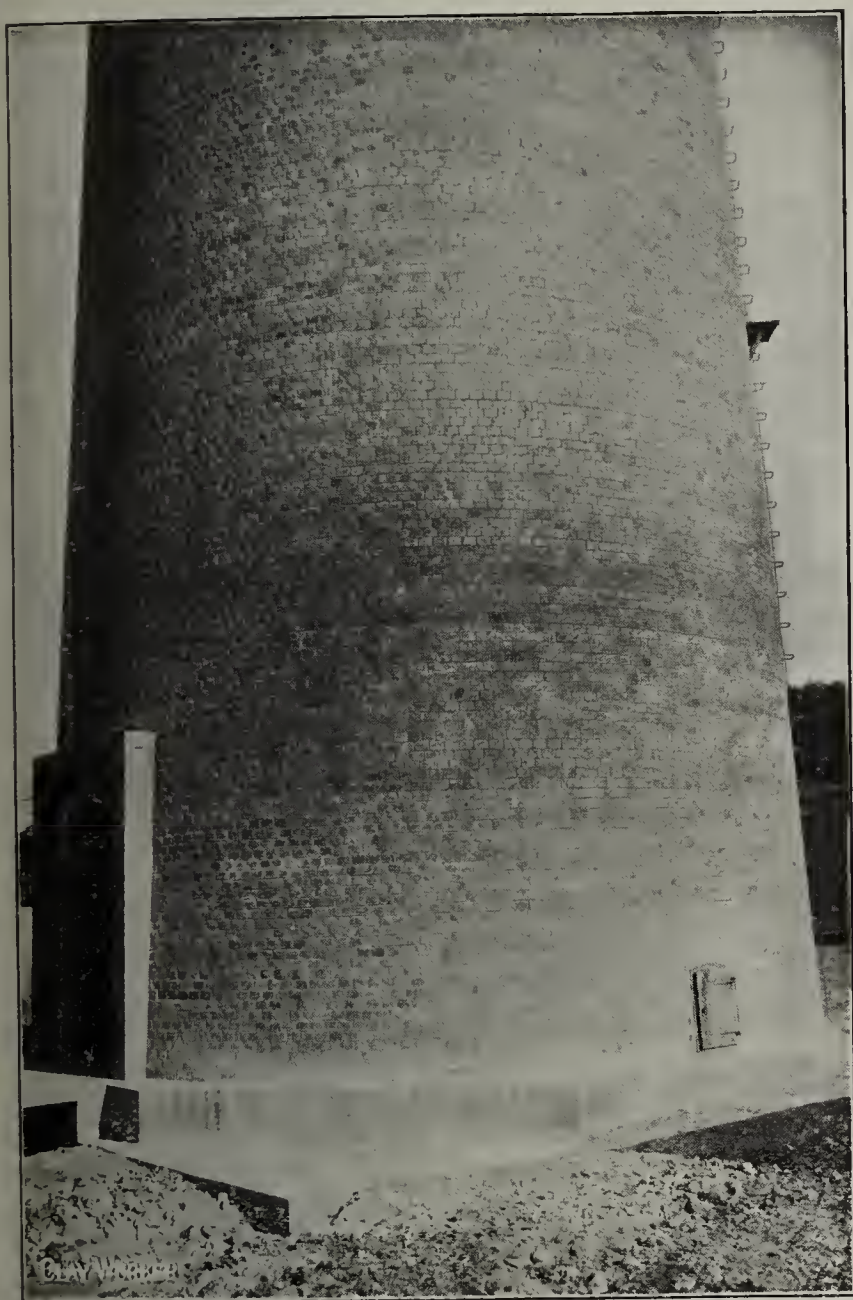
country. Situated in a narrow valley, it is bounded on two sides by rather abrupt hills rising to a height of approximately two hundred feet. Some of the colors produced in the plant are made by roasting ores of various kinds in kilns, at present operated under forced draft to drive off the sulphur and other impurities. Other colors are made by chemical processes and in kilns of various construction.

During the process of manufacture, a damp acid gas is given off. The new chimney, which takes the place of a small common brick one practically disintegrated by the ac-

tion of the acid gases, is calculated to take all the gases from the kilns as well as the boiler gases, and produce a draft sharp enough to eliminate the present expense of fans and also to discharge the objectionable gases to a height that will put them away from habitation, or so dilute them in the atmosphere that they become unnoticeable.

It was first considered to erect a chimney 200 feet or 250 feet high on top of one of the adjoining hills, connecting it with the plant by means of a flue some 1,200 feet long. Calculations were made along these lines, but the cost of the flue and the shorter stack plus the maintenance of such a long line of masonry, was determined to be more than a chimney either 375 or 400 feet high rising above the hills erected alongside the plant in the valley with a comparatively short length of flue to the roasting kilns.

The height of the chimney was approximately controlled by the surrounding hills and the fact that the gases must be discharged at a great height and above the highest point



Thirty-seven-foot base of the 375-foot Brick Stack.

in the vicinity of the plant. The problem that confronted the engineers was the proper economical diameter and the construction to employ to make the chimney acid proof in all its parts and appurtenances.

In the determination of the proper size of chimney, it was necessary to know the chemical analysis of the acid gases as well as their specific gravities and their temperature. The specific gravity was found to be 13.7 and their composition, sulphur-di- and tri-oxide, water vapor, an oxide of carbon with oxygen and a high per cent of nitrogen. The duty being performed by the fans on the kilns was determined and reduced to an equivalent boiler horsepower. To this was added the horsepower of the steam boilers now under operation, plus those designed for an extension of the plant.

Of the elements and combinations making up the composition of the gases given off, neglecting the sulphur-

di- and tri-oxides, whose percentages were small, there were but two heavier than air. The greatest volume, water vapor and nitrogen, were both lighter than air. Reducing these specific gravities of the several elements in the acid gases, to a basis of specific gravity of air, it was determined that the average weight of the acid gases per unit of volume, was slightly less than the ordinary gases and fumes, develops under steam boilers with a fair grade of coal. In fact, the gases were found to be lighter by the factor of 0.015 before coming in contact with the atmosphere and at a stack temperature of 350 degrees Fahrenheit.

With this determination, it was safe to reduce the volume of gases to an equivalent boiler horsepower and determine the theoretical diameter by the usual methods. This proved to be 6 feet 10 inches with a generous allowance of 4 inches for effective area, the chimney was designed 375 feet high and 7 feet inside diameter at the top.

The foundation, 50 feet square and 12 feet deep, of concrete mixed in proportion of one cement, three sand and five graded concrete stone, rests on a bed of comparatively hard shale rock. The pressure under a wind load of 50 pounds per square foot, at the top of the foundation, is about three tons per square foot.

The chimney is built in nineteen sections, no section length greater than 20 feet. The outside diameter at the bottom is 37 feet $\frac{7}{8}$ inches with a wall thickness of 31 $\frac{1}{2}$ inches. The wall for the last 20 feet at the top is 7 $\frac{1}{8}$ inches thick. The whole structure is built of acid proof perforated radial brick, manufactured at Sayreville, N. J., and cut on radial lines to fit the varying diameters. The radial blocks had to meet a specification of a minimum crushing strength of 4,000 pounds per square inch, not deducting the vertical perforations. They are entirely acid proof and specified to resist a temperature of not less than 2,000 degrees Fahr. The column is cylindrical from top to bottom with a constant batter of 75 per cent. A wind pressure of 50 pounds per square foot on a flat surface, or 25 pounds per square foot on the projected area of the round shaft, was assumed in the design and at no point in the structure is there any tension under the combined forces of weight and wind. The maximum pressure at any point is a fraction less than 19 tons per square foot. The calculations for tension at any horizontal joint are calculated without taking into account the weight of the lining. In other words, there is no tension in the structure with the lining out, which lining is supported on corbels built out from the main walls of the chimney. The maximum pressure is not over 19 tons per square foot with the lining in. These specifications necessitated an unusually sharp taper which gave the finished structure not only a bold but a very striking outline. The extremely narrow diameter at the top and heavy taper is unusual and unique.

In order to resist the action of the dilute wet acids, the chimney is lined throughout with 4 inches of solid radial acid proof brick, separated from the main walls by an air space of two inches. These brick are laid in an especially prepared acid proof mortar, supported on corbels built of a heavy-lipped-shape solid block. The top brick of each section of lining being made wedge shaped and fitting up under the lip of the corbel block above, thus forming a drip or drain and preventing the acid dust from getting back of the lining. The corbels and four courses below the corbels on the inside of the main walls are laid in acid proof mortar. The upper 75 feet of the outside of the chimney is also laid in acid proof mortar. The rest of the main walls are laid in cement lime mortar. The top of the foundation, inside of the chimney, is protected by 4 inches of acid proof paving laid in acid proof mortar. A drain of vitrified pipe is also provided inside the chimney leading through the foundation to carry off any water or acid that may collect at the bottom.

The top of the chimney is protected with a lead cap weighing ten pounds per square foot. This cap covers the entire head, extending two feet down the outside and five feet down the inside, overlapping the top of the last section of the lining. Joints are turned down.

The chimney has a lightning protection consisting of 4 $\frac{3}{4}$ -inch solid copper rods, surmounted with platinum tips.

These extend 4 feet above the top. There is one down-leading conductor of a ½-inch solid copper rod, not stranded, supported by anchors every 6 feet. All rod fasteners within 75 feet of the top are made of lead and all portions of the lightning rod for that distance are covered with an armor of lead, except the extreme platinum points. The outside ladder to within 75 feet of the top is galvanized and for the remainder of the way, the ladder is also covered with an armor of lead.

Two flue openings are provided at the top of the foundation, 10 feet high and 6 feet wide, reinforced by a system of I beams and structural iron, all iron covered with an acid proof protection. For the present, but one flue will be utilized, the other being temporarily bricked up with an 8-inch curtain wall.

Perforated radial brick were used throughout the construction of the chimney, which was designed and built by the Alphonse Custodis Chimney Construction Company of New York. Record time was made in the erection, the main walls, 375 feet high, having been built in 55 days; the 375 feet of lining in 18 days. The dead weight of the walls and lining above the foundation, is 3,305 tons.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO



RATHER PECULIAR condition prevails in the brick business of this section at the present time. While the records at the office of the building inspector show that an unusually large number of permits have been issued for new structures, and that building operations are generally active, local brick concerns

say that business is far behind last year, and that the demand has dropped off very materially during the past few weeks. According to the records there were 178 permits issued during the month of August in Toledo for new buildings valued at \$574,588, as compared with 151 permits for new structures valued at \$355,921 during the corresponding month last year, or a gain of about 61 per cent. The first eight months of the year also show a gain, there being 1,288 permits issued for a construction valuation of \$2,786,123 in new structures, or \$670,244 more than up to September 1, 1910. Despite these figures, brick men say that business is extremely dull, and the condition is hard to account for. Much of the new work of an important character has been of concrete and iron construction, and a number of large brick consuming jobs have brought their brick, for reasons of their own, from Detroit and other outside points. Neither is the outside demand from country points in northwestern Ohio for building brick as strong as it was some weeks ago. While the local yards continue to do a fair business from various sources, the demand is considerably below what was expected earlier in the season. Local stocks are not abnormally large, however, and all the yards continue to turn out a normal volume. Some concerns are attempting to hold prices at their old figures, but under existing conditions they are finding a hard time in doing so, as concessions are the rule, and for the most part building brick are to be had in any fair quantity at about \$6 or nearly a dollar under the prices of a year ago.

Paving brick are also moving rather slowly in the Toledo market, and an analysis of the street paving situation shows that the percentage of brick block will run very low this season, notwithstanding there is a large amount of street improvement work on hand. The outside demand is very fair and many of the smaller municipalities are finding a market for large numbers of paving brick at fair prices. Other clay-working industries are running at a normal pace and while there is nothing rushing with most of them, there is a general satisfaction expressed at the volume of business being done.

On the whole the prospect is not altogether gloomy and those connected with clayworking industries of all kinds are hopeful that the season will close with a good line of trade, that will overcome in some measure the deficiency of midsummer.

Contracts were recently awarded for the paving of a number of Toledo streets with brick, in some instances the property owners preferring to pay considerably more than they could have secured other materials for. Among the jobs let last week were Mulberry street, let to A. A. Reilly at his bid of \$4,919.48; Collingwood, from Nebraska to Hamilton, Thomas J. Kelley, \$4,385.90; Belmont avenue, Roscoe French, \$8,910.77; West Grove Place, A. A. Reilly, \$5,106.08; Woodlawn avenue, Roscoe French, \$7,098.91, and Viking street, M. F. O'Sullivan, \$3,898.48. All of this work calls for brick paving block.

A new corporation was recently formed in Toledo to be known as the Toledo Co-operative Building and Construction Company. It has a capital stock of \$10,000, all of which is held by brick men and other members of the building trades. It will engage in the building business, and promises to furnish a market for numerous building brick. Officers chosen are: President, John Hansen; vice-president, George E. Hallett; secretary, Ernest Reiger, and treasurer, F. O. Miller.

The Ransbottom Brothers Company, pottery manufacturers at Roseville, Ohio, is making extensive improvements in its plant. A dry kiln 100 feet wide and 204 feet long is to be erected. Plans have already been prepared for the work, which will be rushed to completion as soon as possible. The structure will be one story high and of brick and concrete construction.

Toledo brick concerns were well represented at the annual outing of the Builders' Exchange, which was held at Central Grove Park in Toledo on Labor Day, September 4. The idea of holding the outing at home was a new one, as heretofore it has been held at Sugar Island or other outside resorts, and it proved a success in every feature. A big picnic dinner was followed by games, contests and amusements of all sorts. There were races for the fat, the lean, the tall and the short, baseball-throwing contests for women and girls, potato races, peanut races, pipe-smoking contest, nail and stake driving contests for women, ladies' quick-lunch contest, tug-of-war and "coon's" watermelon contest. The occasion was one of the most amusing and enjoyable ever held by the trades. A big refreshment tent erected by the committee dispensed good things during the day. The picnic was well attended and all voted it a pleasureable occasion.

That money is easy and investors are seeking a place to put their holdings is shown by the fact that the city of Fostoria recently placed \$9,272 worth of street improvement bonds at a premium of \$103 to pay the city's portion of the paving of South Main, East Tiffin and McDougal streets. The new first National Bank of Columbus was the purchaser. The street paving will be done but the work will not be reached before spring.

A market for a large quantity of building brick will be furnished as a result of the letting of the contract to the W. W. Bright Construction Company for the building of a large addition to the Flower Hospital. The work is estimated to cost about \$100,000.

Word has been received here of the burning of the F. Crouse tile mill at Huntsville, Ohio. The entire plant was burned to the ground, incurring a loss estimated at \$4,000. Insurance to the extent of \$1,000 only was carried. The origin of the fire is a mystery, incendiarism being suspected.

E. F. BAKER.

The time of the fair is upon us. Not only the fair examples of femininity at the various pleasure resorts, but the more prosaic fairs, including everything from the pumpkin patch circuit to the large State fairs in the city. Many of these gatherings furnish a splendid occasion for brick men to display and root for clay products of all kinds, from street paving to tile roofing.

Written for THE CLAY-WORKER.

WITH THE TRENTON CLAYWORKERS.



POTTERS OF NEW JERSEY are all affected by a new law called the employes' liability law, which affects every person doing business in this State. Those having factories or employing any kind of labor, domestic servants, chauffeurs, etc., are responsible for accidents to their help. It may be a burden but must be provided for. Insurance risks to cover this problem have advanced from one to three per cent of the pay roll of the firms interested. There is some talk of organizing a mutual company which would be co-operative.

This is a great advance in favor of the working hands. Business will, however, soon adjust itself to the new way. The rate for domestic servants is \$7.50 annually for insurance to cover risks.

The United States Potters Association met at Atlantic City and considered the demands of President Thomas J. Duffy and nine delegates representing the National Brotherhood of Operative Potters, W. E. Wells and nine others representing the employers. There are 7,000 workmen in the sixty-four potteries that were represented. The demand was for an increase of five to ten per cent in wages, which would add a half million dollars to the pay roll of the plants represented. The present wage scale ends the last of October and a new one has been signed at Atlantic City granting a raise of one-half per cent and accepting the majority of the sixty-nine propositions made by the employers. It was proved to the men that they were earning \$3.50 to \$6.00 a day through modern appliances which have been put in use during the past two years and which made an increase from thirty to forty per cent over the amount of pottery they could turn out two years ago and that the men benefited accordingly. The men saw the justice of the argument.

The Independent Brick Selling Company, of Trenton, say that business has been quiet this summer, but some weeks they ship over a million of brick a week and have been finding a new market at Atlantic City. They are now making 4,500,000 brick at the three plants per month. Salmon brick has not been in as good demand this season, practically all the call being for straight hand stretches. They have 12,000,000 brick in the kilns and in stock. Have bought out the Bordentown (New Jersey) Brick Company's plant and the Graham & Shrive plant at White Hill, N. J., the two plants making 100,000 a day as a whole.

The Trenton Fire Brick Company has been succeeded by the Trenton Fire Brick Manufacturing Company, headed by L. W. Moore and G. L. Wallington. The plant is in operation for the first time in years. The plant has a capacity of 20,000 a day of fire brick exclusively and refractory articles. The plant has been put in good shape. John Andrew Chick is superintendent and Mr. Wallington acts as general manager. They expect to be able to dispose of all they can make, but can not ship over 100 to 150 miles outside as the freight rates eat up the profits and there is much competition. Fire brick sells for \$18.30 on the platform according to grade for straight brick, some shapes bringing more. They will devote considerable time to special shapes and have orders now for stuff seven-eighths of an inch thick for the large and three-eighths of an inch thick for the small end. The office of the firm is at 702 Broad street, National Bank Building.

Reciprocity will not hurt the pottery business as it means more buying on the part of Canada of American made goods. The English pottery makers, who pay less wages, are not liable to start potteries in Canada, as wages would be still higher there. Canada in buying from England has

to wait months for delivery, while orders from the States can be filled in a few weeks.

The Eureka Flint and Spar Company say there is no duty on French flint not ground, but it is brought in and ground up here to save this duty. For high grade china ware the French flint is the best and is not duplicated in the United States.

Delegates of the National Potters' Association, which met at Atlantic City, considered overtures made by the International Federation of Pottery Workers of Europe for the exchange of working cards. It means a scheme to regulate, through organization, the migration of craftsmen from various countries. Steps have been taken to prevent the immigration of workmen from other countries to districts where a dispute has arisen, preventing them from serving as strike breakers.

The Lenox Company, Inc., does not make any silver deposit work, but furnish the belleek ware used for the process. They made two dozen flower urns for the exterior railing of the Rumson Road club house in Monmouth county, also a bust of the late John A. Roebling, as well as some unique Roosevelt and William Penn steins.

The Enterprise Clay Company, of Trenton, has increased its capital stock from \$10,000 to \$100,000, of which \$60,000 will be issued to represent new capital invested in the business. They are now shipping ten cars a week, orders are coming in without solicitation and the plant has been so equipped that they can now ship three to four cars a day. The plant is at Woodmansee, Burlington county, where they have found new beds of clay. Most of the clay is for saggers, large porcelain bath tubs and tile terra cotta work. They have put in a steam shovel and steam traction engine and draw the clay from the pits by wagons. Most of the output is sold here and in Philadelphia. It is selling to \$2.00 a ton at place of shipment. The main office has been moved to Philadelphia at 520 Walnut street. M. G. Oliphant, president and general manager, is in charge there.

Improvements contemplated here and through the State will greatly benefit the pottery business. The Delaware river has been too shallow to allow of deep water navigation up this river as far as Trenton, but the National Government is deepening the channel and spending millions. A dike is being built to hold back the sand so that it can not silt back into the channel again.

The State Legislature has appropriated \$500,000 towards building a ship canal from Bordentown near Trenton to Newark, which will greatly aid shipping. The improvements contemplated are in progress and will make Trenton a seaport. The city will spend \$100,000 on water-front improvements, docks, etc., which, as a starter, with the help of the State and the National Government, will help Trenton to come into its own. The pottery interests demand these improvements and hope they will be speedily carried out.

This city has adopted the commission form of government and Frederick W. Donnelly is the head of the commission, or acting mayor. The city has 100,000 population, has forty-eight pottery and tile plants with a yearly output of \$10,000,000, the total pay roll of all plants is a million a month, new million-dollar city hall, has steamboat, river and canal connections and the Pennsylvania and Reading railroads, and a large business is done in rubber and linoleum, cable and iron, and is waking up an industrial center. Being half way between New York and Philadelphia, it is one of the best districts in the country to an immense business traffic.

S. HERMAN.

A law restraining the noisiness of automobile horns and some practical means for subduing the odor of escaping gas will do much for the peace and happiness of the general public, even though it might hurt slightly the pride of some automobile owner who has a horn with a particularly devilish noise.

THE EFFECT OF PRELIMINARY HEATING TREATMENT UPON THE DRYING OF CLAYS.

By A. V. BLEININGER.

Reprint from Bulletin of the Bureau of Standards, Vol. 7, No. 2.

V. The Preheating Treatment.

In studying the effect of heat upon the clays selected for this work it was thought advisable to do this by means of the determination of the volume shrinkages, since the condensation in volume on drying is preeminently the characteristic phenomenon of this process. In practical work clays which dry too difficultly, due to an excessive amount of highly plastic matter, are found to become normal on reducing the shrinkage, for it is evident that the magnitude of the strain to which clays are subjected is a function of the diminution in volume, since it measures the amount of readjustment which must take place.

The objection to making comparisons of the volume shrinkage is that there is no standard consistency of the

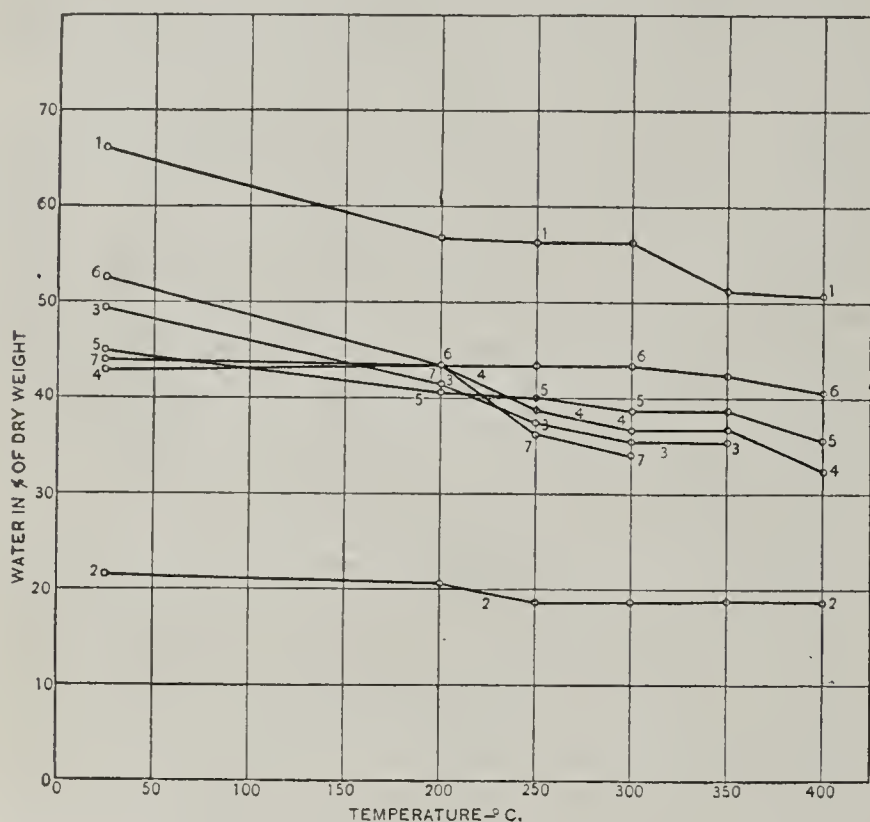


Fig. 4. Variation in Water Content for Clays Preheated to Different Temperatures.

clay from which to start, so that the amount of water to be used in making up the clays depends upon the judgment of the operator. Various methods for determining the consistency of plastic clay bodies have been proposed, such as the use of the Vicat needle, but none of them give an accuracy greater than that obtained by the "feel" of the clay in manipulating. As has been pointed out before, the proper consistency is fairly sharply defined and any excess or deficiency in water is at once noticed by the expert operator. In the nature of this case, however, slight variations in the water content are unavoidable, especially in working with a material as heterogeneous as clay, of which perfectly uniform samples are difficult to prepare.

In carrying out the preheating experiments a sample of clay sufficient in amount for making all of the test pieces of the series was thoroughly worked and tempered and kept at least 48 hours in a large desiccator containing water, so as to establish conditions of equilibrium. Cylindrical test pieces for the determination of the normal volume shrinkage were then made up and their volume measured as described above. The specimens were then dried to constant weight at 60° C, and finally at 100°. Pats of clay of sufficient size

were then removed from the bulk sample in the moist desiccator and dried to the following temperatures in a copper laboratory oven: 150, 200, 250, 300, 350 and 400° C, which were maintained for three hours. The dry pat resulting for each temperature was ground through a 20-mesh sieve and made up with water to its best plastic consistency. In one series of experiments these wet pats were kept over water for 16 hours, in another series for one hour. After this period the moist clay was made up into cylindrical test pieces, the volume of which was found at once. The specimens were then dried and their volume was again deter-

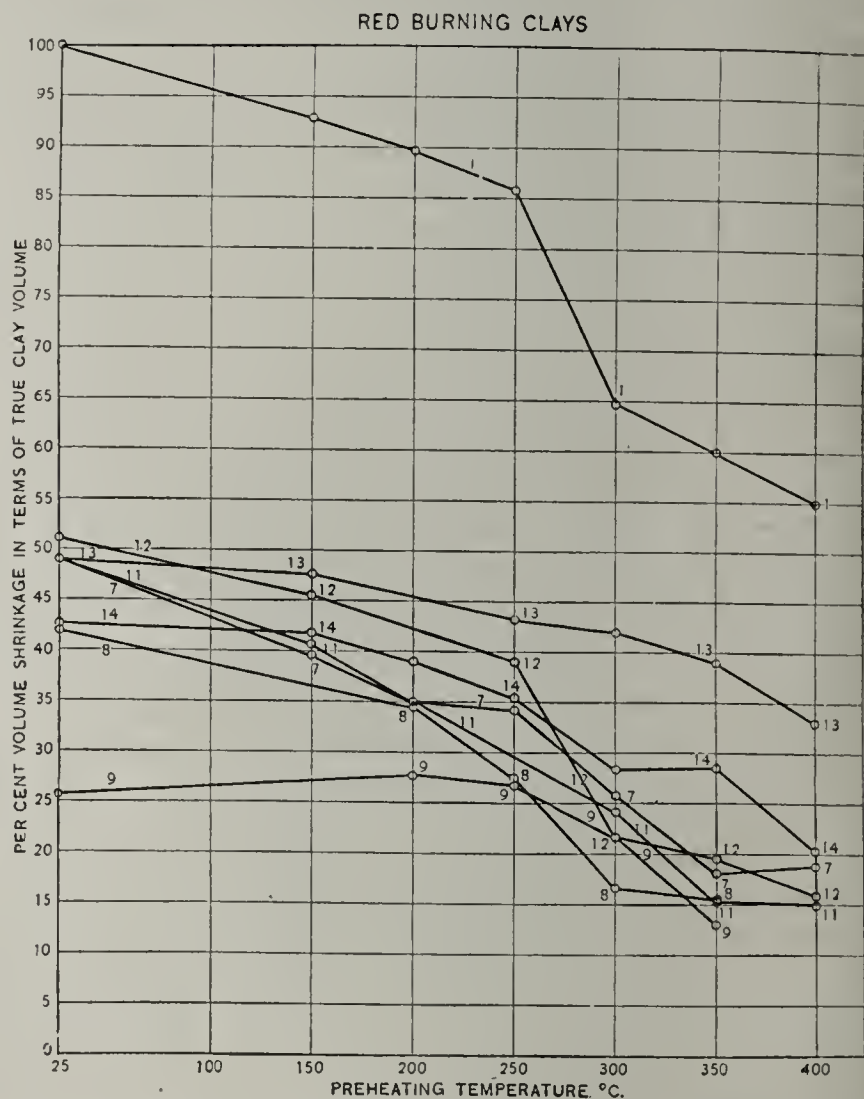


Fig. 5. Volume Shrinkage of Red Burning Clays Preheated to Different Temperatures, Made Again Plastic With Water and Dried at 60° C.

mined. In addition to the volume both the wet and the dry weights of the test pieces were obtained. During the weighing the specimens were kept in tightly closed tin cylinders.

(a) Effect Upon Drying Shrinkage.—The specific gravities of the normal as well as of the preheated clays in the powdered condition were carefully determined by means of the pycnometer.

The preheating oven consisted of a cylindrical, air-jacketed vessel of heavy copper, 6 inches in diameter and 5 inches deep inside, the air space being 1 inch. The cover likewise was provided with an air space and had three tubulatures for the insertion of mercurpy thermometers. The heat was applied by a gas burner and the temperature regulated so that it did not vary on the average more than 5° from the desired point.

In working up the ground, preheated clays into the plastic state it was at once observed that the amount of water required decreased with the increasing temperature treatment, although not in a regular manner, as shown by the

curves of Fig. 4, representing seven clays. It appears from the diagram that the drop in the amount of water required is greatest between 200 and 300° with most clays, although there are two exceptions in which this occurs at a higher temperature.

Owing to the fact that, independent of the slight variations in the molding, the amounts of shrinkage and pore water and hence the exterior volumes of the test pieces were not proportionately constant during these experiments, it was decided to express the volume shrinkages in terms of the true clay volume, i. e., the weight of the dried clay divided by its specific gravity, as has been shown before.

The decrease in volume shrinkage thus expressed is shown for the 14 clays examined in Figs. 5 and 6.

The red-burning clays, it is observed, show four types of materials. The first class, represented by No. 1, the excessively plastic material from Fort Pierre, N. Dak., which resembles bentonite in its behavior, evidently stands

glacial origin, evidently very high in nonplastic matter, which behaves very much like the other clays of the third group, differing only in its low initial shrinkage. It likewise seems to undergo its greatest change between 250 and 300°.

All of the clays, after showing their greatest drop in shrinkage, appear to change in color, assuming a reddish tinge and at the same time become granular. Finally, excepting clay No. 1, they appear to be sand like and more or less inert in the presence of water. Up to 350° the absorption of water takes place with great eagerness and a sensible amount of heat is evolved.

In the diagram representing the light-burning clays three groups may be recognized:

The first, with only one member, No. 5, an English ball clay appears to lose plasticity gradually up to a certain point, 350°, when it shows a sudden drop.

In the second group, composed of Nos. 3, 4 and 5, the loss throughout is fairly gradual, although a more abrupt change is clearly observable between 250 and 300°, and in the case of No. 6, at 300°.

The third group evidently comprises the less plastic clays, which with a low initial shrinkage do not appear to

LIGHT BURNING CLAYS.

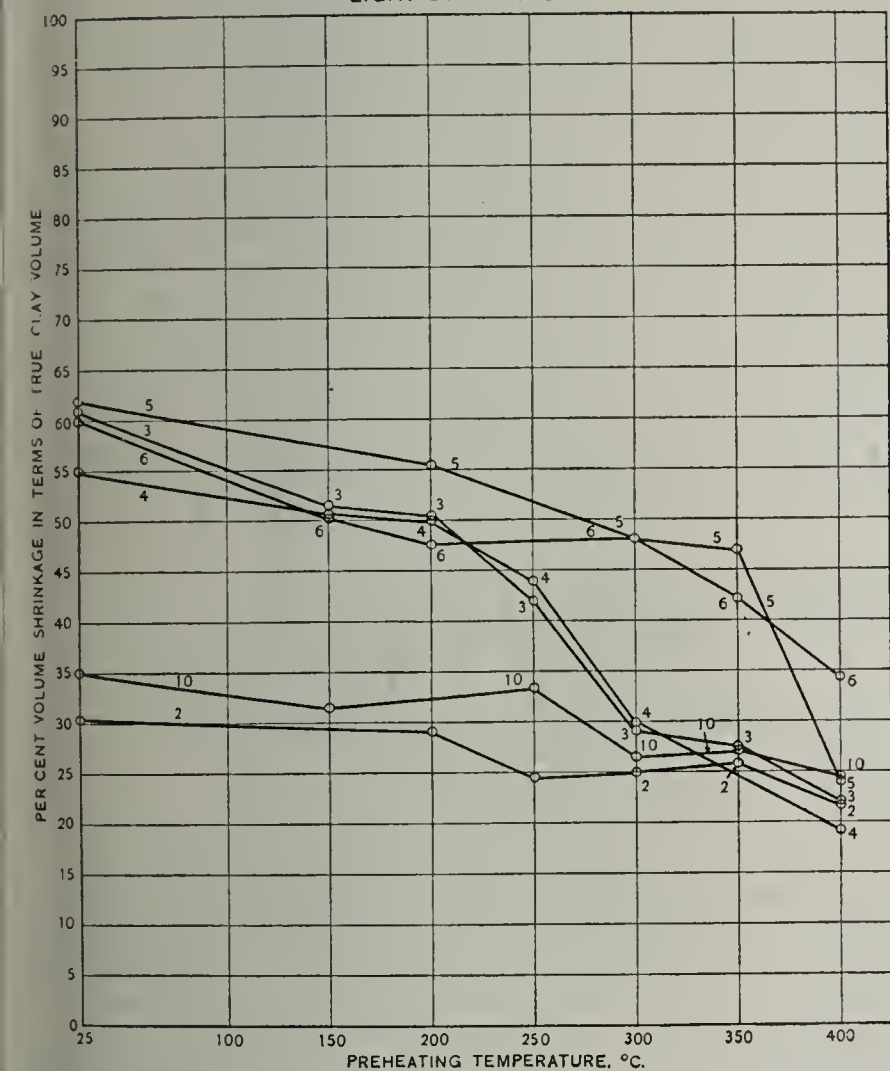


Fig. 6. Volume Shrinkage of Light Burning Clays Preheated to Different Temperatures, Made again Plastic With Water and Dried at 60° C.

for abnormal clays, clearly beyond the limits of the workable kinds. It shows an abrupt decrease in the shrinkage curve, beginning at 250°, and continues to lose at a somewhat diminished rate up to the maximum temperature employed. Its final shrinkage still remains so high that no mistake is made by calling this clay hopeless from the standpoint of its commercial use.

In the second class again only one material is represented, No. 13, a reddish-burning clay of the type of the so-called No. 2 fire clays. Its shrinkage loss curve is gradual, being most marked between 350 and 400°. This material being more homogeneous in structure and higher in clay matter than the average red burning clay seems to lose its plasticity more gradually, which differentiates it sharply from the other clays.

The third class of clays includes the average, highly plastic and frequently "sticky" clays of glacial or alluvial origin. The material losing its plasticity most abruptly is from an alluvial deposit. In practically all of them the most significant change took place between 250 and 300°.

In the fourth class we find one fine grained material of

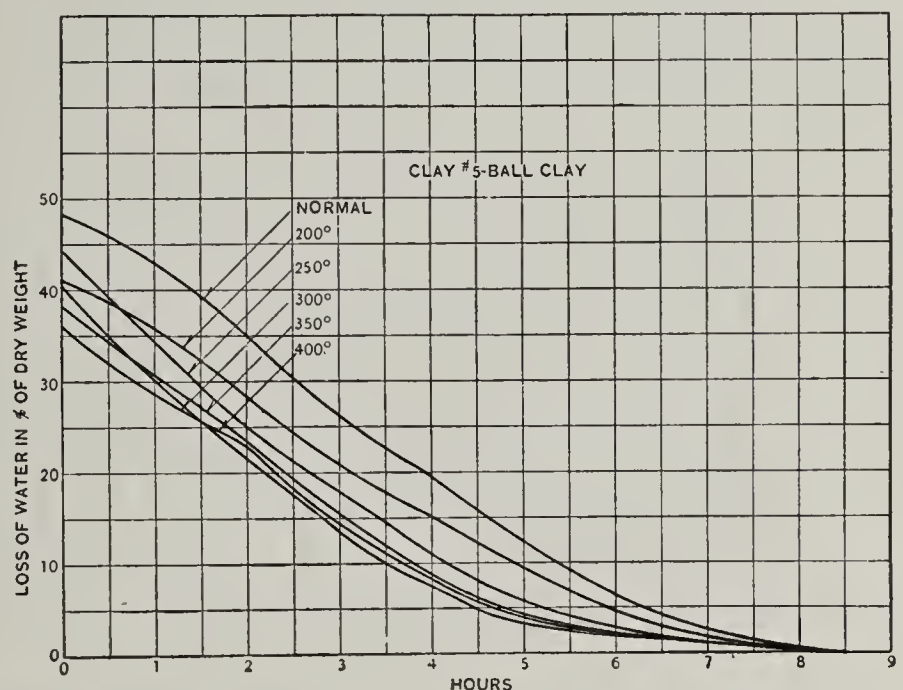


Fig. 7. Rate of Drying of Clay, Preheated at Different Temperatures, Again Made Plastic With Water and Dried at 60° C., Compared With Rate Shown by the Untreated Clay.

have suffered any great changes, although even here No. 10, the English kaolin, seems to have been impaired in plasticity at the same temperature as the other clays, 250-300°.

Like the red-burning clays, these materials become granular after the heating treatment and, according to their content of ferric oxide, assume a pink or gray color.

(b) Rate of Drying.—From the practical standpoint it seemed important to determine whether preheating had any effect upon the rate of drying. For this purpose eight clays were made up into cylinders of the same initial size and dried in a water-jacketed oven, at a constant temperature of 60°. The specimens were removed every hour and weighed. In every case it was found that the rate of drying of the preheated clays was identical with that of the normal materials, though, of course, the amount of water required to develop plasticity differed in the preheated materials from the normal amount. In Fig. 7 the curves of clay No. 1 are presented which are typical for all of the materials tested and show clearly that preheating does not influence the rapidity of drying.

In order to establish the rate of drying a clay in the raw and the preheated state under conditions permitting only of slow evaporation, a 200-pound sample of so-called swamp clay, very difficult to dry, was used. One-half of the sample was made up in 3.5-inch cubes on a small auger machine

in the raw condition. The other half was preheated to 250° C. before being made up into test pieces of the same dimensions. Of these, three cubes made from the raw and three from the preheated clay were selected and placed in a closet, maintained at room temperature, as close together as possible and their weights determined at intervals. In Fig. 8 the curves representing the loss of water of these specimens are shown, and it is seen that the rate of evaporation of the preheated clay approaches closely that of the raw material.

(To be continued.)

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



LOCAL BUILDING operations for the last month have been a little larger in the matter of valuation than for the month preceding, but show an increase of over half a million dollars over the record of August, 1910. As for work actually in hand, it is generally admitted that there is less demand for materials than during July, though there is still considerably more business than a year ago, and conditions are by no means discouraging. In fact, reports from local architects seem to indicate a considerable revival during the next month or two, as a number of important buildings are being

ence of the last year or two has shown the great need for such an organization, and it is hoped that the association now forming will be permanently maintained. While the primary object is to bring about a friendlier feeling, establish standards, and promote the use of brick, such an association should have a highly beneficial effect on the stability of the market.

Common brick is hardly as much in demand as for some time past, but the market is still in very fair condition, and if the plans now in architects' offices result in actual business there will be no trouble in disposing of the output for the remainder of the season. The kilns shipping to this city are keeping busy, and while the output is not sold in advance to as large an extent as earlier in the season, no surplus is being accumulated. The local yards are able to make prompt delivery, but have no uncomfortably large stock on hand, and the price is strongly held at the figure quoted for some time past.

The Los Angeles Pressed Brick Company's large paving brick plant, located just outside of Santa Monica, Cal., was burned August 16, with a loss of about \$50,000, fully insured. The engine room was the only part of the plant saved. This loss does not affect the company's large output of other descriptions of brick, which are made at the plants at Los Angeles and Richmond, Cal., but has already caused a serious shortage of pavers in Los Angeles. Street contractors in that city, who have depended entirely on this plant for sup-

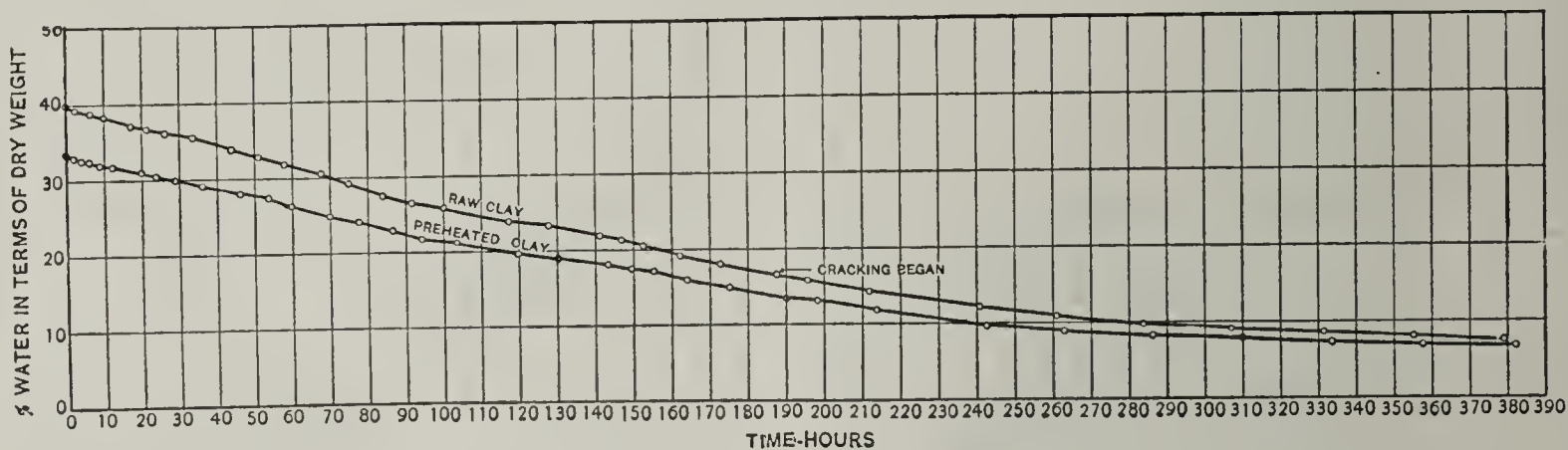


Fig. 8.—Rate of Drying of 3½-Inch Cubes Pressed from Normal Clay and Clay Preheated at 250°.

planned, and several of them will be ready for figuring within the next few weeks.

It is announced that ground will be broken for the Panama-Pacific exposition next month, but it is hardly expected that any appreciable amount of building material will be required in direct connection with the exposition during the present year. Anticipation of this event, however, is bringing out quite a bit of general work, and a more important effect is observed in the signing of agreements assuring a certain degree of harmony and stability in labor conditions for the next few years. The first action in this direction was an agreement between the Masons and Builders' Association and the bricklayers, under which the present terms of hours, wages, etc., will be continued until August 1, 1915, and no strike or lockout is to be declared by either side. It is believed that all other building trades will follow suit. This is a matter of no little importance, as the fear of labor troubles has prevented or delayed the erection of many new buildings in the last few years.

A matter of still more importance is the formation of an association by a number of the leading brick manufacturers of San Francisco and vicinity. Several meetings have been held and preliminary plans have been made to follow the lines of work already outlined by similar organizations in other parts of the country. There is every indication that the association will have its work well in hand within a few weeks. Efforts to get the local brick manufacturers together in the past have had only temporary results, but the experi-

plies, are now unable to carry on the work in hand, and if compelled to bring in brick from other quarters will probably suffer a serious loss. The company will replace the plant at the earliest possible moment, and has its plans about completed for this work, though it has not yet announced whether the paving brick works will be rebuilt at Santa Monica, where most of the raw materials are obtained, or be added to the large establishment at Los Angeles. It is known that the latter plan has been seriously entertained.

Gladding, McBean & Co., whose plant is located at Lincoln, in northern California, are at present invading the Los Angeles field, having taken important contracts for terracotta in the Van Nuys building and the Los Angeles Investment Company building.

The suit of E. H. Horton, the former superintendent, against the Remillard Brick Company, for \$40,000, has been settled out of court. The Remillard Brick Company's plant at Pleasanton, Cal., is working at full capacity at present with a force of eighty men, and if good weather lasts during the fall the output for the current year will total about 12,000,000 brick.

The Livermore Fire Brick Company has secured title to the ten-acre tract on which its plant at Livermore, Cal., is located, the city having agreed to present this land to the company at the conclusion of a year's successful operation. The company's output is now well taken up, and a steady expansion of its business is expected during the coming year.

G. D. Cadwalader, secretary of the Los Angeles Brick Company, was a recent visitor to San Francisco.

A new concern at Stockton, Cal., is the Standard Brick

Company, capitalized at \$300,000, and incorporated by R. R. Fowler, Walter King, G. S. Owings and T. A. Jordan. The company has property near Valley Springs in Calaveras county, where a plant is to be started for the manufacture of enameled and pressed brick.

Wm. Medd, a bricklaying contractor, of McKittrick, in the California oil fields, has taken over the brick yard formerly operated by E. C. Kniffen. Another oil field plant, the Coalinga Brick and Tile Company, has just resumed work after a short shut-down, during which a lot of tile machinery was installed.

John Payne, who made a good record as brickyard superintendent in California a few years ago, and has lately been in the east, took charge of the Vallejo Brick and Tile Company's large plant at Vallejo, Cal., the first of the month, and expects to have the works in good running order within a few days. The plant has not been in operation for several weeks past, but the sewer brick and other material turned out during the spring run has been sold out, and the company hopes to make a continuous run during the winter. The letting of several large contracts for San Francisco sewer work recently has given the company a good outlet for its sewer brick.

The brick business has been particularly active this summer around Puget Sound and in British Columbia. Some large shipments were made to the latter quarter from San Francisco last winter, and the demand is still very active. Lebo & Co., of Aberdeen, Wash., are getting in large shipments of fire brick from San Francisco, and expect to work up a considerable distributing trade in this, as well as common and pressed brick, along the Washington coast. A notable shipment from Tacoma, Wash., recently was 700 tons of tile for the use of the Grand Trunk Pacific Railroad at Prince Rupert, B. C.

The Miles Tile Manufacturing Company has been incorporated at Los Angeles, with a capital stock of \$60,000, by G. F. Miles, F. M. Sawyer and F. A. Lake.

J. Y. Parker, whose brick plant at Long Beach, Cal., has been running continuously through the spring and summer, has closed the works for repairs. He has about 1,500,000 brick on hand, and this supply is expected to take care of the requirements for the next three months.

E. Holloway, formerly secretary of the Livermore Fire Brick Company, has succeeded G. Meyers as manager of the plant, Mr. Meyers having taken charge of a plant at Decoto, Cal.

G. J. Brown is making a successful start in the brick business at Winnemucca, Nevada. Brick for that district has formerly been obtained from Reno at a price of \$19 per thousand, delivered, and Mr. Brown has found a ready market for his first kiln, recently opened, at \$13.

The Denny-Renton Company, of Seattle, Wash., which recently acquired the plant of the Diamond Brick Company at Portland, Ore., is planning to make extensive additions to that plant between now and the end of the year.

San Francisco, Cal.

SUNSET.

OLD BRICK IS COSTLY.

A woman who owns a large and really oldtime country place, and who is making extensive improvements in the garden and also about the porches, found, to her consternation, that the old brick with which she intended to carry out her idea of suitable paving for the walks and terraces had gone away up in price, the reason being that it is in great demand for building new but odd looking houses.

Old brick, as every one knows, has a hoary look that commands respect, and old brick houses are now the height of fashion, because it takes many years for the green moss to come on the surface or in the cracks, and besides the lovely green tones there are others that the antiquarians have pronounced beautiful. Nor can these be "faked" successfully, so that the effect will last and take on greater beauty as the years pass.—Exchange.

A NEW FEATURE OF THE GANDY BELT.



U. S. PAT. OFFICE.

THE GANDY BELTING COMPANY, of Baltimore, sole manufacturers of the Gandy Belt in the United States, has adopted a novel as well as an entirely original idea for distinguishing the Gandy Belt from the other stitched cotton belts. Commencing September 1, 1911, one edge of the Gandy Belting will be painted green, while the rest of the belt will remain red as before, and it will continue to bear the brand "The Gandy Belt" and their trade mark, a coil of belt and a bale of cotton laid across it, printed upon the belt at intervals throughout the entire length of the roll, the same as has been their rule heretofore.

The Gandy Belting Company explains that this step is made necessary because owing to the uniform high quality of the Gandy Belt some unscrupulous competitors have endeavored to imitate it in appearance, color and texture. As there are many features about the Gandy Belt that can not be imitated, and as the imitation belts are usually of an inferior quality of material and workmanship, these imitation belts have failed to give the same degree of satisfaction as is experienced by the Gandy Belt users.

It came to the notice of The Gandy Belting Company that some unscrupulous dealers were palming off on their customers these inferior belts made in imitation of the Gandy Belt, in this manner defrauding the customers of The Gandy Belting Company by putting upon them belting that they had not ordered, and did not want, and not furnishing them the belting they did want, and at the same time defrauding The Gandy Belting Company of sales. To put a stop to this, The Gandy Belting Company found it necessary to institute legal proceedings to check the fraud and at the same time to educate their customers to know their goods. These suits were instituted in the United States Circuit Courts in Chicago, Pittsburg, and Cincinnati, and in all of these cases The Gandy Belting Company obtained decrees sustaining their rights and enjoining the defendants from selling or offering for sale any belt not made by them as and for the Gandy Belt.

The Gandy Belt has always had two distinctive marks, first, the words "The Gandy Belt," and, second, the trade mark shown herewith.

Some makers of inferior belts placed on the market stitched cotton duck belting without any brand whatever, and these belts have resulted in much fraud and substitution. So, to stop this injustice, The Gandy Belting Company have added another distinguishing feature to their belt, that will enable those desiring or specifying the Gandy Belt to see at a glance whether they are getting it or not, as one edge will be painted green while the rest of the belts will remain red as heretofore, and will contain their trade mark as heretofore.

The foundation of the Gandy Belt is a very heavy cotton duck, woven in the duck mills of The Gandy Company. The sewing machines on which the belts are stitched are built in their own machine shops, and have features possessed by no other sewing machine in that they stitch with an imbedded stitch, making the surface of the belt smooth, and holding the plies solidly together.

The belt is then treated by a secret process which renders it water, heat and steam proof.

The Gandy Belt is thoroughly stretched and seasoned before leaving the factory. It is uniform in width, runs straight and true, and will not slip or harden.

All orders are filled the day received, as they always carry in stock at Baltimore more than 1,200 rolls of roll belting in all widths from one-inch four-ply to thirty-inch ten-ply. In addition to this they carry in stock more than four thousand Gandy Thresher belts in every recognized thresher length and width.

In comparison with leather belting and rubber belting, the Gandy Belt costs much less than either, as it is only about one-third the cost of leather belting and twenty-five per cent less than that of rubber belting. The Gandy undoubtedly has many strong points in its favor and its makers claim for it that it is the most durable and economical belting on the market.

WHAT CONSTITUTES A GOOD PAVEMENT.

Opinions of an Engineer.

EDITOR CLAY-WORKER:

The subject of "good roads" seems to be the slogan of all communities, just at the present time, and not only that but I see much in the technical journals on the subject of "street improvements." It would seem that after these many years of experience, we should have arrived at somewhere near perfection by this time. But the older we become, as a world, the more discussion comes to the surface. Some of these discussions look ridiculous to the close observer and there are too many to enumerate.

The first one I desire to call the readers of your journal to, is that of brick pavement for both towns and country roads. It seems to be a disease with people who contemplate using brick pavements, that the first thing he must have, is a bed of concrete from four to six inches thick, then a cushion of sand of any thickness he happens to think of, upon which the brick are to be carefully placed. Then this must be followed up with a thorough mixture of grout, poured and swept into every crack and crevice to the top of the brick. Then what happens? I will grant that he has got a good pavement, providing his material has all been of the best and placed as it should be. But, at some time in the future, maybe in a month, something goes wrong with the sewer, water, gas or electric conduit, and a section of pavement has to come up in order to remedy the evil. That means that many of the brick are shattered, consequently useless, the concrete has to be destroyed, and a general bad condition prevails. The repairs are made to pipes and the excavation filled, probably without being tamped or puddled, new concrete placed, in "any old manner," new brick bought and probably of a different make and size, and when repairs are completed presents a ghastly appearance at the best. Now, it is fair to say that the pavement has proved to be a costly improvement, nearly as much as the most costly pavement on the market.

Now, I will suggest a remedy for a large proportion of this original cost as well as the very costly repairs which have to be made in after years. It goes without saying, that in either case, all the underground work, sewers, water pipe, etc., should be constructed before attempting to construct paving of any kind. The material replaced over them should all be tamped and puddled to place and be well dried out by lapse of time. Then the street should be graded, rolled with a heavy steam roller and, lastly, brought to a perfect surface with a good, clean, sharp sand, then a course of brick laid on the flat, either with the direct course of the street, or diagonally, as may be preferred; the latter I believe to be preferable, then a cushion of good, sharp sand, free from pebbles or other hard substances, then a course of brick, on edge, of course, laid at right angle with the street, or as nearly at right angle to the lower course as possible, in order to get the greatest bearing on the lower course. Then a clean, dry, sharp sand thoroughly swept over it, making sure that every opening is well filled to the top, then rolled with a hand roller, which can be operated by two men, and, lastly, to be covered with about half an inch of sand, and the street is ready for travel with all kinds of vehicles. Then, we will suppose that the same thing occurs with reference to repairs to underground work. With the necessary tools, lift the upper and lower courses of brick out, setting them to one side, make the repairs, then replace the material very carefully, so there will be no possible chance of settlement, have a little sand on hand, replace the brick as they were before and in two hours time after repairs are

completed on a well-traveled street, no person could point out the spot by the looks of the street. Then, the reader may ask, what has been accomplished? The answer is, that you have saved the entire cost of your concrete, and the extra cost of grading, less the one course of brick laid on the flat, and you have made it possible to make all repairs at a cheap cost without any destruction of material, and, lastly, you have got as good a street as can be made by the use of any amount of concrete.

I am well aware that I am getting close onto "the corns" of the asphalt man and the cement maker, but the "truth will be out" sooner or later. Any person "who wants to be convinced" of the assertions which I have made, only has to visit the States through the middle west to see what has been and is being accomplished along these lines, as he will find hundreds of miles of street paving which has been constructed in just this manner. The same thing is true as regards the construction of country roads. What is needed the most is a thorough inspection in order to make sure that the best material is used and that it is put in place in the proper manner, with no "rake-offs" or "grafts" in any manner or form. Great care, in any instance, requires that the foundation must be the best to be had and the balance will come pretty near taking care of itself. Then, I hear the cement maker say, "That is where I shine. I can give them the foundation, then they can put their material on top of it." I say no. Concrete is of no use whatever unless it has a foundation under it. I have heard the argument used that the necessary crown of a roadway tended to form an arch in such a manner that, with the use of concrete, it would not make any difference whether a soft spot appeared under it or not, it would be taken care of by the arch. What fallacy to present to the mind which does its own thinking, to even think that a street with a width of forty or fifty feet and a crown of, say, six inches, will have any tendency to form an arch which will add strength to it. It is too ridiculous to even argue.

It seems to be the general consensus of opinion among municipal engineers and other close observers, that brick paving, when properly constructed and of the proper material, has already proved to be the cheapest and most lasting of any material ever brought before the public. But the brick must be of the very best, thoroughly vitrified and free from laminations, and no soft brick should be permitted to get in under any pretext. Very often the manufacturers are called on for a large brick known as blocks, thinking that a better surface can be had by their use. This, in my opinion, is a grave mistake. We all know that the larger any unit used in street paving, the more liable it is to become "turtle backed" by the constant abrasion caused by street travel. This can be very easily noticed in any street where they have been in use for any length of time, consequently the street surface, with time, becomes rough and corrugated and the longer used and the heavier the traffic the more these conditions prevail. My own idea is, that nothing but the side-cut standard sized brick should be used, and under no circumstances should they be repressed. This repressing only adds to their cost with no possible benefit, unless it might be for sidewalk purposes, where they are laid on their flat.

Trusting that your readers will appreciate my efforts and that I have been able to make myself clear,

Yours very truly,

Denver, Colo., August 23, 1911. P. F. BARR, C. E.

A CHANGE IN THE MANAGEMENT OF THE WABASH CLAY COMPANY.

R. D. Culver Temporarily Retires From Active Business.

To My Friends and Business Acquaintances:

It being out of the question for me to send each of you a personal communication, you will permit me to avail myself of this circular letter. Its purpose is to inform you that I have resigned as president and general manager of the Wabash Clay Company. Mr. C. C. Orthwein succeeds me in the former place, while Mr. W. P. Whitney—who for fourteen years held responsible positions with us—assumes the management. My Brother, L. A. Culver, Jr., continues as secretary and treasurer. I bespeak for all of them the same measure of confidence and respect you have always shown me. I remain a director.

In laying aside the duties—which, for only a few months short of twenty years, I have performed to the best of my ability—I am conscious of somewhat mingled feelings. I am glad to be free, for a while at least, from responsibility. At the same time, I have a sense of deep regret over severing connections which have brought me many pleasant experiences and made me hundreds of good friends, but, so far as I know, not a single enemy. I take particular satisfaction in the thought that during the entire twenty years of my administration, commencing with the promotion and organization of this company, not once have we been in court as plaintiff or defendant in a suit at law. When it is recalled that we have executed hundreds of contracts with all kinds of men and running into millions of dollars, it will be conceded that this is an unusual record. Almost equally happy have been our relations with our employees. We have had but one strike in our history, it was of comparatively short duration and was not marked by bitterness on either side. I have always, as manager, tried to remember that I had a duty to perform toward our men, as well as toward our stockholders, and these duties have never clashed. I hold that a well paid, well cared for and, therefore, contented set of employees is the pre-requisite of a really prosperous business. While it would be manifestly improper for me to go into details, I am proud to say that, as the only manager this company has had since it was chartered in January, 1892, I have more than made good any promises I made in 1891, as its promoter, at which time I was little more than a boy in experience.

To those of my friends who are curious as to my future, I will say that I have no thought of retiring permanently from active business. I am still a young man—considerably younger than either of those very much alive lads, Teddy R. and W. J. B.—so no shelf or easy chair for me. I shall rest for a while—perhaps take my wife on the wedding trip I promised her twenty odd years ago, but deferred for lack of suitable opportunity. Then, somewhere, I shall get back into harness, fit my shoulders to the collar and pull my part of the common load. What line of activity I shall choose, I do not know; it may be the old; it may be something entirely new.

With kindly thoughts for each of you,

Veedersburg, Ind., August 31, 1911.

R. D. CULVER.

SCOTT-MADDEN COMPANY MOVE OFFICE TO KEOKUK.

Scott-Madden Iron Works Company have closed their St. Louis office, and are concentrating their business at Keokuk, where they request that all communications be addressed to the company.

They are manufacturing a complete line of dry press machinery, also steam shovels and dredges at Keokuk, and are

selling the Madden line of stiff mud machinery manufactured at Rushville, Ind.

Their new catalogue offers everything in the clayworking line and is quite a useful book for the clayworker to have in his office.

GOOD ROADS.

THIS General Assembly created a commission to revise, rewrite, and codify the township organization and the road and bridge laws. It has organized and is preparing to set about its work.

How much revision the township organization law needs The Tribune does not know. It has been amended from time to time since the revision of 1874 and probably some of its sections should be rewritten. The Tribune does know that new legislation concerning road building is greatly needed. It is no exaggeration to say that the material interests of Illinois stand in greater need of good roads than of anything else. They can not be had so long as laws and methods remain as they are.

It has been impossible to improve conditions because of the conservatism of the farmers and their fear of heavier taxation. A report submitted to the General Assembly should have some effect on them. It was that the road taxes, which amount to \$10,000,000 annually, would give the State good roads if the money were honestly and intelligently expended. According to the report, it is partly wasted by ignorant officials and partly pilfered by dishonest ones.

So the farmer gets nothing for his road taxes. The bad roads which he has to use cost him more than the taxes he pays to mend them. As the agricultural department showed years ago, bad roads make it difficult and expensive for the farmer to get his product to a railroad and a market.

We need a law under which scientific road making should be not merely possible but certain. There should be radical changes in the present methods, which foster incapacity and open the door for the grafter. The old unsupervised method, left exclusively in the hands of petty local officials, has broken down. There should be a radical change in methods, and The Tribune is confident that the commission will recommend such a change.

But the Legislature will shelve its work, as it has that of many other commissions, unless the farmers can be made to see that new methods will benefit them. Convince them, as this paper has been trying to do for many years, and the rest will be easy.—Chicago Tribune.

GUINEA PIGS AS LAWN MOWERS.

There was some good news during the past month in the consular reports from abroad. Good news, especially for pushers of lawn mowers who may be tired and weary from overwork, may be suffering from excessive heat, or possessed of the germs of laziness until they do not enjoy pushing the festive mower. The good news is in the report that the English have discovered that guinea pigs make successful lawn mowers.

Now who will ever call the English slow again? Slow either in point of humor or inventive genius. It is reported as a curious, but successful experiment made on private lawns in Kent, the idea being the novel one of substituting the guinea pigs for the lawn mower and the weed killer. It is said that a low wire barrier is arranged around the lawn and into the enclosure are turned guinea pigs and at once they attack the worst weeds—the plantains first, then the dandelions and the daisies. When they finish these they proceed to the grass and when this is finished it looks like the lawn has been cut with the closest machine. It is said also that the persistent cutting of the weeds by the guinea

pigs kill them off, but they do not harm the grass, simply keep it mowed down.

It all sounds too good to be true, but wide circulation of this idea will probably beget enough belief inspired by hope that it will create an active demand for guinea pigs.

THE RAYMOND EQUAL ROLL CRUSHER.

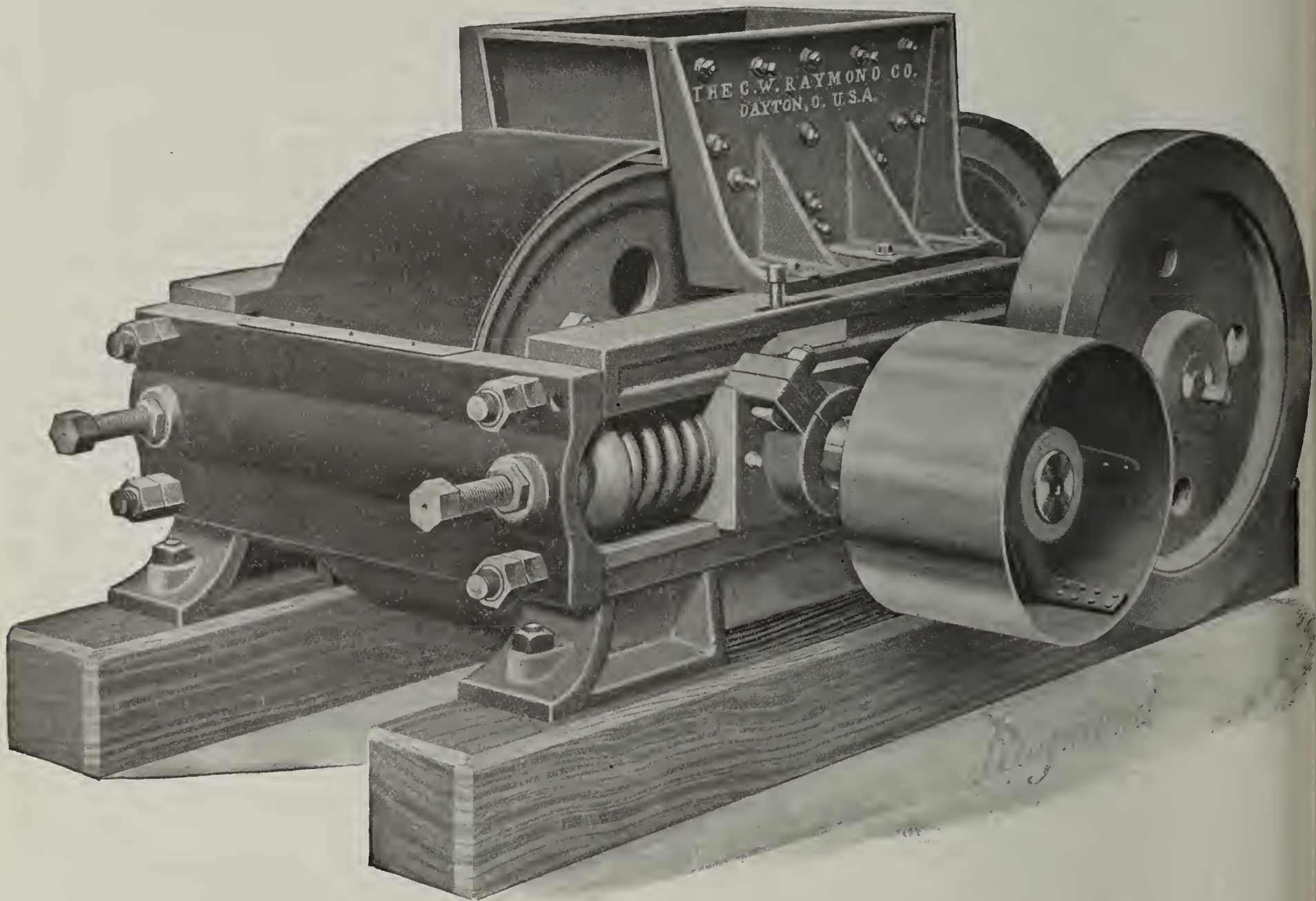
AN INNOVATION in roll crusher construction has been placed before the brickmaking world in the new machine marketed by the C. W. Raymond Company of Dayton, Ohio, U. S. A.

In its general design, in its massive construction, in its dependability, it vies with all of the Raymond productions, so universally relied upon to thwart the effects of less reliable build, being thoroughly capable of withstanding the

break. This bearing is made with an oil reservoir, keeping it sufficiently lubricated to prevent heating and undue wear. Furthermore, this boxing is set angular so that the strain does not occur on the belts, but against the solid bearing. In addition, these boxes are braced to the remainder of the framework, so that the strain is absorbed throughout its entirety, allowing no undue work to be performed by any one part of the superstructure.

The adjustable roll is held by two massive bearings, sliding in the frames and secured in their position by two sets of screws on either side, and locked by forged nuts. The movement of these nuts allows the adjustable roll to be brought as close to the stationary roll as may be desired. Heavy springs relieve the impact on this side and allow the passage of hard foreign substances without detriment to the machine.

Both rolls are fitted with chilled, replaceable wearing



The C. W. Raymond Company's New Equal Roll Crusher.

heavy impact of crushing while running at high capacities. Made, as it is, to meet the ever increasing demands for large quantities without sacrificing the quality of the machine or its product, its framework is staunch, rolls heavy and true, bearings generous and shafting strong.

The framework of the Equal Roll Crusher is built up of two immense side frames thoroughly secured by heavy stretchers and through-going bolts and large end frames, thus uniting it into one compact superstructure, giving it the rigidity so necessary to the success of a machine of this character.

These side frames are designed, each with one solid bearing which supports the stationary roll, holding it rigidly in position, allowing the impact to be taken against a section of the machine which has no moving or adjustable parts to

faces, ground to true circles and balanced, thus decreasing the vibration of the machine and adding to its longevity, while the fast or stationary roll is provided with a fly wheel to insure its steady operation.

A new and novel feature of the Equal Roll Crusher is the scraper arrangement. On the adjustable roll the scraper is fastened to the bearing boxes so that it will follow the roll when it is set to position and does not require a second adjustment of this part. Both scrapers are pivoted and held against the face of the rolls by means of counterweights, keeping them constantly in contact.

It may readily be seen that every unnecessary part is eliminated, thus minimizing the likelihood of breakage, while every device is added which is conducive to convenience and perfect work.

The specifications are: Length over all, 7 feet; width,

6 feet; rolls, 30 inches in diameter by 14 inches face; pulleys, slow roll, 16 inches by 10 inches, 400 R. P. M., fast roll, 18 inches by 14 inches, 500 R. P. M. Approximate weight, 8,500 pounds.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BUILDING OPERATIONS in Ohio and in Cleveland in particular continue to be of a satisfactory character. While there are no very large structures being planned at this time of the year, the amount of small building is larger than it has been for several years and totals

for the year thus far are also greater than ever before. Brick manufacturers, both paving, pressed and common, are all hard at work filling orders which will extend well into the fall and winter. They all report that the year thus far has been a good business one and expect that when final totals are struck in December that it will be a banner one in their industry.

One of the most interesting developments of the year has been the increase in the use of hollow brick, tile and similar fireproofing material. The unusually large number of houses built this year has helped much in swelling the total of the building permits. It has been very noticeable, too, that more brick houses are being erected here than formerly. Cleveland has been noted for years for its numerous frame houses. The increasing use of brick is attributed to the cost of wood and the agitation which has become general in recent years for fireproof buildings. The question of maintenance and upkeep has also become to be better understood in Cleveland and people realize that brick houses last longer, are warmer and have other advantages over frame shells.

The largest building operation begun during the past month is the erection of twin cloak factories for the M. T. Silver Company and the Sunshine Cloak and Suit Company. They will each use half of the new building which is to be four stories high, 165 feet deep and have a frontage of 280 feet, the entire distance between East Twenty-third and East Twenty-fourth streets, and fronting on Superior avenue. The building, designed by J. Milton Dyer, is to be of an attractive shade of pressed brick and will contain the very latest ideas in factory construction. The general contract is held by the Hunkin Conkey Construction Company and it is expected that it will be ready for occupancy early next year. It will cost upward of \$400,000 completed.

Another large building to be erected at once is for the Cleveland Press, one of the city's afternoon newspapers. It is to be of red pressed brick, four stories high and contain a large clock tower on the corner. The building has been designed by Briggs & Nelson, of Cleveland, and the work will be done by Briggs & Co., contractors, of Akron. The new plant is to be gotten ready for use about the middle of next year. Model press rooms, lined with white enamel brick, are to be built under one section of the new building, which is to be "L" shaped.

The handsome new twelve-story terra cotta building for the Cleveland Athletic Club is nearly finished and will be dedicated next month. The large swimming pool, located on the twelfth floor, is being lined with white enamel brick this month. The brick are being installed by the Collings Company, and were supplied by the Quisser-Bliss Company of this city.

A new brick building, 40 x 120 feet in size and two stories high, is being erected by the American Stove Company. It is the first of several large warehouses to be erected at the company's plant near the Pennsylvania railroad tracks. The general contract for the work has been let to the Hunkin Conkey Construction Company of this city.

Three new shelter houses are to be built on the public

square from plans prepared by Architect F. C. Striebinger. They will be of steel with terra cotta trimmings and heavy red tile roofs. Bids for the work are to be received on September 25 and the houses erected before snow flies. The city is also building two brick fire houses from plans by Architect Striebinger.

Revised plans for the new Sterling branch public library have been received from Architect E. L. Tilton, of New York, and bids for the building are to be received this month. It is expected that the new building, which is to be of brick, will cost about \$35,000. Former bids showed the cost too high for the money available for building purposes, so the plans were ordered revised.

The use of terra cotta in even small buildings is steadily advancing. During the past week contracts were let for a four-story building on Woodland avenue for J. Horwitz. It will be of Turkestan rough brick with terra cotta trimmings furnished by the Northwestern Terra Cotta Company by the Queisser-Bliss Company. Plans for the new buildings were drawn by Architects Weiss and Goldfein.

The Henke building, the four-story concrete building which collapsed while building in Cleveland some months ago, killing four people, is to be rebuilt, but cement is not to be used. Good old reliable brick has been chosen this time and cement finds no part in its construction except, perhaps, in the mortar. Plans for the new building have been prepared by Architect W. S. Lougee. The structure will be occupied by the Henke Furniture Company when completed.

The Atlantic Terra Cotta Company has been awarded the contract for the supplying of terra cotta for the new Statler hotel on Euclid avenue, corner of East Twelfth street. It is to be a twelve-story fireproof building of the highest type. Several stories below will be of terra cotta with upper stories of brick and coping of terra cotta. Steel for the frame of the new building is now being erected.

Cleveland architects and contractors have been commissioned to erect a new church edifice for the First Presbyterian congregation of Johnstown, Pa. Badgley & Nicklas, of Cleveland, have designed the new building, which is to be of brick, and the general contract for its erection has been let to John Grant & Sons, also of this city. A new church is to be built for St. Adelbert parish on East Eighty-second street, Cleveland, from plans made by Architect W. P. Ginter of Akron. The contract for the work has been given to W. F. Tausch of this city. The building is to cost \$50,000 completed.

The Moore Paint Company, of Cleveland, has awarded contracts for the building of a four-story building for manufacturing purposes. It was designed by A. M. Allen, engineer, will be 50 x 100 feet in size and of brick and mill construction.

A brick and terra cotta gymnasium building costing \$50,000 and to be built for the University of Wooster, is to be erected by the Rowland A. Curry Company of Cleveland. Plans for the building were made by Architect L. C. Holden of New York, and call for an artistic structure.

A huge warehouse, the largest grocery establishment in Ohio, containing nine acres of floor space, is just being completed for the William Edwards Company by the George B. McMillan Company, from plans by Architect W. S. Lougee. The warehouse is in four parts, each of which is six stories high. The walls are of brick with mill construction throughout, except the first floor, which is fireproof.

A model tenement building was begun in Cleveland during the past month by Architect M. E. Wells for M. A. Bradley. The general contract was let to F. H. Vogel. The building will have three stories, with brick walls, steel frame and cement floors. It will be 76 x 100 feet in size and strictly fireproof throughout. It contains many unusual ideas in construction and is supposed to be a model of its kind.

The New Lexington Pottery Company, of New Lexington,

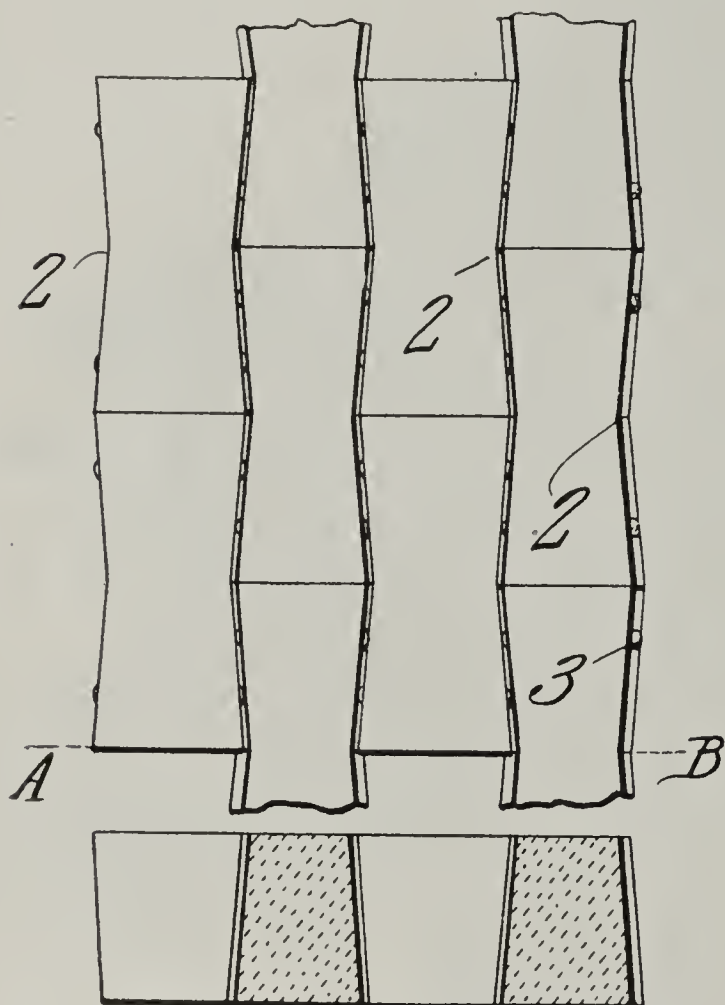
Ohio, was incorporated during the past month with a capital of \$50,000 by W. H. Brown and others.

On September 14 the annual clambake of the Cleveland Builders' Exchange was held at Dover Bay, just west of Cleveland, when about 200 members of the organization participated in the sports and the big feast which followed. The exchange is now in a very prosperous condition, having recently increased its membership to 400. BUCKEYE.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Key and Lock Brick: Samuel S. Swift, of Woodland, Pennsylvania. 998,811. Patented July 25, 1911.—This patent relates to a novel form of brick, especially designed for



998,811.

paving. As shown in the illustrations the brick is narrower at its middle than at its ends and is keystone-shaped in cross-section. This provides an effective interlock.

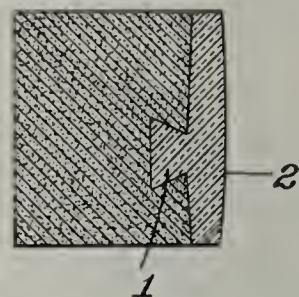
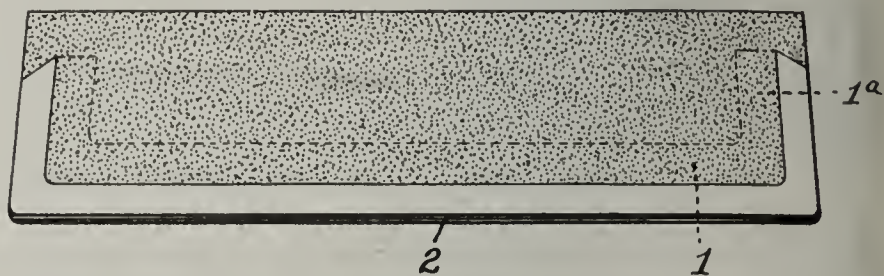
Brick, Tile, Etc.: Charles B. Lawton, of Penn Township, Allegheny County, Pennsylvania. 997,303. Patented July 11, 1911.—This is an improved facing for tiles, such facing being formed of glass or other vitreous material. The facing has a dove-tailed rib on its back which is embedded in the material of the brick.

Brick-molding Machine: Charles J. Helm and Franklyn Helm, deceased, Emma Helm, administratrix, of Traverse City, Mich. 998,577. Patented July 18, 1911.—This is an improved brick molding machine equipped with means for enabling pressure to be readily applied and adapted to be easily opened for exposing the bricks for the convenient removal of the same. Lack of space prevents a detailed description, but those interested should obtain a copy of the complete patent.

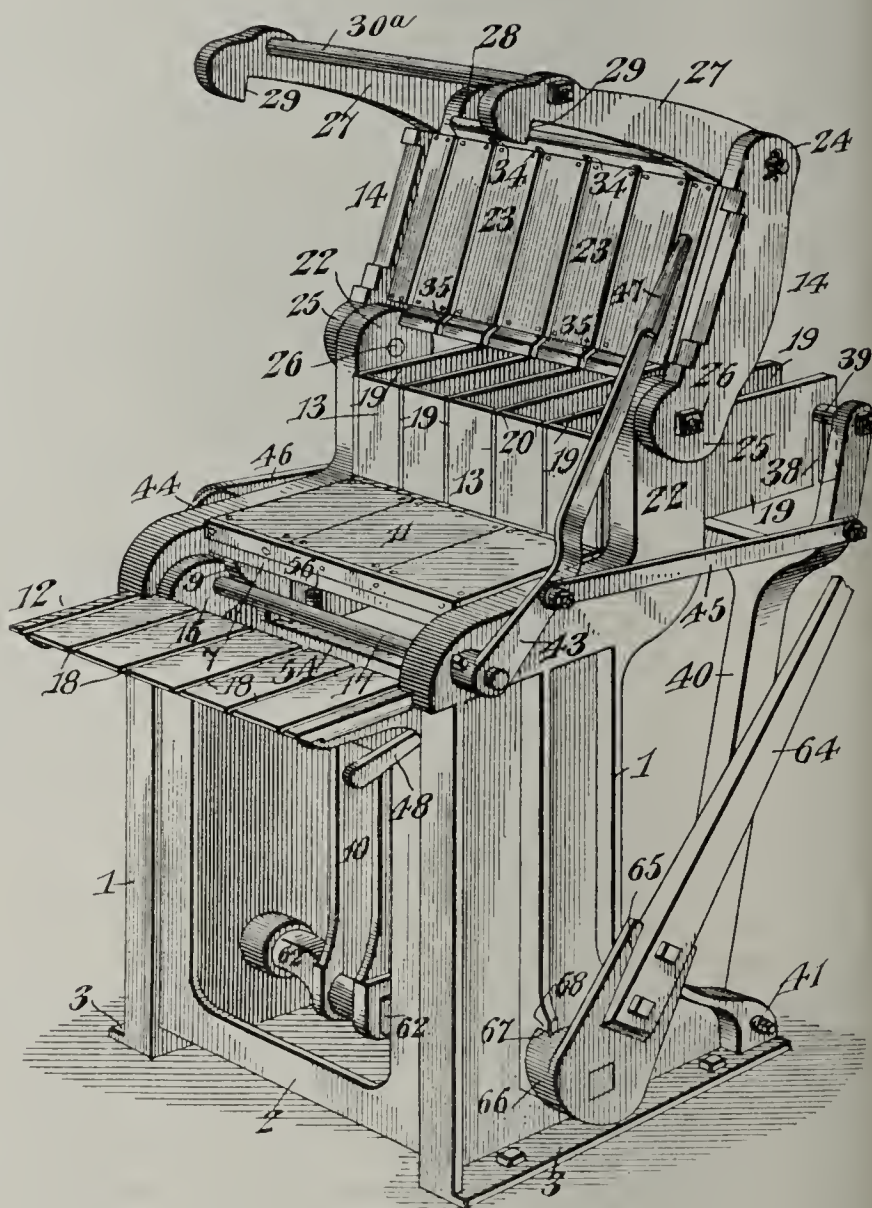
CLAY PRODUCTS IN PORCHES.

WHILE we are talking about house construction and boosting clay products for use therein, let us not forget that the porch is quite an important item, and that clay products can be made to play an important part in this work.

Porches have been a sort of pet hobby of the concrete



997,303.



998,577.

people for some years. In many localities they have practically captured the foundation and the flooring and a fair share of the columns and piers, but the high tide of this effort seems to have passed now, and the opportunities are good for pushing other things. Among those other things should come clay products.

There are to be seen here and there some excellent

porch piers or pillars made of brick, some of terra cotta, some foundations, parapet walls around porches, and there should be lots more of it.

One thing to guard against is going to extremes in freakishness. Some of this may be indulged in and some of the extra fancy kinks and wrinkles, but simplicity and graceful lines should be the guiding rules, and there should be lots more of both plain brick and of terra cotta products used in porches. Where one wants simply a plain inexpensive porch with a wooden floor it furnishes a better as well as a neater job than concrete, to have instead of the solid wall foundation around the front a series of nice brick piers with lattice work between and those piers extending on upward to take the place of the posts supporting the roof. This not only furnishes a neat effect, but it gives air underneath the porch and can prevent any decay of the wooden floor. A good wooden floor put up in this way and kept properly painted will last in good shape as long as a concrete floor.

If it is an elaborate porch that is wanted, one with a hard material floor, it should furnish still greater opportunities for clay products, for there is nothing better for a porch floor than a foundation of brick around it and a facing of burnt clay tiling, either blocks or mosaic, and right now it looks like the opportunities are excellent for pushing this kind of product.

Any way, while giving consideration to the house and the promotion of clay products for its construction, turn a little special attention to the porch. The porch has come to be a mighty important item of practically every home, and there are enough chances to extend the use of clay products in connection with it to make some special study and experimenting well worth while.

CONCRETE IN THE GARDEN.

The Illinois Outdoor Improvement Association has put forth in pamphlet form an interesting article by Jens Jensen, the landscape architect, on "Improving a Small Country Place." The article is full of stimulating suggestions for those who can use them, but we are most concerned right here to note that the author sets himself against the invasion of the small country place by concrete. He says:

A brick walk with an arbor effect makes the most fascinating link possible between the terrace or lawn at the front and the garden in the rear. A walk leading to a garden should never be of any material except brick. It satisfies the artistic sense and invites the footsteps with promises of pleasant vistas beyond the possibilities of any other material. Besides it is thoroughly serviceable. Concrete is harsh, forbidding and commercial by comparison with brick for this particular use.

His words come none too early. The bungalow era in American architecture is in the throes of a struggle with two very formidable forces—the Italian pergola and the American concrete. It has rallied magnificently against the pergola, but cement is creeping up on it in a thousand ways.

Mr. Jensen has been almost too considerate of cement for the small country place. He limits his condemnation to its use in garden walks, but he might have gone further. It is just as bad for other sorts of walks, in the country place. As we are told a thousand times a week, this is the cement age, and only the limits of the ingenuity of the editor of the Cement Age check the country house uses to which this "harsh, forbidding and commercial" material is now being put.

The trouble with concrete is that it is so hard. A cement walk across a lawn is like a heavy load laid upon the soft, velvet grass. It will never blend with its surroundings and never soften with age. Nothing so time-defying should be conspicuous about a country place whose chief charm is that it mellows with the years.



The Cheerful Mask.

THERE was a Jolly Josher in the group who not only seemed to be always happy himself, but managed to impart some of the spirit of jollity into all who mingled with him or stayed around him for any length of time.

In a spirit of raillery one of the group began teasing him about where and how he managed to get his mask of cheerfulness and asked him for a recipe or some kind of formula so that he might get one like it.

At this the Serious Man of the group turned on him and said: "Don't. Don't get a mask of cheerfulness and don't accuse our Jolly Josher here of wearing a mask. It is not a mask with him. It is natural."

"There is nothing more repugnant in my mind than the wearing a mask of cheerfulness. It is always hideous and doesn't fool anybody but the man wearing it."

"I don't want you to reason from this that I object to cheerfulness. I don't. I think it is one of the best elements in the world, and the man that has lots of it in his make-up is particularly fortunate. The only thing worth while, however, is the real spirit of cheerfulness. Not a mask or an assumption of cheerfulness you don't feel. That is where some people make a great mistake. They think all they have to do is put on a mask of pretended cheerfulness and they will be classed as 'hail fellows, well met.'"

"You will notice though that fellows of that kind never get very far. They don't impart much cheerfulness to others nor build up much of a reputation for themselves, either in cheerfulness or anything else."

"So, don't accuse our friend here of wearing a mask or having a particular recipe. He is simply blessed with a trait of nature that is worth a whole lot to him or any other man, and I envy him this blessing, but I don't envy the man who has to put on a mask to seem cheerful."

Unto the Next Generation.

"You might continue that dissertation," said another one of the group, turning to the Serious Man, "by giving our inquiring friend here a little hint about how to acquire cheerfulness by learning to feel it."

"You can acquire a certain amount of the real thing by making it a practice to say only good or cheerful things about others and looking for the things in and about those you meet that are pleasing and overlooking or refraining from remarking about their shortcomings. In short, by cutting out the faultfinding and grumbling and seeking for thoughts and words of praise and a closer acquaintance with all you come in contact with."

"I catch your point at once," said the original teaser, chipping into the conversation again, "and I have had impressed upon me the fact that we are prone to do untold damage to others as well as ourselves by the habit of what I term careless faultfinding, and a slack use of depreciatory words about others."

"In some respects, I think it is worse than the drinking habit, which, we are told, will descend unto the third and fourth generation with its evil effects. The evil effects of some of our slack talk may be noticed in the immediately succeeding generation. So, instead of concerning ourselves so much with what may happen to that third and fourth generation, we may well be more concerned about what we are handing down unto the next generation."

"What I have in mind right now is the poisonous effect

of careless bantering or words of abuse of those in authority above them by workmen in the factories and other places during the noon-hour in the presence of the younger men sitting around. You can have no conception of the amount of this or its far-reaching effects until you get to studying it carefully.

"Most of us have overheard lots of careless abuse of foremen, superintendents and proprietors of plants by men at the noon-hour who perhaps really have but little venom in their hearts. It is just the habit of abuse and a sort of disposition to show up their own superiority before their fellowmen by illustrating the fact that they can find fault and pick flaws in some men who are presumably above them.

"Many a man of this kind who, if taken to task about it, would deny having said anything derogatory to the character of those above them; but, just the same, there is always sitting around youngsters who take this all in and attach more weight to it than they should, with the result that soon they form the opinion that most men who own industries, or who are employed by them in an authoritative way, are unscrupulous beasts, little short of monsters, deserve no consideration from the working men, and are a fair prey for them to take advantage of in any shape or form they can think of.

"The series of careless words sown in this way often start a young man going the wrong way, and some go to ruin, spoil their own chances in the world before they learn the error of these early impressions. Some soon get out of it. As they grow older every man measures up the world and those around him, compares one man with the other, and draws his own conclusions, but he is considerably handicapped, biased, and prejudiced by these impressions received from overhearing older men talk in his boyhood days."

The Length of a Short Answer.

"I can not only attest the good logic my friend has just been putting up," said the Jolly Josher, "but I can go a little further and give some personal experiences from having been one of them—one of these youngsters who received wrong impressions in his early days, and I can add to it another one—an illustration of the length of a short answer.

"The short answer in this case is the direct result of the conditions our friend speaks of. There was an old gentleman in our community of certain peculiar ways. As I look back now I appreciate his peculiarities. He was a man of strong character and a thoroughly good man all the way through and, like many a good, forceful man, he had his hobbies and peculiarities.

"One of these was the habit of inquiring not only the names of people that came his way, whom he did not happen to know, but he would ask all the details of their affairs of life he could think of; ask questions that ordinarily seemed very impertinent, but really came from an honest-hearted desire to simply know about people that he might understand them better.

"Now, it happened that I had heard a lot of the same kind of careless slack talk in my early days that our friend here has spoken of, and a fair share of it centered around this old fellow. So, I came to the conclusion that he was not a man deserving respect of any kind and that the correct thing to do was to saw him off and give him short answers. That it would show a weakness on my part to answer him respectfully.

"It so happened one day that he came my way and began making some of his typical personal inquiries of me. This gave me my opportunity, an opportunity that I had thought at the time I was improving on beautifully. So, I started in and dressed the old gentleman down with some sharp short answers that I felt real proud of at that time, but that I am heartily ashamed of now.

"Time passed, and I thought but little of the incident ex-

cept to gloat over it among some of my acquaintances. It was perhaps ten years later that I had occasion to remember this incident. It had passed entirely out of my mind and I was a hot contestor for the prize school of our territory. There were several after it and everybody was pulling hard to get it. I thought sure it was mine. I had the qualifications and the record, but when I came to see the directors it happened that this old gentleman that I had given the short answer to was one of them.

"I didn't think much of that and I did not expect any favor from him, but I did think the other two would control him and that the job was mine. I thought wrong, however, because he not only remembered that short answer of mine, but he got the other two directors together and started to work on them, using as his argument the theory that a young man who could not return a civil answer to an older one was not the kind of man to put in charge of the training of youngsters. He used his argument so effectively, too, that I missed the job."

"Well," said the Serious man, "you may have missed that job but you probably got a lesson from it that was worth more than the job."

"That's just what I did," said the Jolly Josher, "and that is why you see me as I am. I learned the lesson early and learned that it is not only being pleasant, but cultivating the pleasant side in others and looking for it, that makes life worth while and gets us more in the end."

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

THE price situation in and about New York has changed little since last month. Six dollars seems to be about the limit obtainable for common brick throughout the district. In some cases \$6.25 has been paid, but these are too few to be considered. In nearly all instances buyers have been able to obtain what they want at around \$6.00. The price question will presumably assume a brighter aspect as soon as the new selling plan is fairly in operation. Architects now have on their boards a large amount of work to be done, and the future is more promising, with prospects of liberal development along lines which will require more brick than the operations of last year.

The use of terra cotta in ornamentation of buildings increases in New York. Scarcely a building of importance is under construction today in which this class of ornament doesn't play a prominent part. The material is relatively cheap. It costs less to handle than stone and the effects are quite as satisfactory. The one who watches construction work in and about the city now will be surprised to see how nearly clay ornaments have supplanted those of stone or other material. It augurs well for the clay industry and it indicates that the artistic talent which has hitherto been lavished upon stone has been directed toward clay with satisfactory results. Indeed, it would be difficult to conceive anything handsomer or more in harmony with the building and its surroundings than some of these clay ornaments.

Brick as a paving material is not being considered in New York to any considerable extent. Brooklyn has some brick pavements, but New York has been content to submit to the incompetency of the asphalt people for a long time. There is no question about the deplorable condition of the streets in many localities. They are as plainly manifest as anything can be. Brick has been urged upon the public works department for years, but without success. And it must be admitted that the present holds out no promise for improvement in the future. Even Brooklyn, since it came under the domination of New York, is losing its excellent brick pavements. Stone and asphalt seem to be the favorite material for this class of work.

The progress of shipments from up the river is about the same as usual at this season. The arrivals were not quite as heavy, showing a healthful condition of the market so far as movement is concerned. Buyers have not taken more than they wanted. That much is certain, but there has

been little disposition to make business more brisk by reducing prices, or by any other fictitious methods. Under these circumstances the situation remains practically unchanged and the market remains steady under moderate demand at full quotations. Work has begun on the new subway, which will cause a demand for something like 125,000,000 brick before it is finished. These will all come from up the river. It will take several years to build, but the demand will be continuous and those firms whose output goes in, as all the firms in the combine will go in, will feel the beneficial effects of the construction. The subway may not send prices up, but it will help keep them steady as long as the construction is in progress. A. BURTON.

ILLINOIS STATE MUSEUM MAKES NEW DEPARTURE.

A complete collection of the clays of Illinois is one of the chief desires of Professor A. N. Crook, curator of the Illinois Satte Museum of Natural History at Springfield, Ill.

BOOSTING BRICK BY EXAMPLE.

AS was said editorially in these columns recently, it is not only refreshing but decidedly encouraging to come across a man who is boosting brick for general building purposes, and we find him practicing what he preaches by using it in his own buildings. There is illustrated herewith an instance of this kind in the new office recently erected by T. Bishop, of the Southern Brick and Tile Company, of Louisville, Ky. It is a comparatively small office structure as office buildings go, but it is complete and thorough and is a model in itself for modern construction in that it includes the use of brick in the building itself, clay tile on its roof, and the approved method of fireproof floor construction.

The brick used in the office is their own product, the main body being hard red face and the monotony of the red being broken by black end brick. Also, the black end brick are used to make the sign on the front. The roof is of flat shingle clay tile, made in Cloverport, Ky., and the building is



Well Built Brick Office of the Southern Brick and Tile Co., Louisville, Ky.

In a recent talk with a representative of THE CLAY-WORKER, Professor Crook declared that the resources of the State in this direction should be exploited. In keeping with this view, he has called attention in his bulletin-reports to the manufacture of clay products but this does not receive general circulation. Of course, his aim is an exhibit of all the building materials native and those used in Illinois. Although there is no fund for this purpose, the collection has been started, but the clayworkers are not represented. Marble, limestone, and other native stones were sent at the expense of the quarrymen, and although the display is limited it is attractive. Although it is hoped to secure an appropriation at some time for this purpose, at present all specimens are sent prepaid. As the Illinois museum is departing from the traditional idea of museums—a dry collection of fossils, stuffed animals and birds—and becoming an interesting sight, thereby attracting more visitors, such exhibits should prove of value to the clay industry. Especially so, as the names of donors are displayed with the specimens. J. H. MADISON.

throughout a good standing example of the plans a man should follow in erecting a new home.

It is a good idea and the right kind of boosting, and we hope to see more of it. See every brick man showing by example not only that brick and clay products are the right thing to build with, but demonstrating in his own work how it should be used.

This office has a good basement with furnace heat and all the modern conveniences of an up-to-date office, but the strong feature about it that pleases is the fact that it is an example of the use of clay products through and through.

Not only is the manufacture and sale of automobiles quite conspicuous in this country, but they are now entering into the foreign fields quite extensively, too. The total value of automobile exports for the fiscal year, which ends in mid-summer, it is estimated, will be fourteen million dollars. These machines go to nearly all parts of the world, more to Canada than to any other one country, but they seem to be going practically everywhere.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Oklahoma Plant for Sale.

EDITOR CLAY-WORKER:

Enclosed find \$2.00 to pay for subscription to THE CLAY-WORKER for one year. We have a fine brick plant in eastern Oklahoma equipped throughout with Raymond machinery. We built it two years ago and had it leased until August 1, at which time we took charge of it ourselves. We are not practical manufacturers, however, and so would like to sell the plant, but we are not on the market to give it away. We have a fine quality of shale and burn with natural gas.

STILLEN & HAMPTON.

Kansas Brick Man Has Fair Season.

EDITOR CLAY-WORKER:

Enclosed find \$3.00 to cover renewal of subscription and fountain pen.

Business has been very fair with us, but as a whole the brick business is very bad in the Kansas gas belt. We hope to make 24,000,000 brick at our plant. There are no new plants going up in this section, but some of the old plants are making some extensive improvements. The Excelsior Brick Company, of this city, is installing a large Haigh kiln, and putting in several Bonnot represses and Bonnot machines, and will change their output from common building brick to paving brick. They expect to start up about the middle of September after having been shut down for several months.

Yours truly,

Fredonia, Kansas.

P. J. OPPEN.

Are Clayworkers Asleep at the Switch?

Friend Randall—I am in receipt of your yearly stereotyped letter enclosing bill, and, incidentally, asking for news items.

As the official organ of the brick industry, you ought to be interested in knowing that this month, commencing September 18, we are to hold in Chicago, the city of conventions, an International Municipal Congress and Exposition, at which the subjects of paving, road making and the grade of the streets is to be discussed. This exposition will be attended by the engineers, purchasing agents and city authorities from far and near, and what is of special interest to the brick industry is the fact that a number of the paving brick concerns have agreed to push their interests and have a joint booth and display booming the paving brick game, and it speaks very highly for the concerns so exhibiting, that while they, few in number, are bearing the cost of this exhibit, yet they are not talking any particular block, but are advocating the use of the paving block for the making of roads, and if you will pardon the suggestion, I think it is your duty, as one who is vitally interested in the paving block industry, that you devote more of your space to advocating the get-together idea among the paving brick manufacturers.

The writer does a good deal of traveling in the course of the year, and I do not know whether to feel sorrow or contempt for the paving brick men of Indiana and Illinois. Half of the plants are running half of the time, and some are shut down completely. I have yet to hear of an order being landed where the conditions were other than favorable; in

other words, like young birds in a nest, they sit back with open mouths waiting for providence to throw the orders to them, while other paving materials are out stirring up sentiment in favor of their goods.

I venture to predict that if the brick men in Indiana and Illinois get together and inaugurate a systematic campaign of education and promotion, that, like the Irishman, we will have to run our plants twenty-five hours a day.

I trust I have not wearied you with these arguments, but I do feel that you, as well as the rest of us interested in this industry, are not doing all that can be done to advance the paving brick game.

With kind regards, I remain,

Yours very truly,

Chicago, Ill.

E. K. CORMACK.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

A LONG the Hackensack, manufacturers are busy turning out brick, most of which is sold before it comes from the kilns. The weather hasn't been of the best the latter portion of the season because of rains, but all the first part it was ideal. Contracts in hand will probably carry out practically everything left to offer. Toward the end of this month makers will think about closing for the season. It gets cold and uncertain by the twentieth of September, and often brickmaking is a precarious process following that date. Usually there are cold rains, with considerable frost and not a little unsettled weather.

Prices have remained up pretty well this season. As high as \$6.50 has been paid in instances, though \$6.25 has been outside a considerable proportion of the time. At these figures there has been little trouble in disposing of the product. On the whole the season will close with a reasonably good record to show for the work.

Building operations have lagged in some of the Jersey districts of late. There are, of course, certain big operations which have been going forward all the time and are not yet finished. These have consumed brick on contract about as rapidly as those who held the contracts could get them out. But there has been an absence of the smaller operations which so many depend upon to liven up things.

It has developed during the present season that some of the makers in the Raritan section have been forced to buy clay. Not that their own beds are exhausted, but because something other than they had was required in the making of certain goods for certain orders. It is not stated that this outside purchase was large, but it was large enough and may be only an indication of what is to come in the future. The increased demand for brick of special sorts has much to do with this change in making, in some localities at least, and may be responsible for the purchase of clays in many cases.

The question of roads has become so important that it is a topic discussed under all circumstances. For instance, the new amiasite roads are ideal for the automobile. But they are not good for anything else. When wet or icy they are worse than asphalt, and in winter, if made with any crown at all, it is impossible for horses to stand on them, much less haul loads. The macadam road is doomed since the automobile with its rubber tire has come to grind these roads to powder and throw the powder over the adjacent landscape. The man in a carriage, on a bicycle or on foot has no place on the macadam road any longer. He must, when locomoting in any one of these three ways, keep to the ditch. The roads are rutted where the automobile tires run and the difficulties one experiences in attempting to get out of them when he would be such as to discourage further attempts at travel.

What New Jersey wants is someone to come along with

a material which will overcome these objections and will yet be within a reasonable limit as to cost. The curious feature about this entire matter is that these people do not realize that they have such a material and are annually sending many thousands of dollars worth of it to other States, but are utilizing comparatively little at home. The answer to the problem is brick. If some one could enforce that argument with Colonel Stevens, the State road commissioner, he would undoubtedly feel better and surely those who benefited by the good roads to follow would feel better, too. It all seems easy, but it isn't and it is unsafe to say whether this much-to-be-desired object will ever be accomplished or not.

A. L. B.

THE "HUMPING" OF WOOD BLOCK PAVEMENTS.

From all sections come complaints of the "humping" of wood block pavements. The heavy rains that have prevailed throughout the country following the unusually dry summer have played havoc with wood block pavements everywhere. The Athens (Ga.) Banner of September 1 likens the wood pavements of that city to the streets in a region cracked and upheaved by earthquakes. This is a common occurrence spring and fall wherever wood block pavements are used. It was first chronicled in the columns of The Clay-Worker many years ago and the matter was issued in pamphlet form under the title, "Idiosyncrasies of Wood Block Pavements," and was illustrated with photographs of "humps," which at the time seemed an exaggeration to those who were not familiar with the phenomena, one peculiar feature of which is that after a humped pavement has been repaired there is always left a load or two of blocks, which, though they were taken from the pavement, cannot be replaced in the same area owing to the swelling of the block. It is needless to say that however carefully a pavement is placed, it is never quite so good after humping as before.

THE AWAKENING OF ALTON.

This is an era of publicity; the benefits of advertising were never so much appreciated as at the present time. Many municipalities are profiting by a liberal and intelligent use of printers' ink. The town of Alton is an illustrious example. Through the boom committee of its Board of Trade, a body of progressive business men, headed by that distinguished clayworker, Eben Rodgers, Alton is letting the outside world know the advantages it offers as a manufacturing center, and they are many. One interesting fact developed in the round-up is related by one of the town's historians, who declares that but little more than a generation ago St. Louis was known as "the town across the river from Alton," whereas now Alton is known as "the town across the river from St. Louis." One city, owing to the enterprise of its citizens, has grown and prospered, while the other, with equal natural resources, has been "asleep at the switch." The enterprising citizens of Alton have awakened to their opportunities and are determined to regain in part the lost prestige and influence as an industrial center to which their natural resources entitle them. Alton has many natural advantages compared with other cities in the Mississippi valley, not the least of which is cheap fuel, an abundance of raw material and cheap transportation by rail and river. Any readers of The Clay-Worker who have a mind to embark in the brick business or any other industrial enterprise, under the most favorable circumstances, cannot do better than to get into communication with affable Eb Rodgers, president Alton Board of Trade, Alton, Ill.

Census figures are excellent things that would be worth a lot more if we could get them while they are fresh.

THE CLAY PRODUCTS EXPOSITION.

CLAY PRODUCTS SHOW



READERS OF THE CLAY-WORKER will find some interesting information about the "Clay Show" to be held in Chicago, March 7 to 12 next, in the announcement on page 315 of this issue. The sketch of the floor plan of the Coliseum gives an idea of the immense size of that great show place. As large as it is, though, there will be none too much space if the clayworkers of the country make as good use of it as they should. This enterprise was conceived with the sole idea and for the purpose of promoting the use of all clay products, and if it is properly and generously supported by those directly interested, a decided benefit will be realized by everyone connected with the business. Those of our readers who have not already taken space are urgently requested to get into communication with F. L. Hopley, secretary of the Clay Products Exposition, 815 Chamber of Commerce building, Chicago, and arrange for sufficient space to make an effective display. No matter what line of ware is made it should be exhibited. It is particularly important to make convincing displays of fireproof building materials, that visitors may be impressed with the superior merits and economy of burned clay as a structural material. It is not sufficient to merely claim these advantages, but the facts should be demonstrated so that the prospective builders of the nation may be convinced and carry home with them from the Clay Show fixed impressions that will influence them in all subsequent building operations. Clayworkers themselves are aware of the merits of clay products, they do not as a rule need enlightenment on the subject, but their customers, many of them, do need light, and the "Clay Show" may be made the means of affording it. Mr. Clayworker, it is up to you to make this show a success. If you make it what it ought to be it will mark a great step forward and make an impression upon the building world that will prove of decided advantage to every one engaged in the clay business. Don't miss your opportunity; turn to page 315, note the plans offered, and write to Secretary Hopley at once for such other information as you may desire. In the language of the street, "Get in the game."

BLOTTER ADVERTISING.

The Clinton Metallic Paint Company, Clinton, N. Y., is putting out a blotter which seems to us to ask a number of questions that will cause any dealer or user of colors to do a little bit of thinking, and the final question has just enough blunt cheerfulness about it to make one remember having read it.

This blotter follows one which that company sent out some time ago, and was their "THEN" blotter, the present one is the "NOW" blotter, and is gotten up as follows:

NOW—Isn't it strange that "Clinton" colors are the only ones imitated? Doesn't that prove to you that "Clinton" colors are the best?

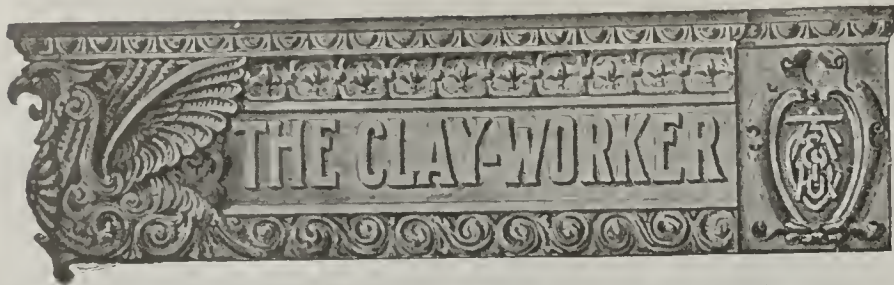
Wouldn't the imitators try to sell some other brand if they thought it was as good as "Clinton?"

Don't you suppose they have tested out all the makes and found "Clinton" to be the best?

With our trade mark registered do you think we would allow this thing to go on if these imitators had an article that could compare with ours and hurt our trade?

Gosh! What more do you want?

If half of the material other than clay products claimed to be fireproof were half as near fireproof as they are claimed to be there would not be nearly so much demand for fire brick and other fireproof clay products.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	- - - - -	\$ 2.00
One copy, one year (if not paid in advance)	- - - - -	2.50
Six copies, " " " " " "	- - - - -	10.00
Ten copies, " " " " " "	- - - - -	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LVI.

SEPTEMBER, 1911.

No. 3.

CURRENT COMMENT.

The drouth did some damage to crops, but it is not so bad after all and the country is really in excellent shape.

* * *

One of the best promoters for brick paving is the man that does the best job of it and manages to get the fact properly known.

* * *

We are now having the annual school reform and changing off and buying a few new school books to help the publishing business along.

* * *

Perhaps the best evidence of superiority of the brick home is the fact that the man who has one never regrets it and the man without one often wants it.

* * *

There has developed lately some agitation for seven great highways across the continent. It is a good idea if they will just carry it out and pave them with brick.

* * *

There may be some decrease in the copper ore production, as reported by the government, but if there is any decrease in the output of copper stocks for sale we have not heard of it.

* * *

It really looks like the country gets along just as well with Congress adjourned as with it in session, and there is less grumbling. The next thing we know some man will be wanting to make a motion that Congress stay adjourned.

* * *

R. T. Crane, a prominent manufacturer of valves and steam specialties, has in recent utterances severely arraigned big colleges and universities, claiming that there is more wild oats sowing than there is wisdom garnered among most of them. What those wild-oats-sowing college boys

need is more of the physical or trade school training along with the book learning to use up their surplus physical energies and make real men out of them.

* * *

A proper nozzle, plenty of water, and good pressure behind it, makes a simple and efficient stripping device that many clayworkers can make good use of.

* * *

Municipal pride and city boosting is quite the fad these days and it is doing good, because the people pretty generally realize that the greatest boost for a city is to put its highways and buildings in excellent shape.

* * *

Clay ditching machinery helps the drain tile business by relieving the work of putting it in and now if we can just get machinery that will lay brick in the wall like some that will take it into and out of kilns, we will be in shape to boost brick as the most economical building material as well as the best.

* * *

Not only is it a good thing for the brick manufacturer to use his own brick in erecting his office and show room and make display panels therein, but it is also a good thing to have an exhibit in this same manner in as many public places as practical within his territory, because such things often bring trade that might otherwise not be found.

MAKE THE AUTO BOOST BRICK PAVING.

The auto is, or should be, made an active advocate of brick paving. It is up to the manufacturer of paving brick to agitate the matter and keep it alive before the minds of automobile owners and clubs, because it will do lots of good if handled right, and they have certainly got the material and the evidence to back it up.

There is no need for going into elaborate details here over the fact that a brick-paved street or road makes the best speedway for automobiles, because these points are pretty well known to every paving brick manufacturer. He knows of the better grip it gives to the wheels, the freedom from skidding as compared to asphalt, and the superior points generally of a properly paved brick street or roadway.

What we are after here is to urge that these points be kept alive and actively before the automobile people, both individually and in their associations and clubs, so that they will not only speak in favor of brick for paving when called upon to voice their sentiments, but will take the initiative and turn boosters for brick paving.

DRY KILNS AND CLAY PRODUCTS.

The manufacturers of clay products are conspicuous users of dry kilns themselves. The same people that make lots of dry kiln apparatus for the clay products people also make kilns for the lumber and woodworking industries. By virtue of being brought into close touch with the dry kiln people through being conspicuous users, it should put the clay products men in an excellent position to boost clay products for kiln building among the woodworking industries. There is room for lots of good mission work along this line and every brick and hollow block man should make it a point to keep the subject alive before the kiln builders and urge them to advocate brick and hollow block for kiln construction everywhere. The insurance people approve of fireproof construction and also it makes for economy in heat. It has been demonstrated pretty thoroughly that dry kiln walls made of hollow block will save enough in heat that radiates through the ordinary dry kiln wall to soon more than pay for the difference in the cost of construction. Moreover, there is not such a great difference in the cost of construction as the average man is inclined to think. Of course, the

saw mill man feels that he has lumber right at hand and that it costs him practically nothing to build a kiln with it. Yet he does pay for it every day he operates it. Pays in insurance, in the loss of heat through radiation, and through lack of efficiency, pays enough often that he could well afford to spend more money and put in kilns made of clay products.

It is these things that the clay products people who use lots of kilns themselves should keep insistently before the kiln men and impress on them the importance of urging the necessity of kilns built with fireproof construction for use in the woodworking industry.

THE PAVED ALLEY WAY.

Has it ever occurred to you that what the automobile has done in the way of boosting brick street paving and the building of improved roadways may be enlarged upon materially in what it may do in the future to the alley way?

The old time alley and the auto do not go well together. There is need for more width and there will likely be more attention concentrated on this matter soon. Cities will begin to widen their alleys and to pave them for the accommodation of automobiles.

Attention has been called in these pages heretofore to possibilities for development in alley pavement. There has already been a fair share of it, but with the auto coming into wide general use it looks like this alley problem is going to assume greater proportions. Not only will more of them be nicely paved, but more of them will be made wider so as to have room for turning in and for passing, so that the alley paving in the future will call for at least twice as many brick as it has in the past.

So, keep your eye on this alley business and the effect the coming of the auto is having on it, because it looks like there is a good place to do some boosting of paving brick.

THE MERRY WAR OF HOUSE PLANS.

There never was a time where there was as many different ideas and notions and offerings in the way of house plans. Neither was there ever a time when so many different people have been concerned with promoting house-building ideas and of offering house plans in one form and another as a means of promoting their own business.

It is hard to tell just where or how it began, but the trade papers along the line of lumber industries are perhaps the starters of it. Some papers calculated originally for use by the retail dealers in lumber, others going to the carpenter and builder, and, of course, back of all these are the architectural papers that may properly be regarded as the nestors of the house plan publishing business, and they are still at it in their usual dignified and thorough manner. But, what is in my mind now is the great mass of offerings by a wide variety of different publications which have grown up now into what might be appropriately regarded as the merry war of house plans.

Not only are lumber and building material papers full of them and publishing houses get out great books of house plans in miniature, with arrangements for supplying blue prints in detail, but many of the family, farm, and house-keeping papers have gotten into the game lately until it is impossible to keep up with it all.

Go into a news store carrying a full line of periodicals and unless you have been a close observer of the progress of late you will likely be astonished not only at the great number of publications of the house and garden class and of the family fashions and of housekeeping topics, but you will find in nearly all of them that house planning is a great feature. Many of them have prize contests, some for floor plans, some for kitchens, some for one thing and some for another, but everywhere all around there are house plans

staring one in the face and consisting of everything from a little two by four bungalow to a mansion.

Of course, some of them are freakish and impractical, but many of them are good, and undoubtedly out of it all the general public is not only being educated to but is being inspired with a desire to build more attractive homes, and it is very likely does much to encourage building.

So far, so good, but the question that it raises in our mind is just how much are the brick men getting out of it and how closely are they allying themselves with this work? It is not possible to keep up with all of it, but a suggestion that occurs is that every brick man can periodically make the rounds and gather up quite a string of these publications with house-plan offerings of various kinds, take them home and go over them carefully, select those that seem of interest and worth while and especially those that are suitable to the use of brick, and take them to his local newspaper man and have a little heart-to-heart talk about house planning, the new home and the use of brick. He can by this means keep himself and his product identified with the house-plan idea and before the people in such a shape as to encourage the use of brick. He can do himself good, promote the use of brick, and serve a good turn to the local editor all at the same time by following out this suggestion in the right spirit.

MACHINERY AS "GEORGE."

That cartoonist who has popularized the saying, "Let George do it," might well start another series with good meaning as well as amusement to it by making machinery take the place of George.

In other words, we need a little impressive reminding now and then that burdensome and tedious parts of work, the part we dread and don't want to do because it is disagreeable for some reason or other, may often be performed by some modern machine or appliance. Substituting machinery and appliances of this kind for the comical George we may well take up the slogan, "Let George do it," and make of it an implement to inspire progress.

The correct idea of progressive industry is in striving to eliminate the tedious, burdensome, disagreeable physical labor and make machinery and appliances do it. Therefore, there is something appealingly appropriate about the idea of designating labor-saving machinery and devices as George and then planning to "let George do it."

MOTOR TRUCKS TO THE FORE.

Up to the present year it is the automobile in various forms that has occupied the center of the stage and has had the spotlight turned on it generally by speedway contests, endurance contests, cross-country tours, and things of that kind, but now the motor truck is coming to the fore, the solid business end of the proposition.

Automobiles, primarily, were things of pleasure, and even they have now gotten into the business world, and run-about are used instead of buggies for city salesmen and instead of street cars, but the big thing for the industrial world is the development in motor trucks. This branch of the business is now receiving more attention at promotion than heretofore. Partly because the attention of promoters has been centered on the automobile proper and partly because it has taken several years of experimenting to develop just the kind of truck best suited for the industrial world.

As showing how the motor truck is getting in the spotlight now, we have before us a detailed account of a trip made by A. L. Westgard, of the Saurer Motor Company, Plainfield, N. J., across the western part of the continent from Denver to Los Angeles. This truck was shipped back to Denver and then made a trip across the continent.

We may presume, of course, that part of the idea of

making this ocean-to-ocean trip is to advertise a specific truck, but aside from that it helps advertise and develop the motor truck industry and demonstrates the hardihood of a good motor truck under trying service. It is not a speed contest like some of the automobiles, but a sort of endurance contest to demonstrate both the wearing qualities of the motor truck and its ability to cover rough ground.

There seems no question of the future of the motor truck for hauling everything from flowers to brick and stone. In the larger cities they are rapidly replacing the heavy drays and light delivery rigs, being used by the department stores, florists, confectioners, and then by the people requiring heavy trucks such as distilleries, iron and steel people, lumber people, and there is not much doubt but what eventually they will occupy a conspicuous place in the brick business for the hauling of brick through the town and delivering them to the railroads for shipment.

Moreover, we seem to have reached the point in development of the motor truck business now that any man can, by enough investigation, find some truck peculiarly suited to any work of service he may desire of it. Therefore, the thing for those to do who are interested in the motor truck business is to get in touch with motor manufacturers, as many of them as possible, get catalogues and descriptive matter and carefully investigate all of them with a view to finding that which best meets their own peculiar needs.

TRADE LITERATURE.

The paper by Engineer H. P. Brown on the "Serious Injury to a Reinforced Concrete Building by Electrolysis," to which our scribe, Prof. H. A. Wheeler, refers in his contribution on the subject on page 270 of this issue, has been reprinted in pamphlet form by the Engineering News. A limited number of the pamphlets are offered to those desiring them at 25 cents per copy. Orders should be sent direct to the Engineering News Publishing Company, 1220 Broadway, New York City. The pamphlet contains additional data and illustrations.

FACTS AND FANCIES.

The mule—he is a gentle beast,
And so is man.
He's satisfied to be the least;
And so is man.
Like man, he may be taught some tricks;
He does his work from 8 to 6;
The mule—when he gets mad, he kicks;
And so does man.

The mule—he has a load to pull;
And so has man.
He's happiest when he is full;
And so is man.
Like man, he holds a patient poise,
And when his work's done will rejoice.
The mule—he likes to hear his voice;
And so does man.

The mule—he has his faults, 'tis true;
And so has man.
He does some things he should not do;
And so does man.
Like man, he doesn't yearn for style,
But wants contentment all the while.
The mule—he has a lovely smile;
And so has man.

The mule is sometimes kind and good;
And so is man.
He eats all kinds of breakfast food;
And so does man.
Like man, he balks at gaudy dress
And all outlandish foolishness.
The mule's accused of mulishness;
And so is man.

—Cynthia Scott, in Missouri Ruralist.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.
[See page 333.]

FOR SALE, WANTED, ETC.

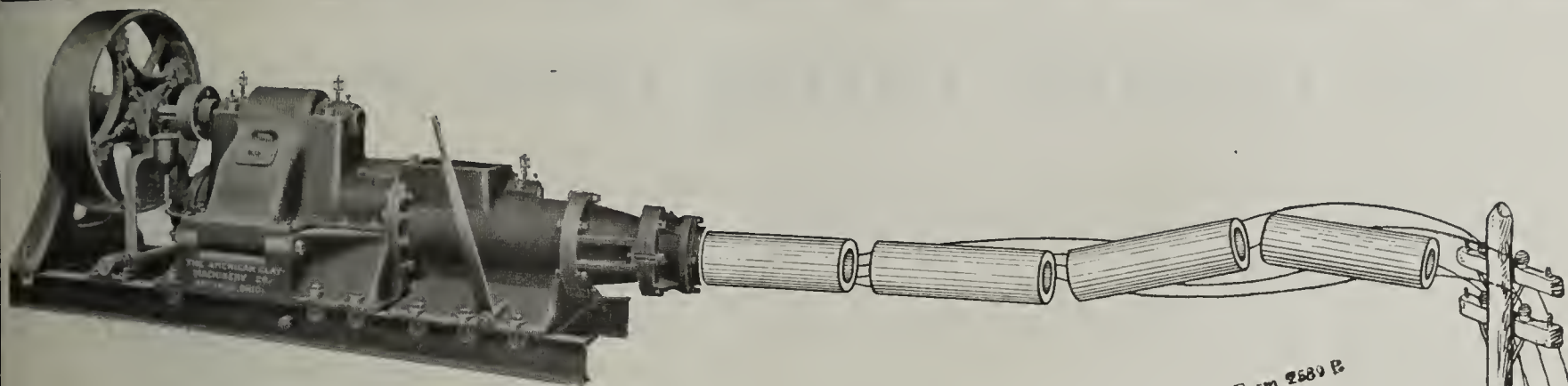
- WANTED.

A party to co-operate in exploiting a valuable clay property in Illinois. Address
4 7 cm
REFRACTORY,
Care Clay-Worker.
- WANTED.

To buy a brick plant having shale or fire clay, raw material and round down-draft kilns. Give complete description. Address
4 tf d
LOCK BOX 743,
Uhrichsville. Ohio.
- WANTED.

I am looking for a good business opening or farm. Price must be right. Will pay cash. Give full particulars in first letter. Address
4 6 d
C. W., BOX 965,
Cherry Valley, Ill.

"A Quality Above All Others in Clayworking Machinery."



Form 2589 B

DAY LETTER

THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED

CABLE SERVICE TO ALL THE WORLD

25,000 OFFICES IN AMERICA.

This Company TRANSMITS and DELIVERS messages only on conditions limiting its liability, which have been assented to by the sender of the following Day Letter. Errors can be guarded against only by repeating a message back to the sending station for comparison; and the Company will not hold itself liable for errors or delays in transmission or delivery of Unrepeated Day Letters, sent at reduced rates, beyond a sum equal to ten times the amount paid for transmission; nor in any case beyond the sum of Fifty Dollars, at which, unless otherwise stated below, this message has been valued by the sender thereof, nor in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission. This is an UNREPEATED DAY LETTER, and is delivered by request of the sender, under the conditions named above.

BELVIDERE BROOKS, GENERAL MANAGER

THEO. N. VAIL, PRESIDENT

Woodland, Illinois.
August 1, 1911.

RECEIVED AT Buc.
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American Clay Machinery Co.,
Bucyrus, Ohio.

Your new No. 218 Auger Tile Machine with force feed is an unqualified success. We operated today on five inch tile at a capacity of forty thousand per ten hours with machine running one forty. Machine surpasses anything we have seen of the kind and we have seen them all. Congratulations on your complete success.

The Woodland Clay Co.,
By: John W. Anderson Jr.
Manager.



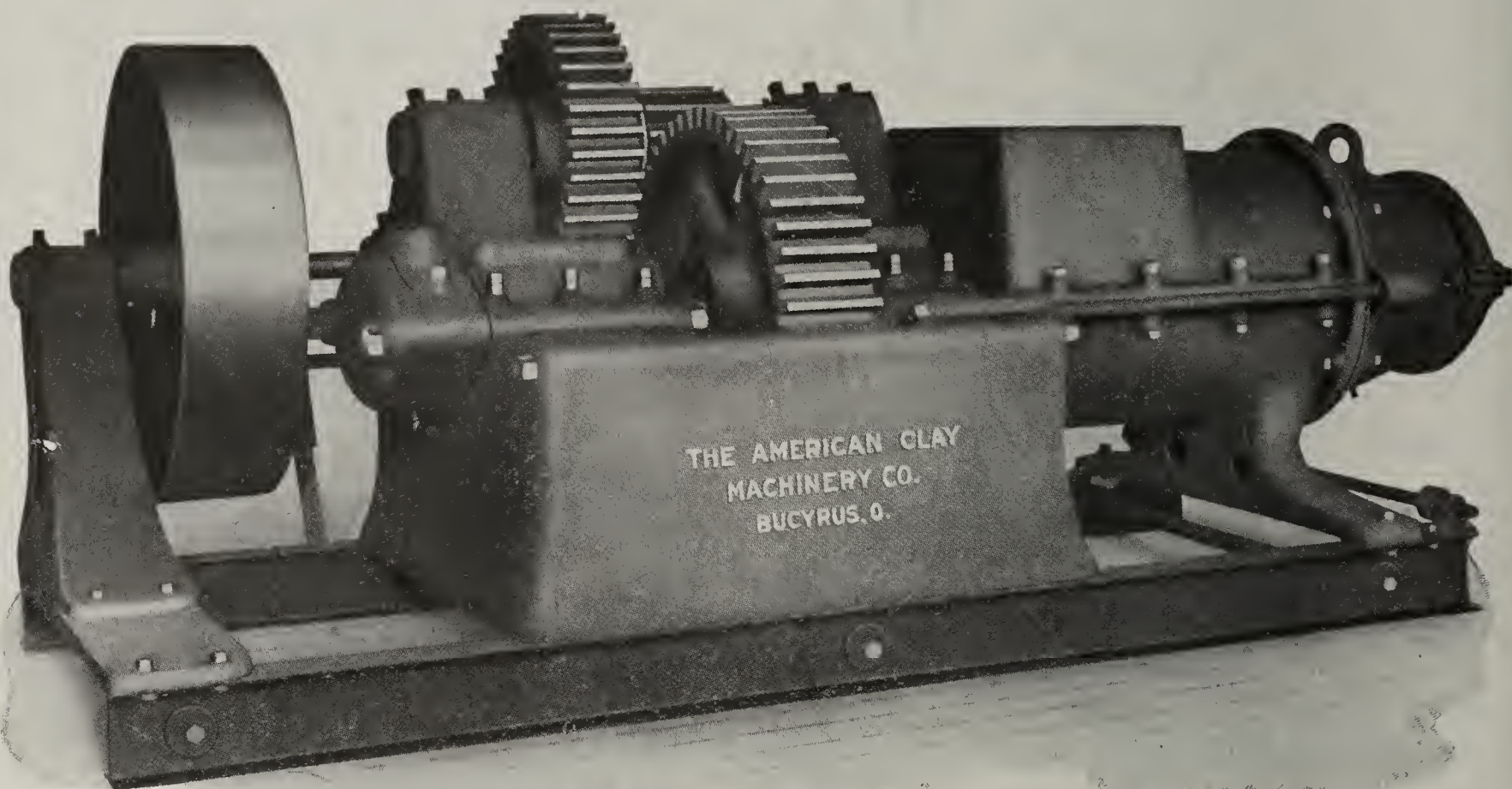
Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

The Greatest Paving Brick Machine

The greatest Paving Brick Plants in the country—the plants where capacity and quality go hand in hand, and where the most up-to-date machinery and methods are installed to raise the clay trade to its highest plane of quality—in such plants the No. 65 Auger Machine here shown is doing its part toward elevating and enriching the business. In all cases where the No. 65 machine has been installed they attain the highest record of capacity ever known in these plants, and without sacrificing the quality. Here, then, is a machine that has made good and will make good again wherever it is installed. Where machines of less capacity are desired we have them



The No. 65 Auger Brick Machine.

embodying the same high grade of excellent construction which makes them able to run up to and beyond their rated output. No matter what machinery or appliance you may want, and no matter for what process or product you may want it so long as it is used in the clay trade, we can supply it.

The No. 65 Auger Brick Machine is designed for the manufacturer of Paving Brick and other clay products. The construction of the machine is high class throughout, the material used is of the best quality, and the workmanship of the highest standard. The machine is built with a high factor of safety. Full description on request.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

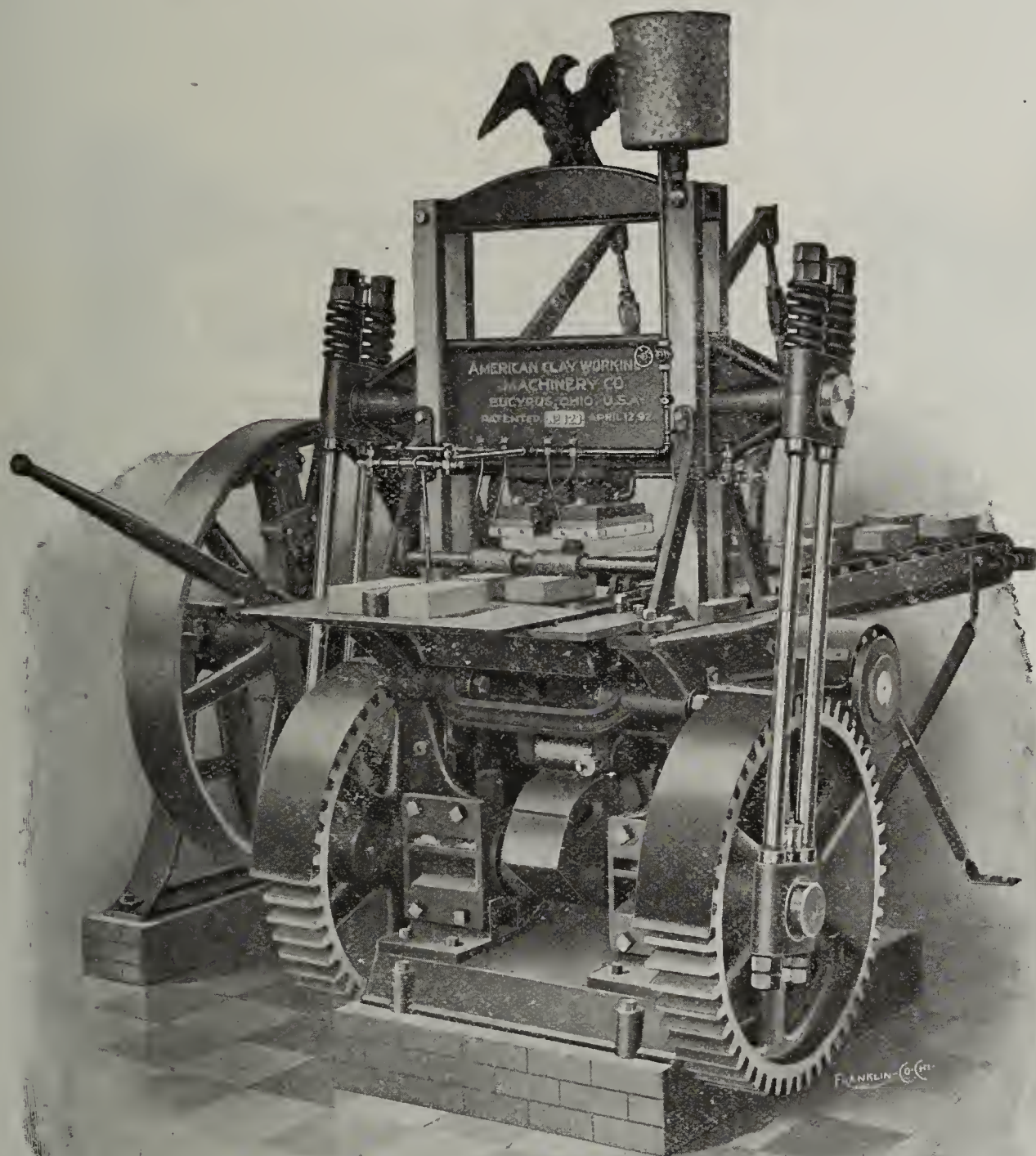
Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

PAVING BRICK PRESS

The paved street cause is often injured by inferior brick. If every Paving Brick were up to the quality that could be attained by the use of an Eagle Repress, brick streets would be more popular than they are today. The life of the brick street is in the quality of its construction and the quality of the material. We cannot answer for the proper building of the street, but we can answer for the proper pressing of any street paver.

There is no press built which will do the quantity and quality of work that has been turned out by the Eagle Repress. It leads because of the principle of its construction,



the quality of material and workmanship. Any paving brick manufacturer can save money as well as make it by using this best-of-all Represses.

Full particulars for the asking. We manufacture every machine and appliance used to make clay products by all processes.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

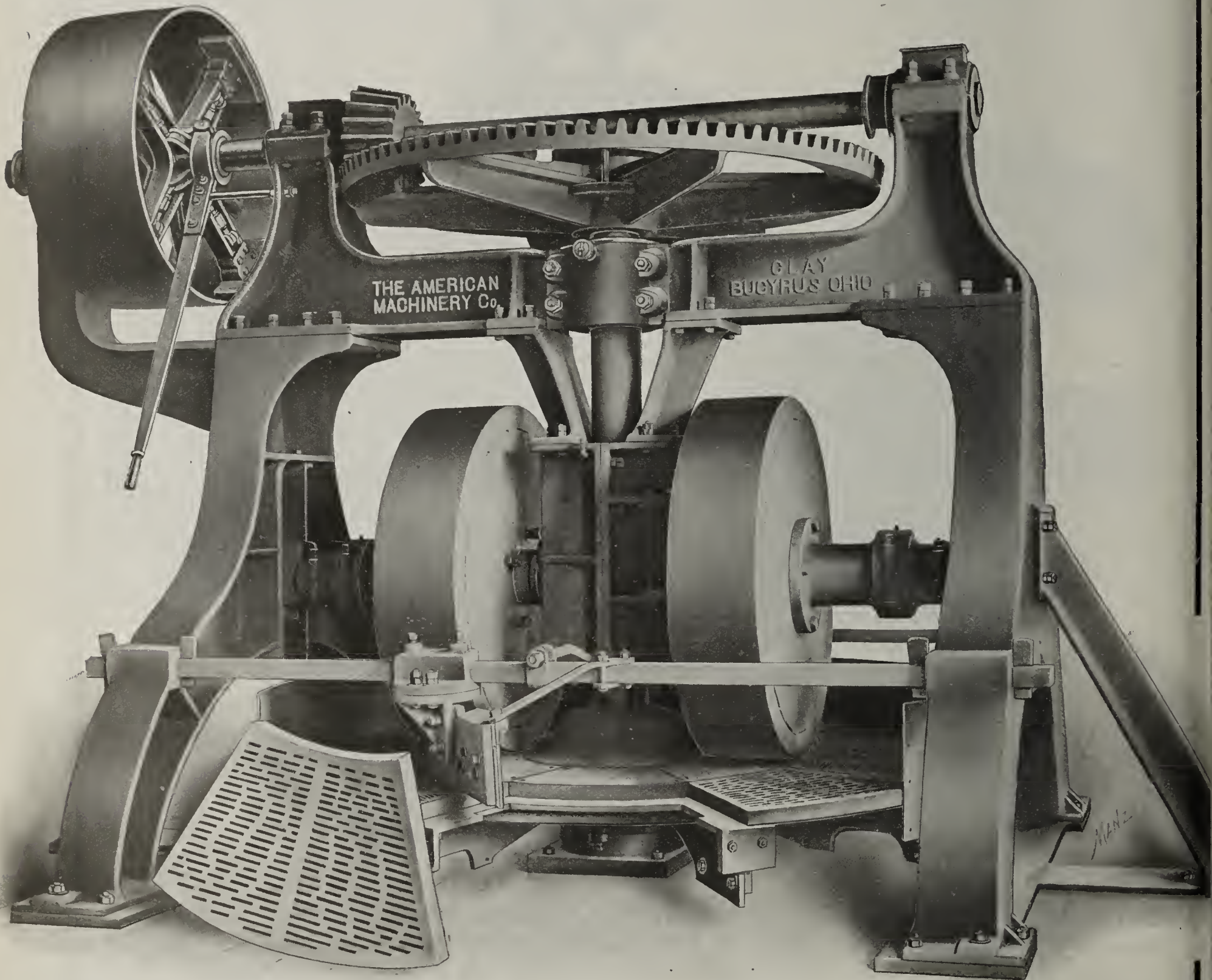
"A Quality Above All Others in Clayworking Machinery."

BUY CAPACITY AND QUALITY

When you buy a pan to make paving brick you are most interested in the capacity and the ability of the pan to stand up under that capacity.

A pan which will grind 200 tons of clay a day and grind it to a satisfactory fineness without delays for breakages is worth much more to you than a pan which will grind from twenty-five to fifty per cent. less material and maintain even that speed at the cost of frequent repairs. The one pan may be cheaper at first, but in the long run it is far more expensive. Our pans are most carefully built to insure a uniform, never-lagging capacity. They are built to make them exempt from repair bills and will perform up to and beyond their rated capacity without frequent annoying and expensive delays. There are features in our pan which are interesting to know about because they make up that quality characteristic of the American Clay Machinery Company pans. We will be glad to tell you all about them on request. We build several dozen styles and sizes and can exactly meet your requirements. There are no better pans built anywhere than ours, and few, if any, as good.

Our line includes every machine and appliance needed by the Clayworker.

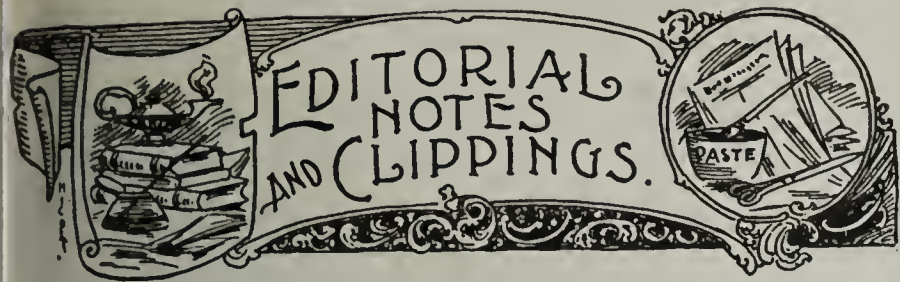


The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.



C. W. Able and R. H. Ethridge have established a small brick plant at Saluda, S. C.

The new plant of the Cainesville (Mo.) brick plant is now in full operation, the first kiln having been burned a short time ago.

The Forest Grove Tile and Brick Company has recently been incorporated at Forest Grove, Ore. They will erect a plant of 30,000 capacity.

The Marshall Brick Works, of Marshall, Texas, has been organized by Charles J. Cobb, W. H. Pugh and J. W. Dittler. The company is capitalized at \$40,000.

The Bay View Brick and Tile Company is the name of the new concern recently organized at Bay View, Wash., by C. B. Mayhugh, of Demos, Ohio, and H. B. Elliott, of Bay View.

The Adamantine Clay Products Company, of Martinsburg, W. Va., has awarded a contract for the erection of a large brickmaking plant to The C. W. Raymond Company, of Dayton, Ohio.

The A. C. Ochs Brick and Tile Company, of Springfield, Minn., has been very successful this season in the sale of clay tile silos, having sold in various parts of the State no less than twenty-five.

James W. Hoskins, of the Terre Haute Vitrified Brick Company, Terre Haute, Ind., recently looked an order for his firm for a large shipment of brick to Mattoon, Ill., to be used for the pavements of that city.

Straight Brothers, of Adel, Iowa, have purchased the tile factory of Harris & Co., and will operate it in connection with their own plant. The factory was started in 1883, but for some reason has not been very successful.

The Art Tile Company, of Mobile, Ala., of which John T. Ballard is president; W. G. Smith, vice-president, and M. Macies, secretary, has been formed to succeed the National Mosaic Tile Company, to manufacture floor tile exclusively.

A. Carpenter and others have purchased the tile plant of Matthews & Budlong, at Traer, Iowa, the consideration being 960 acres of land in Canada. Mr. Matthews will manage the plant until the close of the season, at which time he will go to Canada.

The Aldridge Brick Company, of Dutchess Junction, N. Y., has secured an option on the Wappinger Falls Brick Company, with its thirty-five acres of land and docks. As soon as the deal is closed, the new machinery will be installed and the plant will be operated to full capacity.

The old plant of the Red Wing Unit Stoneware Company, at Marshalltown, Iowa, is being rebuilt and enlarged. New machinery is being installed and it is anticipated by the first of October that the plant will be in shape for the manufacture of tile and sewer pipe. Mr. Gary is manager of the plant.

James A. Long and Charles G. McIntosh, of Portland, Ind., and John F. Miller, of Springfield, Ill., have organized a company to be known as the Springfield Drain Tile Company, with \$30,000 capital stock. Twenty-five acres of land has been purchased east of this city on which they will erect a six-kiln drain tile plant.

The Standard Brick Company, Evansville, Ind., has had a most satisfactory trade the past summer, with no indications of any slackening as the cooler season approaches. Mr. John Andres, the manager of the company, is at present supplying brick for six school buildings, one church, fifteen residences and a laundry building.

The Standard Shale Brick plant at Youngville, Pa., which was deserted by its owners nearly three years ago, has changed owners. The Bradford Brick Company, of Bradford, Pa., has bought the property and applied for a charter under the name of The Youngville Brick and Tile Company. The new company is increasing the capacity. This last purchase puts the Bradford company at the head of eight brick plants scattered throughout Western Pennsylvania. The Young-

ville branch will turn out five kinds of goods, paving, repressed, facers, fillers and tile.

N. A. Austin will erect a factory at Addison, Mich., for the manufacture of clay shingles.

J. F. Jenkins and J. H. Curry will establish a brick plant at Gaffney, S. C., to be known as the Broad River Brick Company.

The New Lexington Brick Company, of New Lexington, Ohio, has been incorporated by W. H. Brown and others with \$50,000 capital stock.

The Ashland Fire Brick Company, of Ashland, Ky., is making extensive improvements in its plant which will cost in the neighborhood of \$150,000.

The Northwestern Terra Cotta Company, of Chicago, Ill., has purchased a large tract of land opposite their present plant which they will use for the enlargement of the works.

The brick plant at Lewis, Iowa, has been purchased by Anton Vogt and sons. The entire plant is being remodeled, and will be running in a short time with a daily capacity of 20,000 brick.

John Schwinn, owner of the brick yards at Doniphan and Aurora, Neb., died recently at Kansas City, Mo., while en route to Excelsior Springs in search for health. He leaves a wife and six grown children.

The plant of the Suburban Brick Company, of Wheeling, W. Va., which was closed for a week, has begun operations again. During the shut-down necessary repairs were made to the machinery and other parts of the plant.

The stables of the Empire Brick and Tile Company, at One Hundred and Fiftieth street and East River, New York City, were destroyed by fire recently, during which fifteen horses were roasted to death. The damage is estimated at about \$5,000.

Hervey Haigh, the kiln man of Catskill, N. Y., writes that business seems to have taken a new turn with the cooler weather, and September orders have been very gratifying. Among other kilns now under way is a very large continuous kiln for the Excelsior Brick Company, of Fredonia, Kansas.

The Cedar Rapids Brick Company, of Cedar Rapids, Iowa, has installed an apparatus for burning brick with crude oil instead of coal, as heretofore. They are pleased with the experiment as far as they have gone and feel confident that they will be able to turn out much better brick at a lower cost than heretofore.

Contracts have been closed for the erection of a modern fireproof paving brick plant for the Huntington Clay Products Company, of Huntington, W. Va. The plant, which is to have a capacity of 100,000 brick per day, will be equipped throughout with modern machinery and appliances. T. L. Miliard is at the head of the concern.

The fire brick plant of W. H. Wynn & Co., at Blue Ball, Pa., has been taken over by the General Refractories Company, and will be operated in connection with the company's other plants at Sandy Ridge and Claysburg, Pa. The company also has another plant in course of construction in Kentucky. They are making a number of improvements in the Blue Ball plant.

The Salmen Brick and Lumber Company, of Slidell, La., has purchased a tract of ground adjoining their present plant and will at once begin the enlargement of their plant, which has been made necessary owing to the increase of their business. Mr. Fritz Salmen, during his trip through the north, closed a contract with Hervey Haigh, of Catskill, N. Y., for a Haigh kiln of 200,000 daily capacity. Mr. Salmen and his associates have been investigating kilns for some time and decided on the Haigh kiln only after mature deliberations.

George Cochonis, a laborer employed by the Purington Paving Brick Company, was electrocuted recently while endeavoring to move some wires belonging to the Gas and Electric Company, which had become entangled in the boom of the brick company's locomotive crane. Cochonis was employed, at the time of the accident, in assisting in unloading coal at the brick yards, the locomotive crane being used in this work. In some manner the thirty-foot boom on the crane caught in the wires of the electric light company which pass through the yards and it became necessary to stop the crane. The engineer in charge instructed the switchman to block the trucks of the crane so that it could be lowered away from the wires, but while preparations were being made for this, Cochonis climbed out on the boom, unknown

(Continued on page 314.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

to the others, and endeavored to remove the wires with his hands.

The W. C. Terrel Brick Company, at Greenville, S. C., is installing new machinery which will enable them to increase their capacity.

W. T. Hall, of Bastrop, La., writes that he is in the market for stiff mud brick machinery, and would like to receive catalogues and price lists.

John D. Hosfield, of Shippensburg, Pa., has purchased the plant of the Dillsburg Vitriified Brick and Tile Works at Dillsburg, Pa., and will put same in operation at once.

T. W. Spinks, a brick manufacturer of Covington, Ky., has filed a voluntary petition in bankruptcy. His assets are given at \$239,000 and his liabilities at \$166,000, the latter including his brick plant.

The Woodland Clay Company, of Woodland, Ill., is being improved and enlarged in order to increase the capacity of both the dryer and the kiln. A new steam shovel will also be added to the equipment.

The Farmers and Merchants Co-operative Brick and Tile Company has taken over the I. S. Finkle brick yard at Marshalltown, Iowa, and will at once put same in condition to make both pressed brick and tile and roofing tile.

Application has been made for the charter of a new concern to be known as the New Hope Shale Brick Company, of New Hope, Pa. Those interested are John B. Myers, Jacob D. Landes, Edward L. Meyers, Eugene L. Packer and Thomas A. Deise.

The Kankakee Brick and Tile Company, of Kankakee, Ill., will in a short time open up a new clay bed which will be connected to their present plant by a switch. The farm on which the clay is found was purchased by the company a year or more ago for the purpose of using the clay, which is of a superior quality.

The brick and tile plant of C. W. Soule, of Webster City, Iowa, has been purchased by Beecher and F. Ward, of Albert Lea, Minn. The consideration given is said to be \$150,000. Mr. Soule has been in the brick and tile business for nearly a quarter of a century and found it necessary to retire from active business on account of ill health.

The large brick kiln of the Sibley-Menge Brick Company, of Birmingham, Ala., is nearing completion. This kiln, which is being constructed by Hervey Haigh, of Catskill, N. Y., will burn 1,000,000 brick at a time. The demand for their brick is increasing daily and although they have the largest plant in the south, they must soon enlarge further to meet the demand.

All of the machinery for the Knapp Brick and Tile Company, at Bellingham, Washington, has been installed and the plant is now ready for operation. The site of the new factory comprises 120 acres of land, which will give them an inexhaustible supply of clay. The plant, which is under the management of A. Slayton, has a daily capacity of 35,000 brick. After the plant is well under way, drain tile and flower pots will be manufactured.

H. C. Vandaver, formerly secretary and treasurer of the Athens Fire Brick Company, Athens, Texas, has resigned his position with that company to take charge of the Vandaver-Stoy Company, manufacturers of crude oil burners and fire-pan linings for oil-burning locomotives, both apparatuses being the invention of Mr. Vandaver. In addition to these oil-burning devices, Mr. Vandaver will handle a complete line of clay products, and will be glad to correspond with manufacturers who desire to place their material on the market in the southwest.

The State School of Ceramics, of Alfred, N. Y., has made arrangements to make a display at the New York State Fair of a collection of the clay wares made in the State, and will also show the work of the students in clay modeling and testing. This is the first time an exhibit of clayworking has been shown at the State institutions building, and the exhibit will attract a great deal of attention on account of the variety of clay wares displayed. Besides the well-known red brick of the Hudson river, there are specimens of fancy and front brick of various colors as well as fire brick of high refractory test. Two large panels of architectural terra cotta will be shown, one representing the seal of the State of New York and the other representing the arms of New York City. Sewer pipe, tile, fireproofing brick, roofing tile,

stove linings and furnace fittings will be included in this interesting and instructive exhibit.

The tile factory of John Krause, of Huntsville, Ohio, was completely destroyed by fire recently and the loss is estimated at \$7,000.

The Utica Clay Mining and Transportation Company, of Ottawa, Ill., has been incorporated by G. J. Gleim, Findlay M. Drummond and Ernest A. Gleim.

The plant of the Universal Sanitary Manufacturing Company, at Newcastle, Pa., which was recently destroyed by fire, will be rebuilt at once at a cost of \$100,000.

J. H. Murphy, of Salem, is preparing to establish a big drain tile plant at Albany, Ore., where he has found deposits of clay especially adapted for its purpose. Mr. Murphy is an old tile manufacturer.

Gadsden, Ala., is to have an immense brick and tile plant. J. J. Willett, of Anniston, Ala., is negotiating the deal for the plant. F. B. Fisk and others, of New York City, are said to be interested in the deal.

The Illinois Drain Tile Company, of Albion, Ill., has been incorporated for the purpose of manufacturing both brick and tile. The incorporators are J. G. Carlyle, George Zeigler and others. The company is capitalized at \$20,000.

W. E. Dowlin, of Forsyth, Montana, has purchased the old brick plant of H. R. Marcyes, which has not been operated for a number of years and has installed new machinery and is now turning out 20,000 brick a day.

W. J. King, of Grand Blanc, Michigan, was painfully burned and badly bruised when the crown of a burning kiln collapsed and partly covered him with hot brick. The flesh of his hands and wrists was cooked until it dropped from the bone, but it is thought that he will recover.

E. E. Oehler, for sixteen years manager of the Illinois branch of the Hydraulic Press Brick Company, died at his home in St. Louis, Mo., September 5. He had been associated with the Hydraulic Brick Company for twenty-four years. He was forty-six years old and is survived by his wife and three children.

The Capital City Vitriified Brick and Paving Company, of Topeka, have secured the contract for brick to be used in local paving, and are making improvements to their plant which will enable them to make a better brick than heretofore. They have bought machinery from The Bonnot Company, Canton, Ohio.

A large company has been formed to manufacture silica brick at Mount Union, Pa. The company is composed of Wilson Kistler, P. P. Griffin, R. P. M. Davis and Rembrandt Peale, and is capitalized at \$300,000. It is expected to have the plant ready for operation by January 1, 1912, with a capacity of from forty to eighty thousand brick a day. C. V. Hackman, for many years one of the superintendents of the Harbison-Walker Company, will be superintendent of the plant.

WELLINGTON ORDERS FROM ALL SECTIONS.

The Wellington Machine Company, Wellington, Ohio, writes that business has been very good this summer. They have recently booked some nice orders, among which are the following:

Quaker machine, with equipment, to W. G. Jacobs, Circleville, Ohio.

Quaker machine and complete equipment, to Chris. N. Elling, Brush, Colorado.

Combination outfit, Quaker pugmill and equipment, to the Northern Brick Company, Ltd., Prince Albert, Sask., Canada.

Combination outfit, to Watt & Mitchell, Princeton, Ind.

Big No. 6 Monarch, to Sloan & Co., Paris, France.

No. 5 Monarch, with equipment, to W. A. Dodds, Hickman, Ky.

Big No. 6 Monarch, to Mohawk Valley Brick and Supply Company, Utica, N. Y.

Duke machine with sander and equipment, to McLain Fire Brick Company, Irondale works, Irondale, Ohio.

Quaker machine and complete equipment, to Kniffin & Riddle, San Luis Obispo, Cal.

Quaker machine, to Ed. G. Mattern, Allentown, Pa.

Quaker machine and equipment, to F. M. Wirthman, Delaware, Ohio.

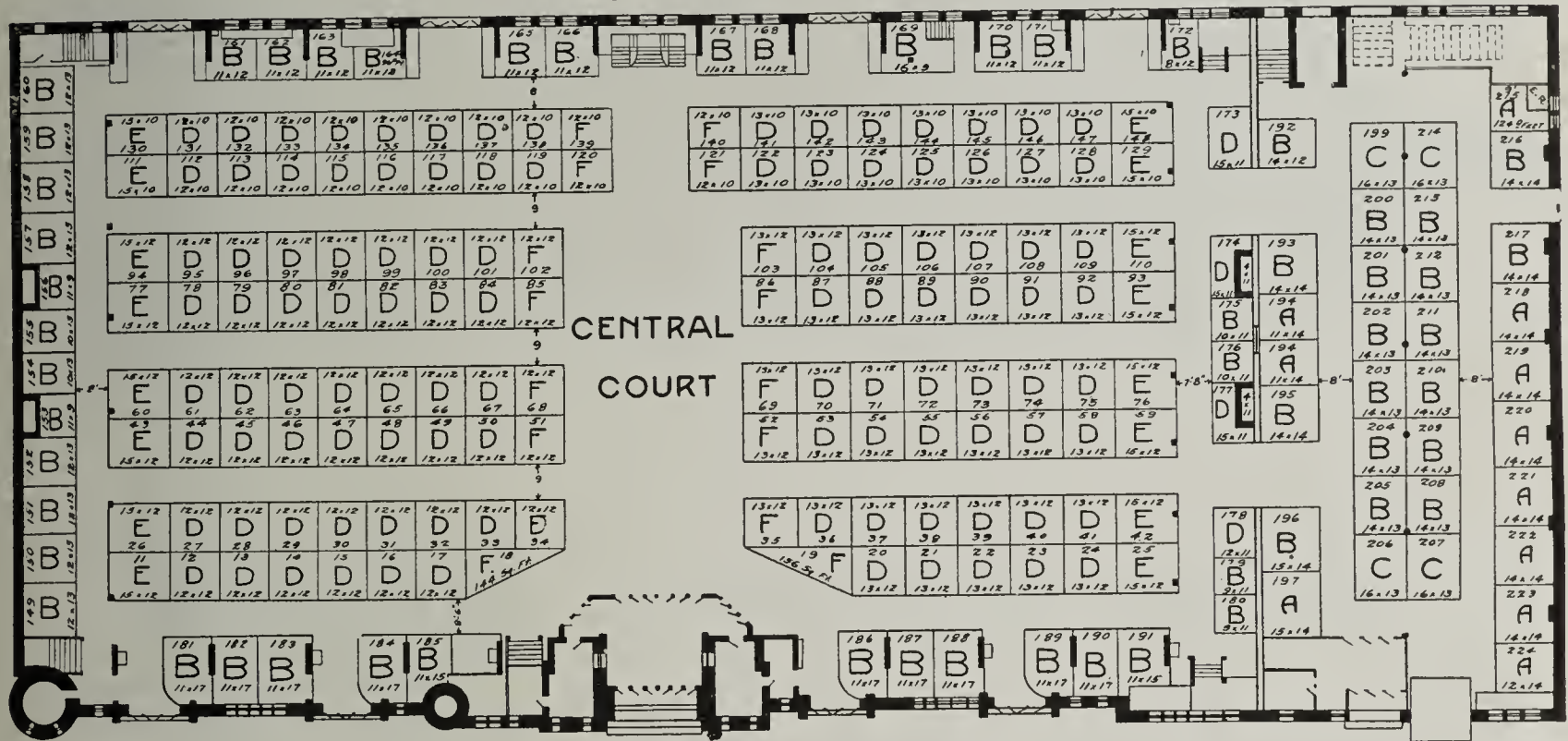
BOOST YOUR BUSINESS

Between 2,000 and 3,000 clay products manufacturers will visit the great

CLAY PRODUCTS SHOW

to be held at the Coliseum, Chicago,

MARCH 7th to 12th, 1912.



Floor Plan of the Coliseum

The Architects and Contractors Will be There.

The Prospective Builders Will be There.

Thousands of people who will sooner or later be in the market for YOUR PRODUCTS will attend this great exposition, and will be directly or indirectly influenced by the exposition as to the character and kind of material which they purchase.

You Cannot Afford to Stay Out—This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in a suitable exhibit space for the inspection of

100,000 PAIRS OF EYES.

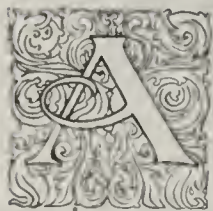
Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

INTERNATIONAL CLAY PRODUCTS EXPOSITION CO.

815 Chamber of Commerce Bldg., CHICAGO

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



ALTHOUGH no official announcement has been made up to this time of the decision of the Railway Commission of Wisconsin in the appeal of the railways from the commission's order to reduce rates on brick and tile between local points in this state approximately thirty-three and one-third per cent., brick manufacturers are satisfied that the order will stand. The railroads themselves, it is said, do not expect anything but scant sympathy from the commissioners, and it is believed that the appeal will be denied. Others interested say they can not see anything except a denial, because the cut in the rates simply places the intra-state rates on an equal footing with the interstate tariffs, where they should have been long ago instead of making Wisconsin brick and tile manufacturers suffer by reason of the discriminatory rates which permitted outside manufacturers to ship into Wisconsin at at least one-third less for freight rates than local manufacturers themselves could in their own State.

While the commission's reduction order is bound to be an active force in building up the brick and tile industry in Wisconsin, the effects will not be strongly apparent until next season. The reason for this is that the order came so late in the year and has been held up by the appeal of the railways, that it will not do much good this year. However, when the time comes to contract for supplies for 1912 delivery, the new rates will show their effect and Wisconsin manufacturers probably will have their hands full to take care of the business coming their way. Outside manufacturers will, of course, continue to bid for Wisconsin business, but they will not have the advantage of beneficial freight rates to help them underbid Wisconsin makers. On the old order of things there practically was no competition for outside manufacturers, excepting where no freights were involved and local manufacturers could make deliveries without being required to use the railway.

The officers and members of the Wisconsin Clay Manufacturers' Association are highly elated over the reduction of freights, and the next meeting in February will doubtless develop a great impetus in the industry. President W. J. Craney, of Kenosha, who, with former president John Ringel, of Wausau, led the fight before the commission, believes it is the "biggest thing that ever happened" to Wisconsin clayworkers. Too much credit can not be given to the energetic secretary, Professor Samuel Weidman, of the University of Wisconsin, who was on the ground all the time and assisted the Railway Commission at all stages. Vice-President Samuel Gunther, of Port Washington, and Treasurer E. H. Korrer, of Fon du Lac, both large manufacturers, also did effective work.

Notwithstanding the fact that the building season is reaching its fag-end, there is an immense volume of business for next year in the hands of Wisconsin clayworkers and with the return of normal conditions in all lines, the coming year promises to be the best they have ever experienced. One of the busiest plants in the State is that of the DePere Brick Company, of DePere, Wis., which is working on a single order for 1,000,000 brick, including several hundred thousand red pressed brick, for the construction of the new \$1,000,000 paper mill plant of the Lakeside Paper Company in Neenah, Wis. In this instance, particularly, the reduction in freight rates will be of considerable advantage, for the brick are transported by freight for a distance of thirty-five miles. The contract will keep the DePere plant busy through the winter and into next year.

The Shawano Brick and Tile Company, of Shawano, Wis., owned by Thomas Larson, has decided to make an active bid for outside contracts, from which it was practically shut out by discriminatory freight rates. Mr. Larson is preparing for a big year and is putting in several sidetracks which will

run through the yards. Up to this time the Shawano works, when it did bid on outside contracts, was obliged to cart the brick to the tracks by wagon. Other improvements will be made by Mr. Larson through the winter and the plant ought to be one of the biggest producers in the State next year. It has an unlimited field of fine clay and its products are claimed to be among the best in the middle west.

The Riesen & Wilke Co. has been incorporated at Milwaukee by Hubert Riesen and Barney Wilke to carry on a general building supply business. The capital stock is \$15,000.

About 8,000 square yards of brick pavement were laid at Columbus, Wis., this summer, the work being done by the Advance Construction Company, of Waukesha, Wis. Brick has come to be the most popular material for pavements in the smaller cities of the State and some of the pavement laid many years ago is still in perfect condition. It required forty-five carloads of paving brick to supply the construction company on this job. The work was finished in just two months time, the Advance Company being equipped to lay 1,500 square yards a day. The Advance Company completed another large brick paving contract at Galesville, Wis., recently, and the work there and at Columbus is being used to good advantage by officials of other cities which are intending to lay similar pavement next year. The satisfaction of the two cities mentioned can not be better expressed than to say that both are planning to extend the brick pavement during the coming season.

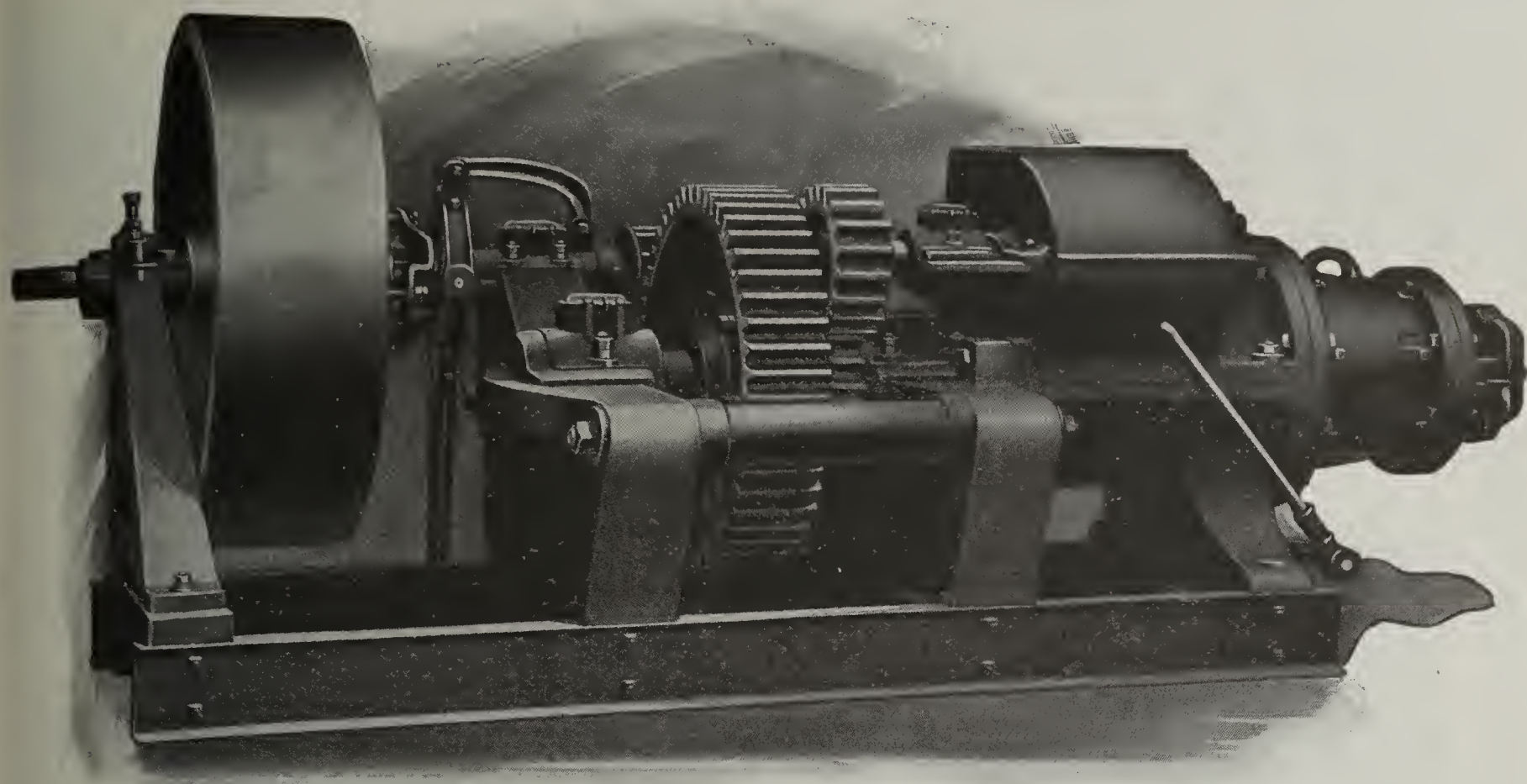
Brick manufacturers at Racine, Wis., experienced the busiest season in their careers this year. So great was the local demand that the yards were unable to accept outside orders and contractors were forced to go to Chicago and other cities to get enough brick to fill their requirements. The demand has now let up and normal conditions obtain. The brickmakers are taking advantage of this and preparing for a heavy run through the fall and will be prepared for another big year in 1912.

Ricketson & Schwartz, University building, and other large Milwaukee building supply concerns report that the outlook is the most favorable they have known in years. There are encouraging signs on every hand and a spirit of optimism prevails.

A. BADGER.

THE OHIO FACE BRICK COMPANY PROSPEROUS.

The Ohio Face Brick Company, recently chartered, notice of which has appeared in these columns, was organized at Fredericksburg, Ohio, on June 28, and purchased the plant of the Ohio Terra Cotta Brick Company, assuming possession immediately and starting operations of the plant on July 1. This company has been operating regularly since the plant was started and has been making some very good sales of its high grade face brick in Ohio, Pennsylvania, West Virginia, Kentucky, Illinois, Michigan and Wisconsin. It is turning out a strictly high grade article, that is well received by the trade wherever it is offered, and a very successful career is predicted for this company. This company's plant is strictly modern in all its equipment and arrangement, and has a capacity of six to eight million brick per year, depending on the character of product, and has practically inexhaustible deposits of high grade fire clay and shale, with sufficient quantity of coal on its own property to burn its product. Its directors and officers are practical brick men of wide experience; they are all actively engaged in this line of business in Ohio, Pennsylvania and Kentucky and are successful in the manufacture and sale of brick of various kinds and thoroughly familiar with the requirements of the trade throughout the country. The following persons are officers and directors of the company: J. B. Hammond, president, Bolivar, Pa.; L. P. Haldeman, vice-president, Portsmouth, Ohio; A. J. Peterman, secretary, Fredericksburg, Ohio; John McGrotty, treasurer, Akron, Ohio; W. A. Shoemaker, general manager, Columbus, Ohio; Henry K. Leighow, Haldeman, Ky.; C. W. Hammond, Bolivar, Pa. George W. Shoemaker is superintendent of the plant at Fredericksburg, and the general office is located at Columbus, Ohio, in direct charge of W. A. Shoemaker, general manager, and John McGrotty, treasurer.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 352-355.

Written for THE CLAY-WORKER.

NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



SO FAR THIS YEAR, the season has been a poor one for the clay interests, and many do not see much hope for any improvement for the rest of the year at least. This is not so certain, however, for there seems to be a prospect for a revival of things in a degree at least, which may help the brick business. It will take energetic effort to accomplish this, however. Mere waiting for business to develop is apt to receive less reward than usual this season, for the only business that will be available will be that which has been developed and worked up. But if brick manufacturers will push plans for the use of brick in as many ways as the cement people do, they will be rewarded by a good demand for their wares. Nearly every scheme for using cement on the farm can be duplicated in brick, if as much pains are taken to explain how it can be done. Brick sidewalks, brick platforms, brick stall and barn floors, brick foundations for barns and granaries, brick well curbing, brick silos and many other schemes could be worked up to advantage, if undertaken.

The crop conditions this fall have proved very moderate, instead of running to the high average which was promised earlier in the season. In fact, at the harvest, in the first disappointment of the situation, many have been inclined to regard it as a heavy failure. But it is being found that other produce beside wheat has been running well, particularly corn and flax. And corn calls for silos, if it is to be used at home. Radial block silos are making a name for themselves and would do much more if they received half the advertising that cement silos do. There are a number of firms which handle the radial blocks for silos, and where they have featured this article, there have been good returns, for the brick silos have proved winners.

The season of manufacturing has been the shortest in the history of many yards in the interior, which have found a limited demand and could see little probable future demand this fall and winter. They have, therefore, shut down after accumulating enough to serve their probable needs.

In drain tile, the situation has been much the same. The dry spring and early summer have caused a distinct loss of interest in tiling, and many are saying that tiling tends to deprive the soil of its needed moisture in a dry season. This argument is distinctly refuted by those who have had practical experience. They have found that tiling takes away the surplus water only, for the soil retains what it needs as long as possible. In a dry year, the moisture goes from untilled fields about the same as from tiled fields. But the tiled areas have had a better start and the grain upon them is better rooted and nourished than on the untilled fields. But it has not been possible to convince many farmers of this, and so tile plants which in previous years have been far behind on orders, have found comparatively little market this year, and have shut down because of lack of demand.

Hamilton, Montana, recently had a good sized conflagration which wrecked a number of buildings in the business district. The council took the bull by the horns and took action that will require all those intending to rebuild, to use brick for the new structures. The city fathers of Hamilton have a proper appreciation of what is needed.

Eugene Young, secretary of the Builders' Exchange of Minneapolis, has recently returned from a tour of eastern cities, in search of information on trade schools. An elaborate exhibition of the work done in different trade schools is to be opened in the Minneapolis exchange within a short time.

The Red River Valley Brick Corporation, of Grand Forks, N. D., has recently issued an instructive booklet upon the subject of silos in general and particularly brick silos. The booklet tells of the advantages of silage for stock feeding, and of the increased nutriment for stock as against dried

feed. It points out the objections to wood silos and indicates the many advantages of the brick silo. The company has furnished the material for the erection of many brick silos, and they are all giving satisfaction.

At Duluth, during the summer, there has been a sharp war on prices, which led to sales of brick below cost. Several millions were sold at \$4, which is regarded as less than cost, although there is cheap fuel and cheaper labor available there than in the Twin Cities. The trouble arose in a difference between the makers of wire-cut and of sand-mold brick, as to the relative prices to be charged on the two brick. After having a sharp contest, better judgment was exercised, and prices have returned to the normal figure of \$6.

Ernest Sellhorn, a brick manufacturer of Princeton, Minn., recently left for Red Cliff, Alberta, where he is also interested in a brick plant. The Princeton yard has found business dull while the Red Cliff yard is unable to supply the demand.

The Barr Clay Product Company, which is installing a complete plant between Zumbrota and Wanamingo, Minn., is making good progress and expects to have the plant completed this fall. A complete electric power plant is being installed and each machine will be operated by an individual motor. An engine of 750 horsepower will furnish power for the plant. A complete system of cars will be installed for moving raw material and the green brick about the plant. Twenty-four kilns are being erected, each with a capacity of 120,000 brick. Two wet presses and two dry will be installed, with a capacity of 200,000 brick. The plant is designed to produce pressed brick, English tile, roof tile, hollow building blocks and many other articles. The management expects to be able to produce brick at less than \$3 a thousand, which will leave a good margin.

The annual exhibit of the Minnesota State Fair was held September 4-9. This institution is one of the largest of the kind in the country, and is commanding more and more attention from people in building material lines. Some of the best structures on the grounds are of brick and tile construction, and offer a standing advertisement of the beauty and substantial character of brick. Brick and tile manufacturers are giving more attention to the fair as a place of exhibiting their wares. Several large concerns contemplate installing permanent exhibits on the grounds, to advertise their wares. The Mason City Brick and Tile Works, of Mason City, Iowa, had a fine exhibit this year, showing a line of hollow blocks, tile, radial blocks for silo work, and the like. They had blocks laid up for a silo, showing what could be done in this respect. The Minnesota Farmers' Brick and Tile Company, of Austin, Minn., also showed its wares for use in building silos. The Twin City Brick Company, of St. Paul, demonstrated its interlocking terra cotta facing blocks, which are coming into use more and more. A number of other concerns had showings of various kinds of clay wares.

The Fairmount Drain Tile and Brick Company, of Fairmount, Minn., is still searching for the best clay available in the vicinity of Fairmount. Several beds have been found fairly near which are free from the limestone which rendered the clay at the site useless. Test runs will be made on all clays available, as a means of determining which is the most suitable for the plant. The reports of the expert upon the different clays are that they can be used and brick and other clay wares produced at a profit, after hauling the clay to the site of the plant. The stockholders feel quite encouraged that the enterprise will yet be a satisfactory one, in spite of the disappointments experienced over finding the clay at the plant unsuitable, after the plant was built.

T. WINN.

Tile Underdrainage.

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.



Barrett's PAVING PITCH



Vine Street, Lincoln, Neb. Brick Pavement Filled with Barrett's Paving Pitch.

Evidence from Lincoln

The above illustration shows Vine Street, in Lincoln, Neb., laid in August, 1909, with brick, the joints of which were filled with Barrett's Paving Pitch.

In January, 1911, Engineer Dobson stated, "Vine Street is one of the best streets we have in Lincoln."

In October, 1910, a local newspaper, in referring to the cut made in the pavement for the crossing of the Rock Island Railroad, stated, "The Vine Street Paving shows up well where the cuttings have been made. The work on this paving was done well, and City Engineer Dobson regards it as one of the best jobs of paving in the city. Pitch filler was used on this street, and it shows up much better than sand filler. The Pitch filler permits no vibration or looseness, and yet it

does not make the brick surface too solid, as in the case of the cement grout. Where cement filler is used, Mr Dobson said, even with the expansion line, there is some danger of expansion, causing the surface to arch slightly."

Pitch filler is ideal for brick pavements, because it is neither too soft nor too hard. It has sufficient body to protect the brick against shifting and grinding but not so much as to make the pavement an arched monolith. Cement-filled pavements constantly give trouble because of the ineffective provision for expansion and contraction. Special expansion joints are both a clumsy and unsatisfactory expedient. With Barrett's Paving Pitch "every joint is an expansion joint." Booklets on request. Address our nearest office.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburgh	Minneapolis	Kansas City	New Orleans	Seattle	London, England	

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.



HAS BEEN the pleasure of THE CLAY-WORKER'S correspondent to go over several sections of Kentucky, Tennessee and Arkansas the last fortnight. Crops are looking good both as respects corn and cotton. The long-sought rains have come and, barring reputed drouths in Oklahoma affecting corn, bumper yields should be made. In a collateral way this will affect building and the brick men.

While the first half of 1911 does not show building on the big scale of recent years, still many homes and business and public structures have gone up.

The new union depot at Memphis, a large enterprise, is nearing completion, with Murch Brothers Construction Company, Porter building, that city, general contractors. The new depot of the Illinois Central, about the only line not entering the union, will soon go up on the corner of Main and Calhoun, where the present union station is located.

The twelve-story Lotus building, being completed on Jefferson street, Memphis, by architects Weathers-Foley Company, represents a building constructed for light commercial and manufacturing purposes. The brick and tile contracts on this work were done by E. H. Walsh & Son, of 728 Richmond avenue, Memphis, though the building is chiefly reinforced concrete.

At Nashville, Tenn., the contract has been let within the last few days for the brick work on the Negro Agricultural and Industrial Normal School by Superintendent J. W. Brister to J. H. Hutchinson & Co. for \$19,073.

The Standard Brick Works, at Mayfield, Ky., conducted by X. B. Wickersham, are shipping brick over a considerable territory, and at this time are furnishing a large quantity for local use to the Maywood woolen mills for a brick addition to that factory.

James Murray, of the Paducah Brick and Tile Company, at Paducah, Ky., was seen. He said: "We have had the best year we have ever had on tile and look forward to a good season this fall and next spring. The brick business has been rather quiet for some time. Among the contracts for which we have lately furnished the brick in this section are the Barlow (Ky.) high school and the colored Masonic building."

The Hill & Carnes Brick Co., of Paducah, Ky., are running along regularly this summer and report business fair, especially on shipments. A sand-finish brick is being turned out.

The Paducah Pottery, at Paducah, Ky., is making all classes of jugs and is enjoying a good trade.

The Katterjohn Brick Company has a large yard and works along the Illinois Central railroad tracks and keep a considerable force of men busy.

Another large hotel is in contemplation for Memphis. The Mississippi Realty Company, of which R. L. Jones is secretary, is pushing the project, and it is contemplated to build at the corner of Main and Calhoun streets, near the new union depot.

The Barton Lumber and Brick Company, at Jonesboro, Ark., was visited. This company has just put in a new kiln. They make pressed red brick. The firm is furnishing the brick and lime in the Jonesboro bank.

Among the firms in Jonesboro, Ark, handling building supplies, fire brick and sewer pipe is C. A. Stuck & Son. They report trade fair.

Greene and Lawrence counties, Ark., have issued \$260,000 drainage district bonds.

The E. T. Lewis Company, of Nashville, Tenn., has closed the contract to erect two buildings near Broadway and Fifth avenue, Memphis. The buildings are to be used as dry cleaning establishments. In addition to the above buildings re-

ferred to, the E. T. Lewis Company has closed a contract to make the excavations and erect the foundation for the new Steif Jewelry Company building at Church street and Capitol boulevard. At Winchester, Ky., the company has been operating for several months putting in a modern sewerage system. Work will be completed about October 1.

E. L. Brawner, furniture dealer, at Wynne, Ark., has had plans drawn for a 48 x 96 brick store-house to be erected in that town. Architects Shaw and Pfeil, of Memphis, drew the plans.

The Cubbins Lime and Cement Company, Memphis, report a good summer business on building materials. They handle sewer pipe, fire brick, etc.

The brick manufactured by the Kingsport Brick Company, at Johnson City, Tenn., are being tested with a view to their use in paving the streets of that town.

A new clayworking plant for the purpose of making turpentine cups is to be erected at Daisy, Tenn., at once by Edwards & Co., of Cincinnati. The new plant will cost in the neighborhood of \$15,000. Seventy acres of land with a forty-foot deposit of clay has been purchased by the concern.

The E. T. Lewis Company, of Nashville, was the successful bidder and was awarded the contract by the board of public works of Nashville for the construction of the proposed thirteen additional sewers. The winning price was \$279,632.95. The next nearest bidder was the Capitol City Construction Company, its bid being \$285,839.16.

DIXIE.

The Midland Brick Company, Peru, Kansas, have discovered that their material will make a very fine dark chocolate face brick, and are preparing to make this product exclusively, and have bought cars, represses, etc., from The Bonnot Company. They will be in operation within thirty days.

Subscribe to the "MONTHLY"

The only publication in the world devoted to the interests of the Mantel, Tile, Grate and kindred goods industries.

\$1.00 PER YEAR.

Full of interesting trade news. Address

THE MANTEL, TILE AND GRATE MONTHLY

Suite 407 Arcade Bldg., Utica, N. Y.

Advertise in the "MONTHLY"

It's the best trade paper in the world to reach the dealers in Mantels, Tiles, Grates and kindred goods, as well as Architects, Contractors, Builders, etc.

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WANTED.

Moulder and mould maker at once. Steady work and good wages. Address BOX 9—S., Care Clay-Worker. 9 1 d

WANTED.

Burner, stiff-mud gray and buff brick. Eastern Pennsylvania. Address with references, BOX 9—O. X. Y., 9 1 d Care The Clay-Worker.

WANTED—The undersigned desires communication with parties looking for a good location for brick plant. Address

BUSINESS MEN'S ASSOCIATION, 9 3 cm Jackson, Ohio.

WANTED

Second-hand or slightly used single deck dryer cars. State quantity, condition and price.

BOX 9—OHIO, Care Clay-Worker. 9 2 1

WANTED—Position as manager or superintendent by man who understands the business, or would make by the thousand, buy or lease a plant. Address BOX 9—J. C., Care Clay-Worker. 9 1 cm

WANTED.

Foreman to take charge of kiln drawing and car loading of factory in Virginia, making shale, common and face brick. Employ white American labor exclusively. Will pay \$2.50 a day. Address BOX 9—RICH, Care Clay-Worker. 9 1 d

WANTED TO BUY.

About 24" clay pulverizer (American Ring Hammer preferred), also five to ten thousand plain pallets, size 34"x10", 3/4" to 7/8" thick.

CONARD & SHERTZER, 7 3 cm Columbus, Ohio.

WANTED.

Practical head burner for salt glazed vitrified drain tile. Must be experienced and guarantee results. Exceptional opportunity for the right party. Address BOX 9—CLAY, Care Clay-Worker. 9 1 d

WANTED.

An experienced man with \$4,000 to take management of an up-to-date new tile plant. Must have first-class business ability. Address

BOX 333, Corwith, Iowa. 7 3 cm

WANTED—Superintendent for sewer pipe plant, a two-press shop. Want a man who has had experience, and for party who can "deliver the goods" we have a permanent position with a good salary. Plant located in the middle west. Give references. Address

A. G., Care The Clay-Worker. 9 3 d

WANTED

Position by a practical brickyard superintendent. Abstainer and hustler. Understands the business from start to finish. Common, face, fire and paving brick. Want position with reliable company. Address

BOX 9—J. B. W., Care Clay-Worker. 9 1 d

OPEN FOR ENGAGEMENT

as superintendent. A lifetime clay-worker. Familiar with the production of high class goods, vitrified fire brick, roofing tile and terra cotta. Designing a specialty. Plant erector. English or American methods. Testimonials. Address

J. C., 2390 Riverside Ave., Jacksonville, Fla. 9 1 cm

FOR SALE OR LEASE.

A fully equipped Brick Plant at Rochester, Pa., on the Pennsylvania Lines West, capacity 20,000 per day, with A1 fire clay and shale on property suitable for making face or paving brick. Write

MILLER BRICK CO., 530 Fernando St., Pittsburgh, Pa. 9 1 dm

A BARGAIN AT \$7,000.

A complete plant, consisting of two Duplex dryers, holding 60,000 brick. The two will be sold for \$3,500, or one for \$2,000. One 176 horsepower Ball and Wood engine; 150 horsepower boiler; one Hercules, Sr., brick machine, capacity, 40,000 per day; one mold sander; one disintegrator; one hoisting drum with cable; four 4-wheel iron brick trucks, 24-inch gauge, three dirt dump cars, 36-inch gauge, and 800 feet of No. 16 iron rail track. Can see everything in working order at Columbus.

THE SCHMITT BRICK CO., 9 1 cm Columbus, Ohio.

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—Soft mud brick and tile machine, Freese make. Have stopped manufacturing brick and tile. Cheap.
S. J. CLARK,
9 1 cm Wauseon, Ohio.

FOR SALE.

Second-hand four-mold Boyd press in good condition. Reason for selling, have quit making dry press brick. Address
BOX 9—M. J. L.,
9 2 cm Care Clay-Worker.

FOR SALE.

Marion "A" 45-ton steam shovel; 1¼-yard bucket; friction crane. First-class order. Will make attractive price. Can be seen at Millville, N. J. Address,
S. B. DOBBS,
304 Bailey Bldg.,
9 2 c Philadelphia, Pa.

FOR SALE OR LEASE.

Dry press brick plant with first class machinery throughout. Only plant in city of 110,000 population. Plant in operation, brick selling for from \$9 to \$15 per thousand. Demand for entire output. For further particulars address
C. E. WILLIAMS,
Ogden and Carter Ave.,
9 tf d San Antonio, Texas.

\$3,000.00 WILL BUY

complete brickyard equipment including boiler, engine, belts, shafting, pulleys, disintegrator, pug mill, brick machine, trucks, 2 clay cars, steel railing, pump, jets, pallets, covers, cable, winding drum and all necessary tools and wheel barrows. Equipped for coal burning. All new and will make 20,000 brick per day. Address

BOX 9—KEN.,
9 1 cm Care Clay-Worker.

PUBLIC SALE OF CLAY PLANT.

On October 10, 1911, I will sell at public sale the Ouachita Coal and Clay Products Company's property, a most complete clay plant property, consisting of good buildings, machinery of all kinds, kilns, switches, in fact a complete clay plant proposition, with 1,720 acres of land located near Versailles, Mo. This land contains large bodies of the noted Versailles Flint and Plastic clays, also coal. Nearly five miles of railroad, connecting the plant with two large railroad systems, with locomotive, cars, scales, etc., will be included. Write for particulars.

E. A. CREWSON, Receiver,
9 1 dm Versailles, Mo.

FOR SALE—Well equipped cement tile plant, capacity 4,000 per day, located in good Iowa county seat town. Doing good business. Good reasons for selling.
BOX 7—LAND,
7 3 cm Care Clay-Worker.

FOR SALE.

The only dry press brick plant on Puget Sound. Best facilities in the State. Ten acres clay bank, 5 to 100 feet high; 16-year lease.
BOX 8—GIG,
8 2 cm Care Clay-Worker.

FOR SALE.

Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new.
F. H. EGGERS,
6 tf d Cleveland, Ohio.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address
BOX 6—B. T. CO.,
6 tf d Care Clay-Worker.

FOR SALE.

Having quit the brick business, will sell the following equipment at a low price, all of which is in good condition: one all metal mold sander, with shafting and pulleys; 200 grate bars for kiln, one dirt crusher and 20-foot elevator with shafting and pulleys.

J. S. COLLINS,
321 Main St.,
6 4 dm Frankfort, Ky.

FOR SALE.

Martin "A" power brick machine. Pug mill and belt sander.
1 Potts clay crusher.
10,000 wooden pallets, 34-in. long and 10 in. wide, with a strip 2-in. wide and 4½ in. high nailed on each end.
140 24-in. gauge 6 ft. Atlas brick cars.
JOHN WILSON,
1025 Williamson Bldg.,
7-tf-d Cleveland, Ohio.

FOR SALE.

101 ft. 24" 6-ply rubber belt, nearly new.
62 ft. 22" 6-ply rubber belt, nearly new.
Several 16", 14" and 12" and pulleys.
57 ft. 29½" 3-ply leather belt. Good condition.
ATLANTIC MANUFACTURING CO.,
7 3 cm Wilmington, Del.

FOR SALE.

Five-foot dry pan, bucket clay elevator and two-mold dry press, made by American Clay Machinery Company; 26-foot 16-inch clay conveyor, made by the J. D. Fate Company; Dunlap Perfect screen. All in good condition. Will sell at half price.
GOLD BROS. BRICK COMPANY,
7 tf d Big Stone City, S. D.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,

FRANK P. CLEVELAND,
965 Adams Express Bldg.
6 tf d Chicago, Ill.

WESTERN AND PACIFIC COAST CLAYWORKERS ATTENTION

Clayworks engineering. Plans for common, face and paving brick, sewer pipe and pottery plants; for dryers; for up draft, down draft, continuous and other kilns. Clay deposits examined and tested. Machinery installed and operations supervised. Clayworkers, appliances, such as Engelhard pyrometers, Bristol recorders, draft gauges, watchman's clocks and others.

GEIJSBEEK ENGINEERING COMPANY,
Blake-McFall Bldg. Portland, Oregon.

REBUILT ENGINES AND BOILERS.

ENGINES—CORLISS: 18x42 Lane & Bodley; 18x36 Ohio heavy duty, 16x42 Allis; 12x30 Lane & Bodley.

ENGINES—AUTOMATIC: 14¼ x 24 Buckeye, 11x16x12 Buffalo Compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 10x12 Valley, 8x14 Noyes.

ENGINES—THROTTLING: 18x24 Atlas, 14x18 Sinkers-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x13 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

BOILERS—STATIONARY: 72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x12, etc.

BOILERS—FIRE BOX: 100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h.p., etc.

BOILERS—VERTICAL: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 h.p., etc.

HEATERS—All sizes, open and closed.

PUMPS: All sizes, single and duplex.

ELECTRICAL: 30 k.w. generator, direct connected to 8x10 Skinner engine; 20 k.w. generator, direct connected to 8x10 Economic engine; 18 k.w. belted generator.

MISCELLANEOUS: Saw mills, lathe mills, edgers, cutoff saws, re-saws, blowers, exhaust fans, tanks, etc.

Write for list. Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS AND JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St. Cincinnati, Ohio.

Classified Advertisements—Continued.

WANTED, ETC.

WANTED—Position as manager of fire brick plant, experienced in fire clay, silica building brick. Employed, but desire change. Reference.

BOX 9—FIRE BRICK,
Care Clay-worker.

9 1 c

WANTED—An experienced man to assist in the manufacture of iron-spot and fire-flashed brick on a plant now making common and ordinary front brick. The right man who knows how will be given a remunerative position. None other need apply. Write, giving references as to character and ability.

SALMEN BRICK & LUMBER CO.,
Slidell, La.

7 3 d

AN OPPORTUNITY.

Brick and terra cotta plant with five (5) kilns, at railroad station (with siding), forty-five miles from Philadelphia. Rent free for ten years to any responsible party who will make clay products; unlimited supply of clay on property half mile from works. Address

EDWIN F. MORSE,
S. W. Cor. 12th & Sansom Sts.,
Philadelphia, Pa.

7 3 cm

WANTED

Position as superintendent of a brick plant. Can manage soft mud, stiff mud or dry process machinery and can build and burn up-draft, down-draft and continuous kilns and operate with smallest amount of fuel possible. Will work for salary or contract to make brick by the thousand, or would lease small plant in good locality. Address

BOX 9—SUCCESSFUL,
Care Clay-Worker.

9 1 d

FOR SALE.

One 60-inch boiler, 15 feet long, 58 3-inch flues, flues recently renewed, \$300.00.

Two 60-inch boilers, 18 feet long, 20 6-inch flues, \$250.00.

One Smith & Beck engine (12 x 20), \$200.00.

One Fulton Iron Works engine (14 x 20), \$300.00.

Prices F. O. B. Belleville, Illinois. Condition guaranteed. Have changed plants to electric power.

NATIONAL PRESSED BRICK CO.,
Victoria Bldg.,
St. Louis, Mo.

9 1 d

AN OPPORTUNITY TO LEASE OR PURCHASE.

Plant for lease, suitable for manufacture of pottery, sanitary ware, faience or any ceramic specialty. Has good buildings and kilns, is located in the clay center of New Jersey, with plenty of skilled labor available; is convenient for raw materials and has excellent shipping facilities. To right party who presents a favorable proposition, together with satisfactory references and experience, owner might furnish necessary capital. To a capable faience expert this presents a favorable opportunity to get into the business with good backing. Address

J. A. G. ROOT,
1242 Pacific Street, Brooklyn, N. Y.

8 3 cm

See additional ads under Table of Contents.

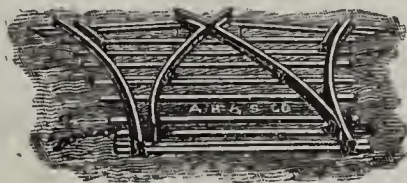
BRICKYARD ENGINEERING.

GEO. W. HEALD.

(Lately with Illinois Brick Co., Chicago.)

Brick plants designed or remodeled.

216 Fisher Bldg., Chicago, Ill.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

P. MITTLER,

Robbins, Tenn.

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secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

MR. BRICKMAKER

I am prepared to furnish
Blue Prints and Specifications
for One of the Best

Down-Draft Kilns in the World.

This is not a new and untried affair, but one that has been thoroughly tested.

Blue prints and specifications sent by express cost you Ten Dollars.

Edward Van Antwerp,
Dent, Minn.

YOU CAN'T TRADE IT
none like them
Cement, etc. Red, Brown, Purple and Black.
for Brick, Mortar,
MORTAR COLORS
RICKETSON'S
The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and
PURE MINERAL COLORS
Ricketson's
MILWAUKEE, WIS.
RICKETSON MINERAL PAINT WORKS,

Used Extensively
by the

U. S. GOV'T



The **ROYAL**
STANDARD TYPEWRITER

The simplest, strongest and most practical typewriter made.

PRICE, WITH TABULATOR,

\$75.00

WITHOUT TABULATOR,

\$65.00

ROYAL TYPEWRITER CO.

Royal Typewriter Bldg., New York
502 American Central Life Bldg., Indianapolis, Ind.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address
PROFESSOR EDWARD ORTON, JR.,
Director of Department of Ceramic Engineering,
Columbus, Ohio.

Kilns Driers Processes

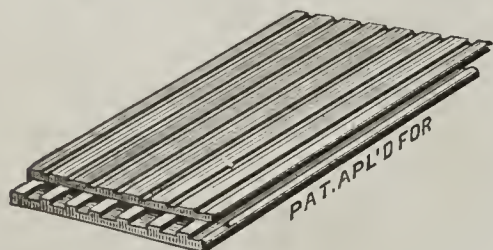
JULIUS J. KOCH

Consulting Engineer
for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes. Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,
1436 Macklind Avenue, on Frisco Tracks,
ST. LOUIS, MO.

Improved Belt Conveyors



For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof*. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

H. W. Caldwell & Son Co.

Western Ave., 17th-18th Sts., CHICAGO.

Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

Chicago Retort & Fire Brick Co.

"AJAX"
**Fire Brick for
Building Kilns**

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.,
CHICAGO, ILL.

'Phone
Randolph 3601.

KILN FLOOR TILE

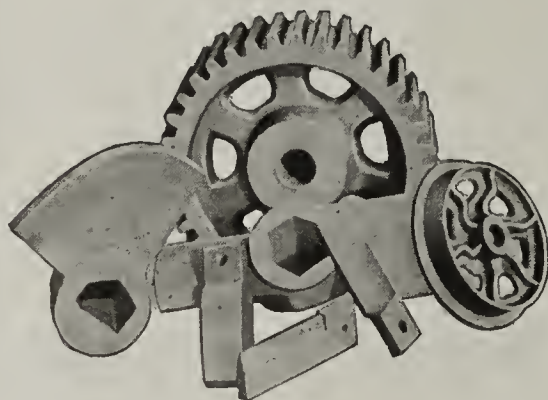
THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY SIZE **FIRE BRICK** ANY SHAPE

Write Us
Now

Evans & Howard Fire Brick Co.
St. Louis, Mo.

Chilled Brick Machine Castings



All wearing surfaces hardened.
Save time, prevent frequent
shut downs.

Let us refer you to other users.

The Wallace Machine and Foundry Co.
LAFAYETTE, IND.

\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

THE ANTON VOGT

Latest Improved

Down=Draft Kilns

for

Brick and Tile.

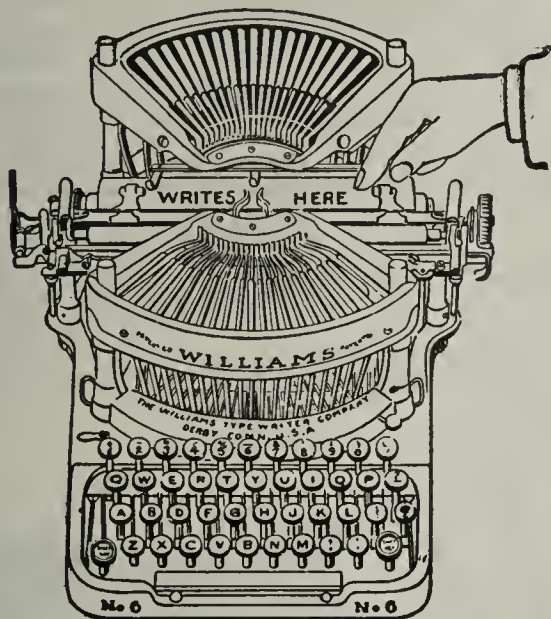
Write to

Anton Vogt, Lewis, Iowa.

SEEING

Saves the beginner time when learning

Saves the learned time when beginning.



New
Number
Six
Visible
Writer

Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

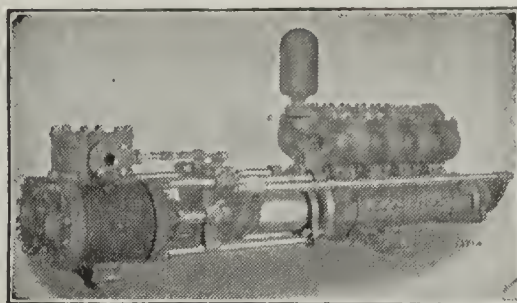
If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.



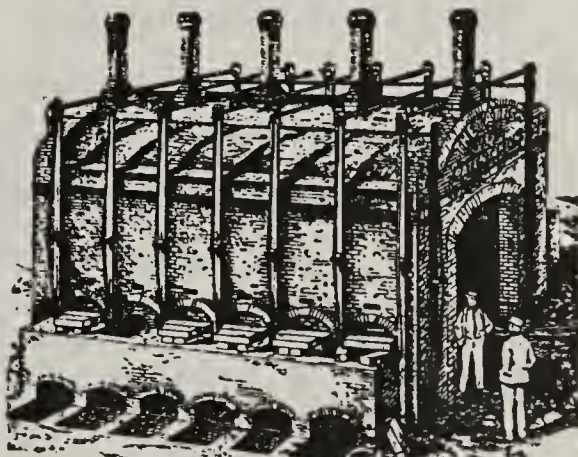
This is the most important improvement that has been made in the valve gear of duplex pumps for twenty-five years. Rock shafts are abandoned and one-piece levers substituted. The levers swing on steel studs having extra long bearings. Both levers are alike and they can be removed and replaced in five minutes. The stroke is long.

SINGLE AND DUPLEX PUMPS

JET AND SURFACE CONDENSERS

DEAN BROS. STEAM PUMP WORKS

INDIANAPOLIS, IND.



The Yates Patent Down-draft Kiln. Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kush-equa Brick Co., Kush-equa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick and Tile Co., Corry, Pa.; Johnsonburg Vitri-fied Brick Co., Johnsonburg, Pa.; Shawnee Brick Co., Shawnee, Ohio; Alumina Shale Brick Co., Bradford, Pa.

ALFRED YATES,
SHAWMUT, PA.



OVER 65 YEARS' EXPERIENCE

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Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. HANDBOOK on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

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A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers. MUNN & Co., 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

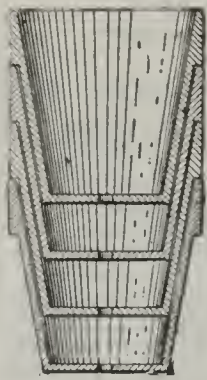
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

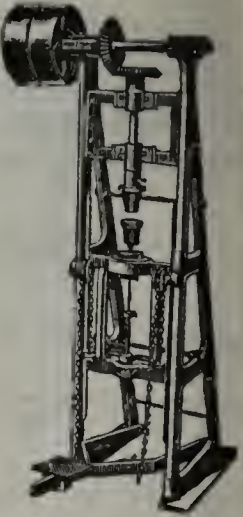
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

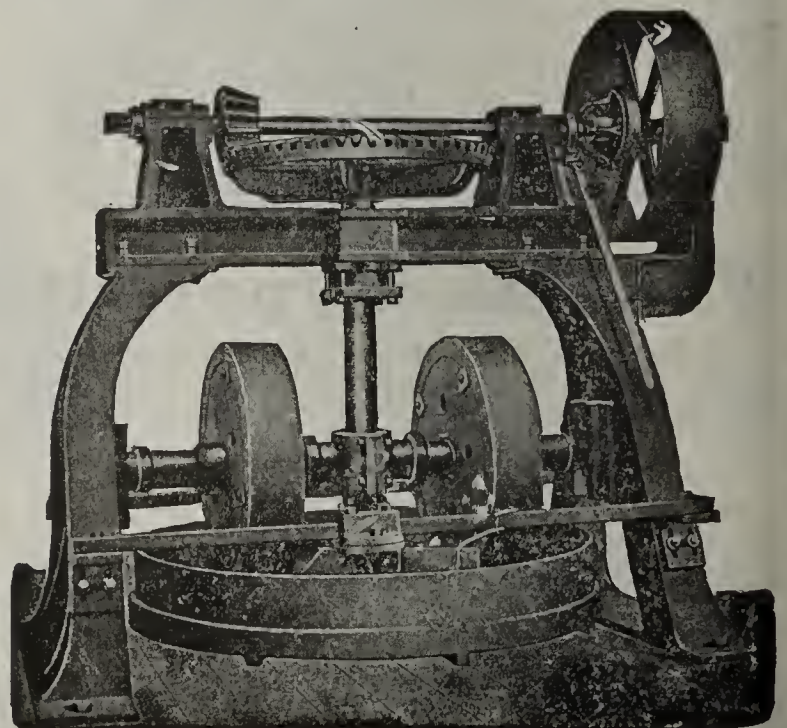
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

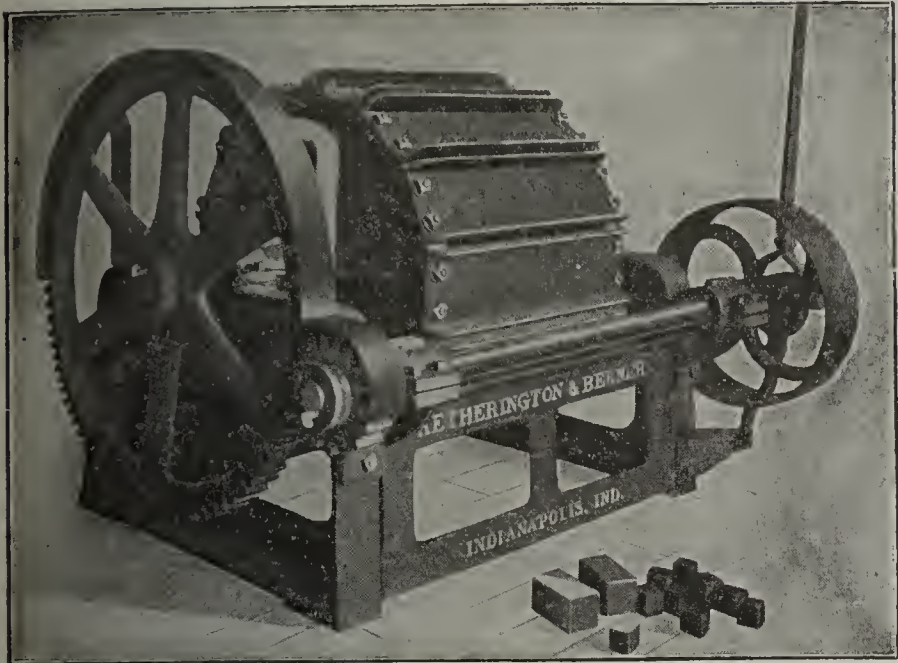
When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

Write for Catalog.

STATE COLLEGE of CERAMICS

Alfred University,

ALFRED, NEW YORK.

Charles F. Binns, Director.

If you have a dryer that is not giving you complete satisfaction, and wish it remodeled to produce the required results address

EDWIN A. KING,
Dryer and Kiln Specialist,
KEYPORT, N. J.

The —
**ROESSLER-HASSLACHER
CHEMICAL COMPANY,**
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.



If you want to stop your belting troubles and devote the time thus saved to increasing your business, use Leviathan belts for power transmission, off-bearing, conveying and elevating.

Our responsibility for the best and most economical service with each Leviathan belt extends beyond payment until it has made good to the full. We expect your confidence on this alone.

Main Belting Company

Sole Manufacturers

Philadelphia, Chicago, Boston, New York,
Pittsburgh, Seattle.

Main Belting Co. of Canada, Limited,
Montreal,
Selling Agents in Canada.

Construction of Continuous Ring Kilns of various systems for all kinds of clay products.

Continuous Chamber Kilns for glazed products, roofing tiles and pottery.

All other systems of kilns built with best results.

All references furnished.

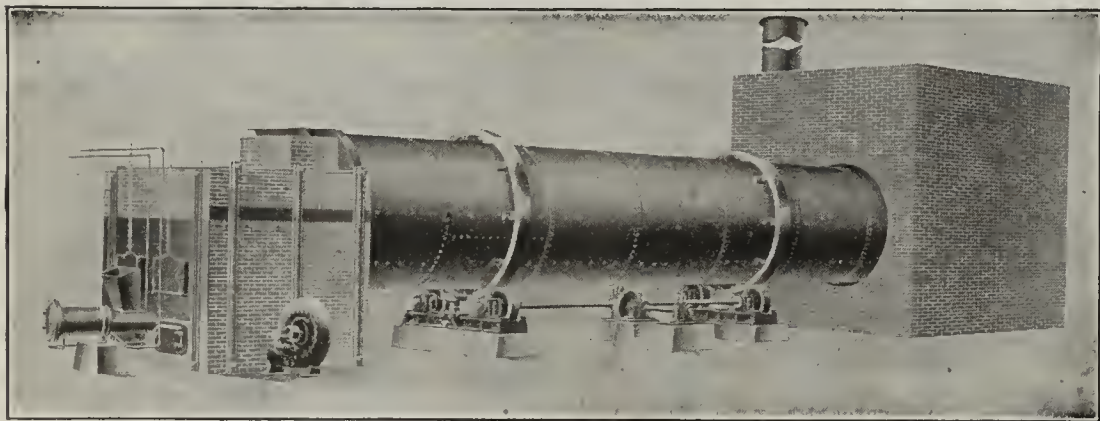
T. THOR 126 Beach Street,
JERSEY-CITY HEIGHTS, N. J.

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	Our Price
CLAY-WORKER	\$2.00
The Mantel, Tile and Grate Monthly	1.00
McClure's	1.50
Current Literature	3.00
Metropolitan	1.50
Value	\$9.00
	\$5.50

Address all orders to **T. A. RANDALL & CO., Inc., Indianapolis, Ind.**



Automatic Improved DRYERS

Economical, Efficient,
Great Capacity.

FOR CLAY, COAL, SAND, MARL, ETC.
Send for Catalog "C. B."

AMERICAN PROCESS CO. 68 William Street, New York.

THE
TRAUTWEIN SYSTEM
Of Taking The **WASTE HEAT** From Cooling Kilns
FOR
DRYING
INSURES
SATISFACTION

WRITE TO
TRAUTWEIN

417 So. Dearborn
CHICAGO

We Are Very Busy

erecting new kilns, dryers and other brickmaking equipment, and repeated orders from the same firms is conclusive evidence that

The Improved Flue System Kiln

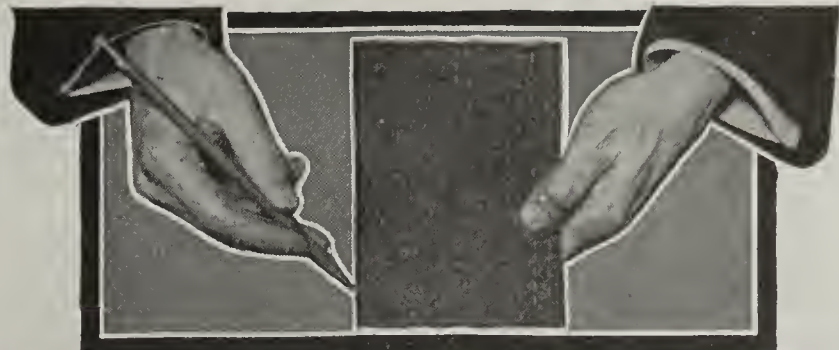
is THE kiln for the practical brickmaker who has to compete with shrewd rivals.

We will build your kilns, dryers, etc., by contract, or will sell the working plans, specifications, etc., for a very modest charge.

Particulars cheerfully furnished; correspondence solicited.

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New Cumberland, W. Va.

LOOK FOR THE GREEN EDGE



GANDY

STITCHED COTTON DUCK BELTING

has this edge painted GREEN (see where I'm pointing.)

And here's the reason we have adopted the green edge as an identifying mark:

We were the first to manufacture stitched cotton duck belting (34 years ago) and the reputation our belt has established has caused many imitators to spring up in an effort to reap some benefit from our success by making other stitched cotton duck belts, and painting them red to look like the **Gandy Belt**.

Our customers suffer by this substitution, and in order to avoid further trouble of this kind in the future, the **Gandy Belt**, while still remaining red, will have one edge painted green.

Remember there is only one **Gandy Belt** and that is THE **GANDY BELT** made by the Gandy Belting Company, of Baltimore, Md., the oldest and largest manufacturers of stitched cotton duck belting in the world.

Remember, too, that while the **Gandy Belt** is only one-third the cost of leather belting and 25% cheaper than rubber belting, it will do the work equally well. It is the most durable and economical belt for Driving, Elevating and Conveying.

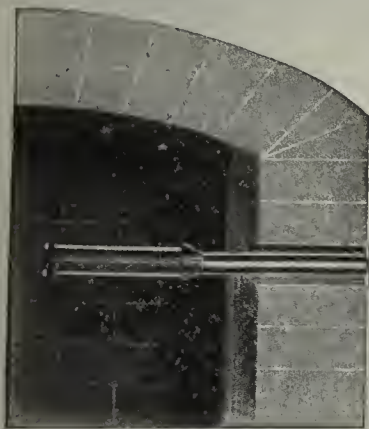
We shall be glad to send samples and quote lowest prices on application.

THE GANDY BELTING CO.,

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For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

The Brown Instrument Company,

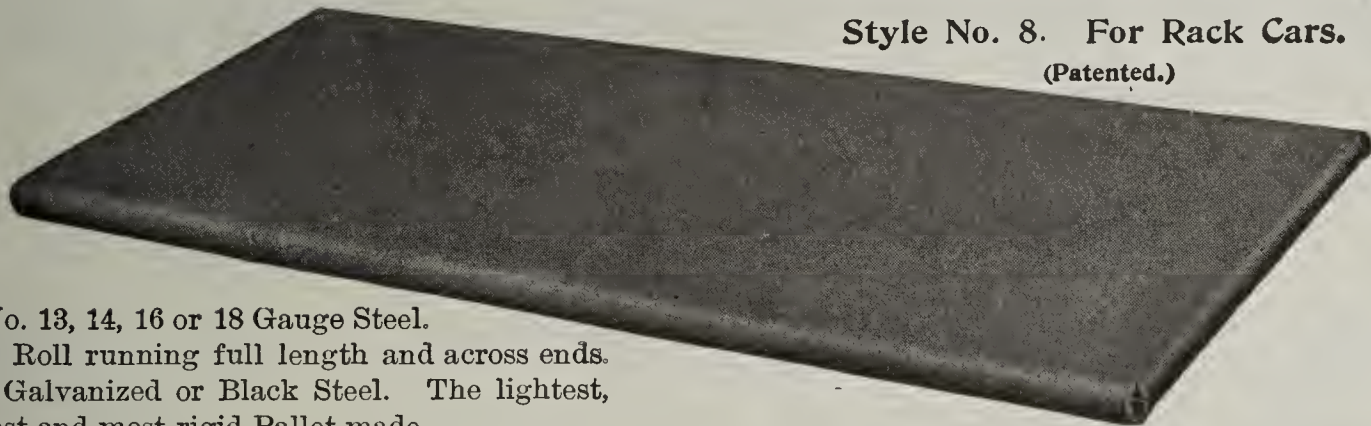
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Style No. 8. For Rack Cars.

(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

5/8-inch Roll running full length and across ends.

Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

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Paving Brick,
Hollow Block.

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We are the originators of the modern idea of applying air under pressure to brick kilns.

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Elkhart, Indiana

Infringers will be prosecuted.

Burns
Coal Slack,
Screenings,
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40 per cent less
fuel cost.





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Morehead Return Steam Trap

Q HAVE YOU ever investigated the possibilities of a MOREHEAD STEAM TRAP INSTALLATION for draining steam lines and feeding boilers?

Q Unless you have, you are not making the most of this big factor for success in the operation of your steam plant.

Q In every part of the country will be found a MOREHEAD INSTALLATION convenient for your inspection. In most cases you will find that the MOREHEAD TRAP has replaced the STEAM PUMP for feeding the boilers.

Q In every case you will find more economical operation, better steam plant conditions and complete satisfaction.

Q You may have the privilege of proving to your own satisfaction the truth of our claims at our expense.

Q Write for trial offer proposition and ask for "Trap Book."

MOREHEAD MFG. CO.
DETROIT, MICHIGAN

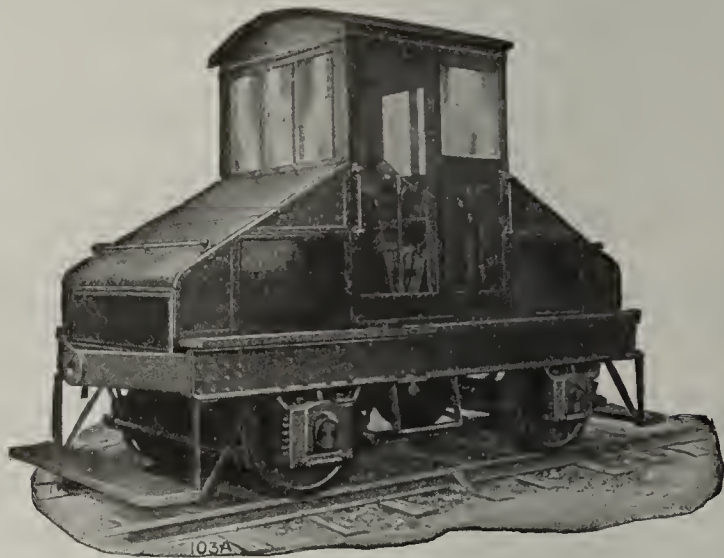
Q The illustration is that of a Morehead Return Steam Trap and Boiler Feed Installation at the plant of Sankey Bros. Manufacturers of Brick, Pittsburgh, Pa.

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(Gasoline Driven)

for

CLAY HAULAGE.



Type "C" Milwaukee Locomotive.

Milwaukee Locomotives are built for all gauges of track and in sizes from $2\frac{1}{2}$ to 100 tons. They are always ready for instant use, are very efficient and economical to operate. Reduce haulage costs to the minimum, as their operation is much cheaper than animal haulage.

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Built for the Chicago Retort & Fire Brick Co.

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For CLAY HAULAGE

Small Size

Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

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Burners in Operation at Plant of Federal Betterment Co., Cherryvale, Kan.

Give us number and type of kilns and number fire openings, also price of coal, and we will give you estimates on equipment.

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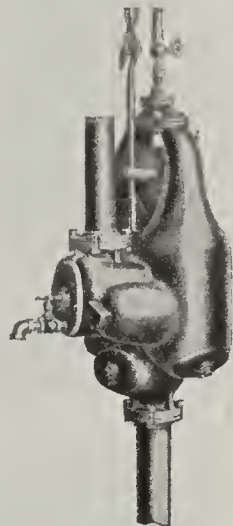
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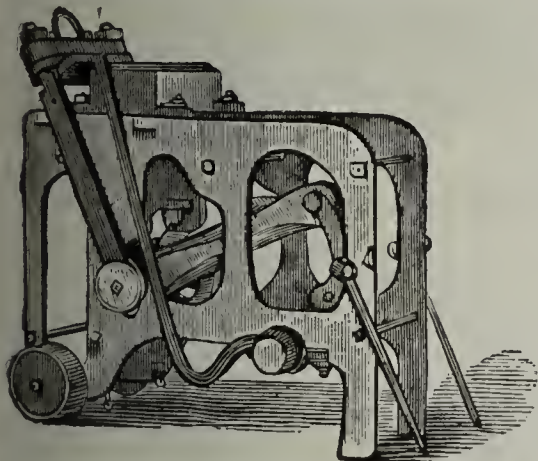


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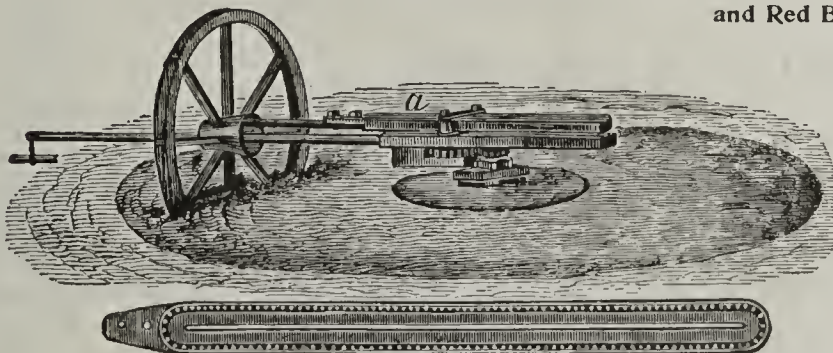
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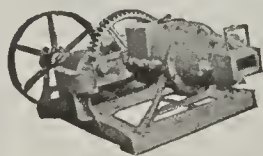
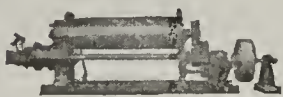
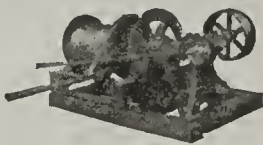
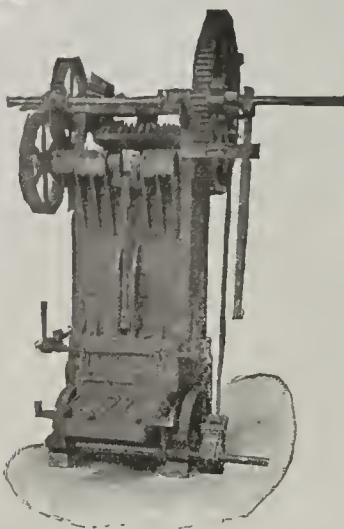
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Of Superior Types. Arranged to Suit All
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Suitable to burn all grades of clay products.

POINTS OF SUPERIORITY:

Cheapest in construction. Easiest to understand, and most agreeable to operate. Perfectly free from any nuisance. Most efficient fuel economizers; 160 to 275 lbs. of slack coal or an equal amount of oil, wood, natural or producer gas will burn a thousand brick. Specially adapted for utilizing waste heat for drying purposes and watersmoking.

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Civil and Ceramic Engineer.

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The Richardson=Lovejoy Engineering Company

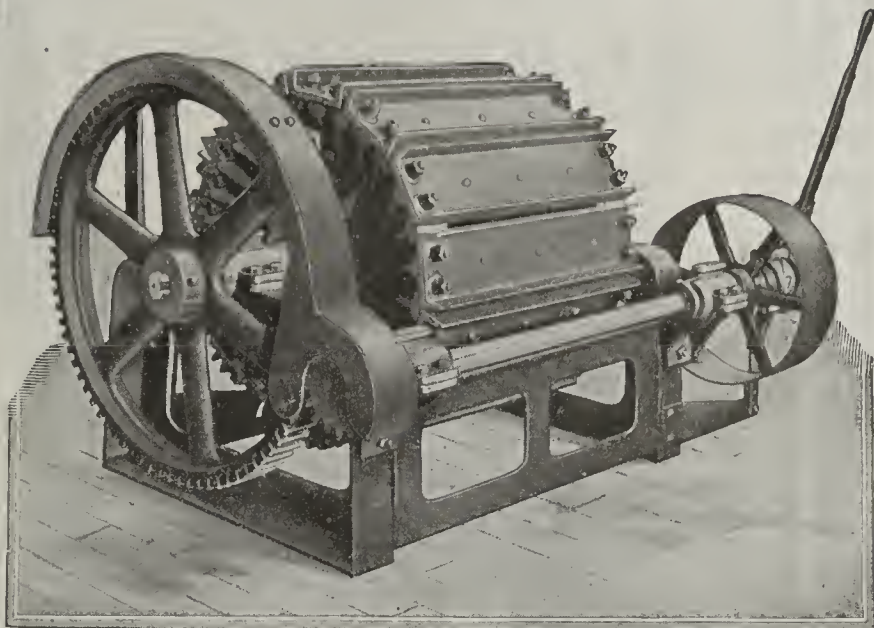
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Material and workmanship first-class throughout.

Write for pamphlet and prices.

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Buhrer's Shortened Kilns are the most suitable for burning ordinary and enameled goods, lime and cement.

In the **Buhrer Chamber Dryer** bricks and tiles made by the plastic process from clays of normal character may be dried, the former in one to one day and a half, and the latter in 4 to 5 days. In the **Buhrer Tunnel Dryer** green bricks may be very well dried in 24 hours with the waste heat of the kiln only.

The **Buhrer Fan** increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

Buhrer changes existing kilns in accordance with his system for quick burning.

Clay Testing is done in a thorough way. Write for illustrated pamphlet.

ABOUT 1,000 KILNS HAVE BEEN CONSTRUCTED ALREADY.

"In Europe 1337 MILLION BRICK are yearly dried and burnt in **Buhrer System Kilns and Dryers** worked by 315 **Buhrer Fans**."

LIME, CEMENT, BRICKS AND ALL KINDS OF TILES BURNT IN A
BUHRER KILN PRODUCING 100 LB. LIME WITH 12 TO 13 LB.
COAL AND 100 LB. CEMENT WITH 17 TO 24 LB. COAL.

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Dear Sir—Many thanks for the good results obtained by adopting your Fan at my works. Preferring your system to any other I have seen in Germany and Austria, I built a **Buhrer Kiln** of 8 chambers, with a **Dryer** of 14 chambers, and thus increased the daily output from 6,000 to 18,000 bricks. Last year I added 8 chambers to the **Buhrer Kiln** in which I am burning lime, cement, bricks and all kinds of tiles, using 12 to 13 lb. of coal for burning 100 lb. lime and 17 to 24 lb. of coal for 100 lb. of cement. Successful burning depends on good draught, and for a good draught all through the year and at any desired strength the **Buhrer Fan** can be relied on. When working with the chimney I burnt 8 chambers a week. Now I am burning with one **Buhrer Fan** 18 chambers weekly, and this Fan produces the draught for a **Hoffmann Kiln** of 12 chambers, a **Buhrer Kiln** of 16 chambers, a **Dryer** of 14 chambers, and a cleaning machine in the cement works. Anyone interested is welcome to inspect my works.

Mr. Jacob Buhrer, Constance.

(Signed) GEORG SCHRETTTER.

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FIRE-BRICK
HOFFMANN KILN

Burns 1,000 Fire-Bricks
With 5 Cwt. of Slack

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50%

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HAS IT EVER OCCURRED TO YOU
THAT ALL WORKS POSSESSING GENUINE
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The same applies to Hoffmann Continuous Tile, Pottery, Lime
and Cement Kilns.

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CONSTRUCTION CO.,

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CONTINUOUS KILN**

Arranged to Suit All Locations.

These Kilns can be seen burning Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
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We can show you scores of these kilns at work. We claim the nearest to 100% No. 1
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**This Kiln can be Fired with Coal, Wood, Oil, Natural or Producer
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We Manufacture a Complete Line of BRICK MACHINERY

And Make a Specialty of Equipping Yards.

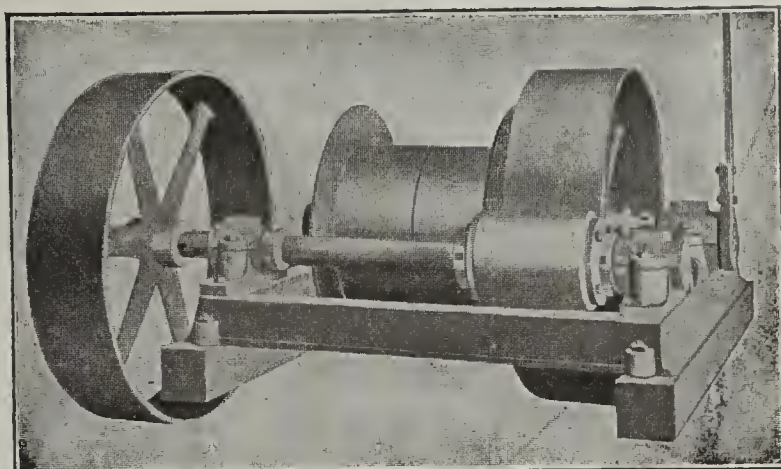
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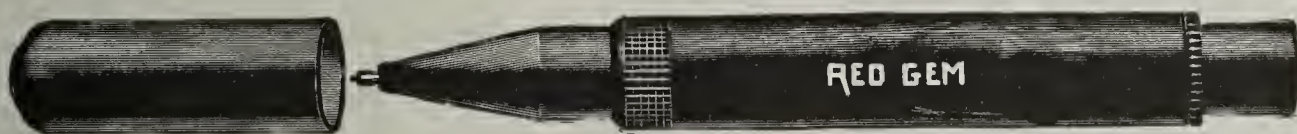
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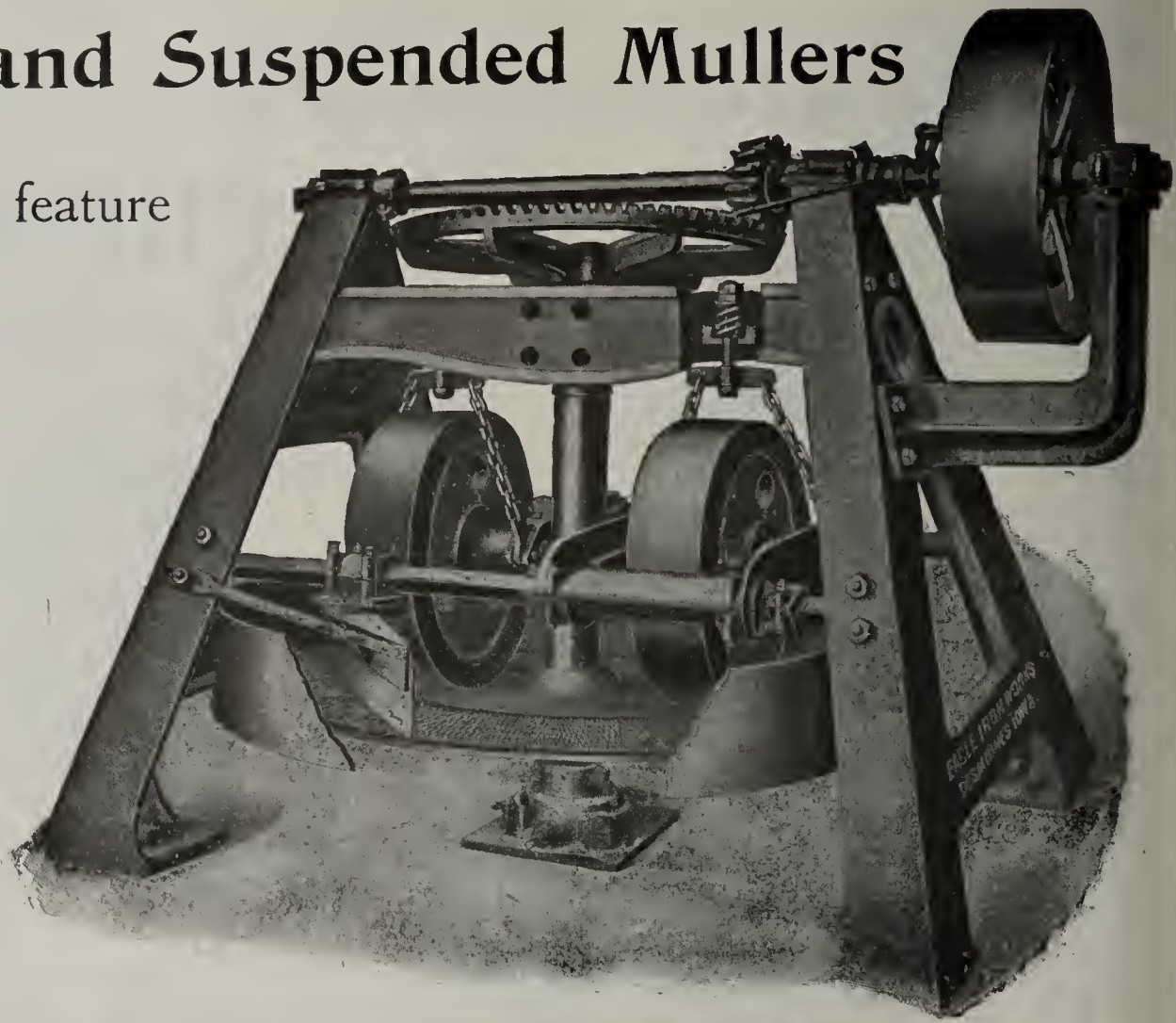
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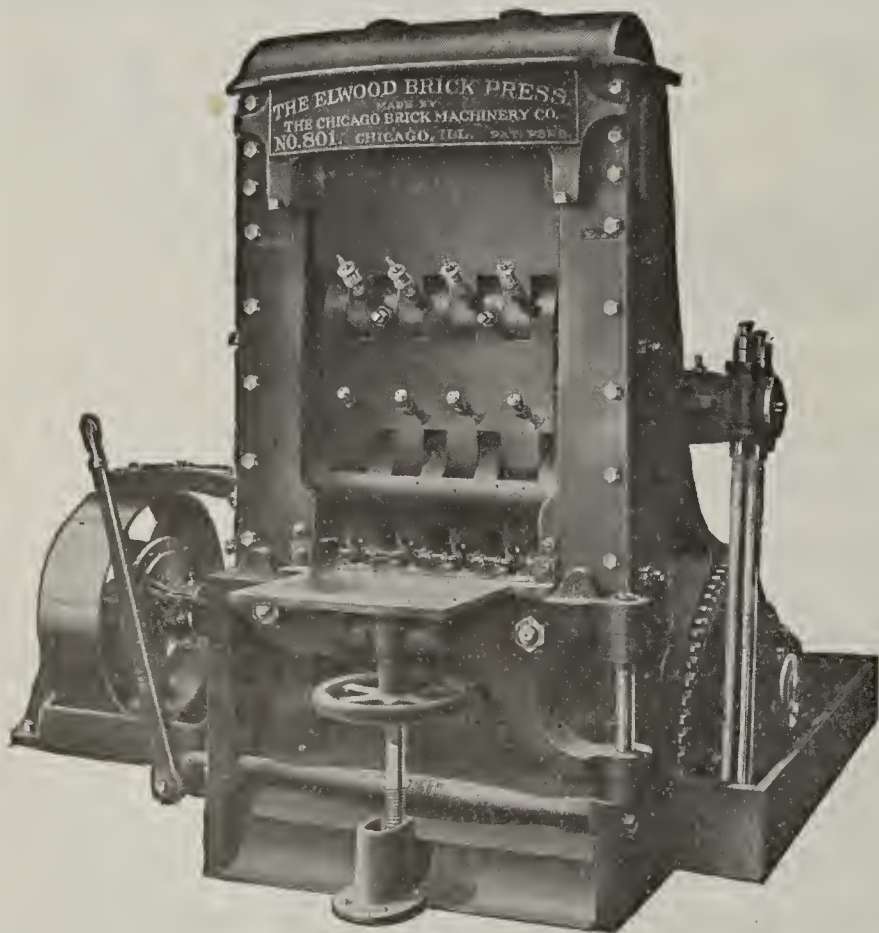
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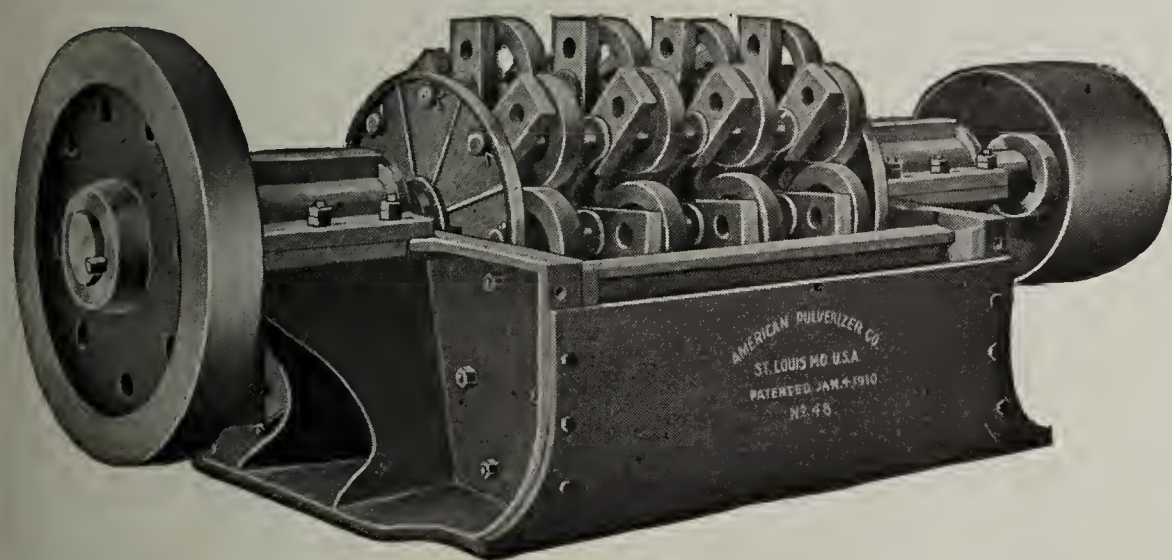
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It does its work with less cost of operation, does more and better work, withstands more rugged work, and is doing work other types of mills cannot do.

Slow Speed—THE RING IS THE WHY—Low Power.

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If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to The Clay-Worker.

T. A. Randall & Co., Pub. Clay=Worker, Indianapolis:

You will please send The Clay-Worker and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

Name.....

Postoffice.....

Street and No.....State.....

Names of magazines desired.....

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REMARKABLE OFFER

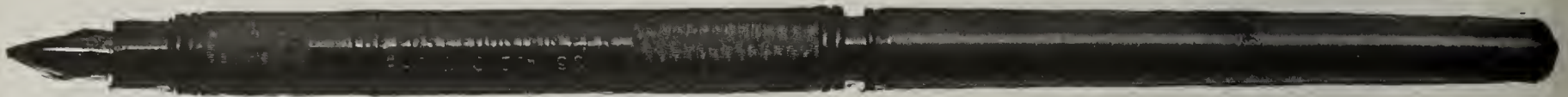
We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

GEN. LEW. WALLACE: The author of "Ben Hur" wrote, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."

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**THE CLAY=WORKER, INDIANAPOLIS,
INDIANA.**

**DO
IT
NOW**

T. A. Randall & Co., Publishers The Clay=Worker, Indianapolis:

You will please send me THE "POST" FOUNTAIN PEN and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued, beginning with

the.....Enclosed find \$.....

Name.....

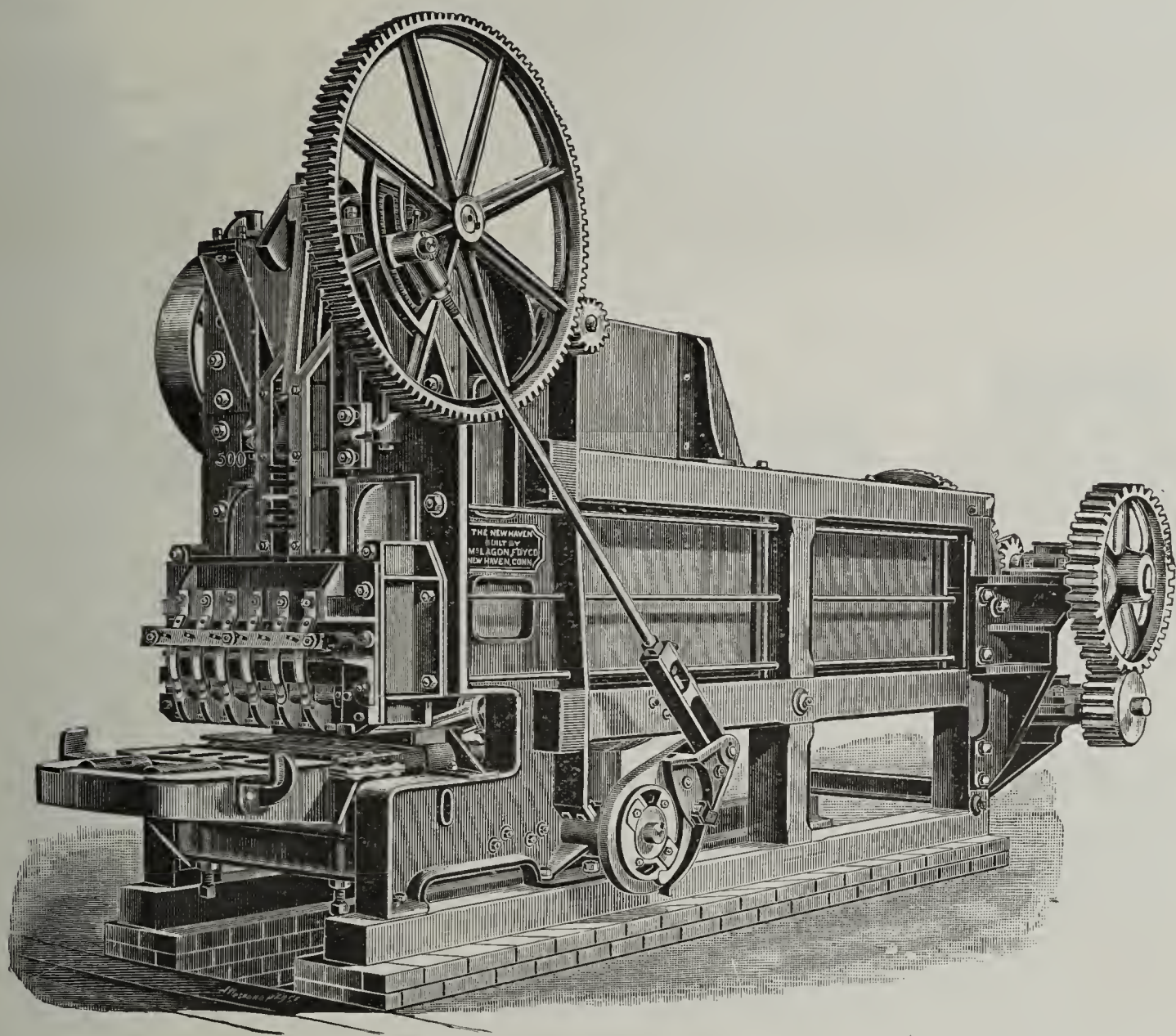
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CHARACTER and REPUTATION.

"Character is what we are. Reputation is what people think we are." A happy combination is when character and reputation agree, as is the case with the New Haven Soft Mud Brick Machines. They are built so strong and so well that the character and reputation both are unquestioned.



"NEW HAVEN" HORIZONTAL BRICK MACHINE.

The enduring qualities of the New Haven Machines have won for them the approbation of soft mud brick manufacturers generally, and the New England brick manufacturers in particular. If you want a soft mud brick machine that will insure steady operation, high-class products and regular dividends, buy a New Haven.

Catalogue for the asking.

The EASTERN MACHINERY CO.

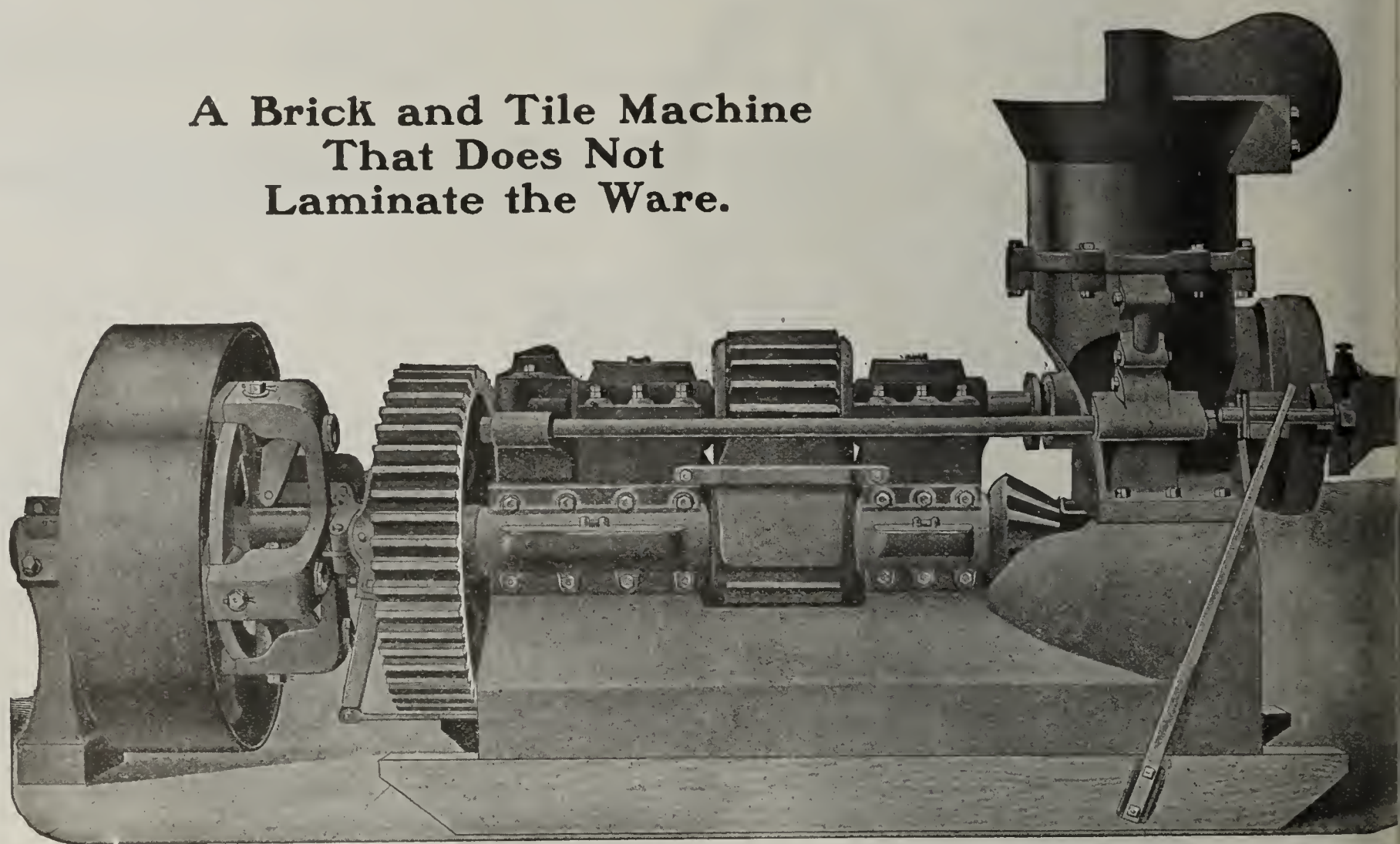
NEW HAVEN, CONN.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

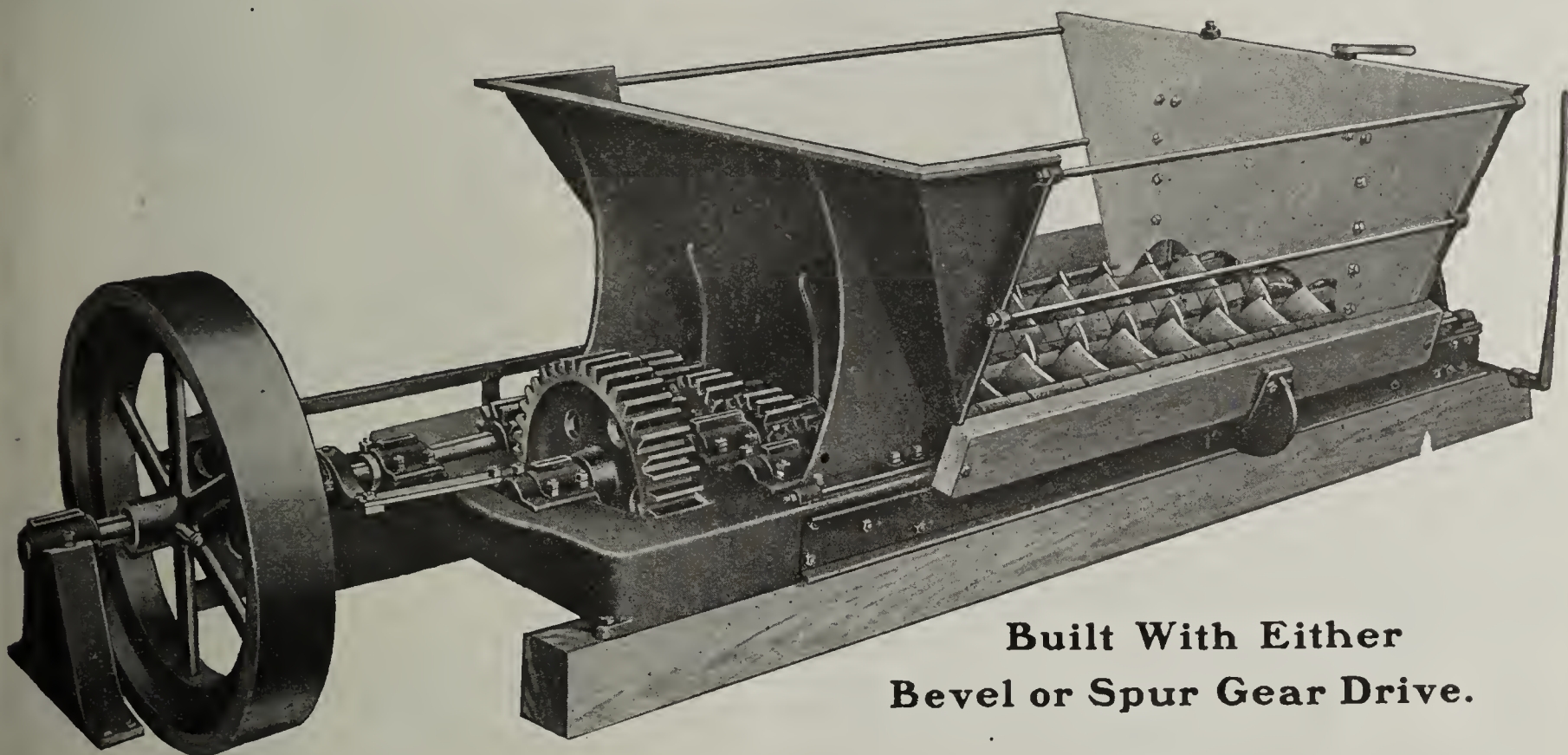
We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

THE ARBUCKLE GRANULATING CLAY FEEDER.

A Great Addition to the MADDEN Line.

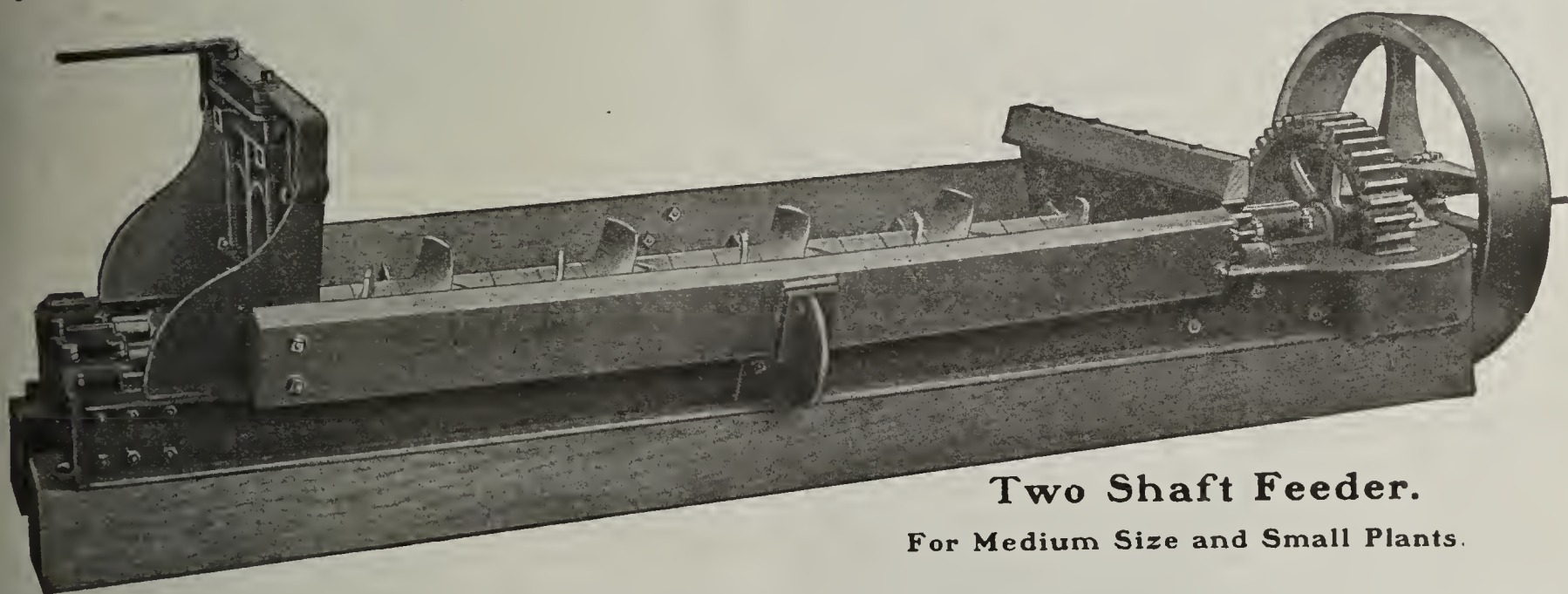


**Built With Either
Bevel or Spur Gear Drive.**

This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



Two Shaft Feeder.
For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 10,000 to 12,000 four-inch tile per day, or 15,000 to 18,000 brick, and will pug the clay up in fine shape.

Note the heavy Gears, Granulating Knives. Hopper can be built up to any height, and it will feed the clay just as you want it.

It is low in price, and no plant can afford to do without one. Write for prices.

Builders of
Madden Machinery.

ARBUCKLE & CO., Rushville, Ind.

Sold by Scott-Madden Iron Works Co., Keokuk, Iowa.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of Vitrified Paving Brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen, and enable them to do difficult work in the best manner.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

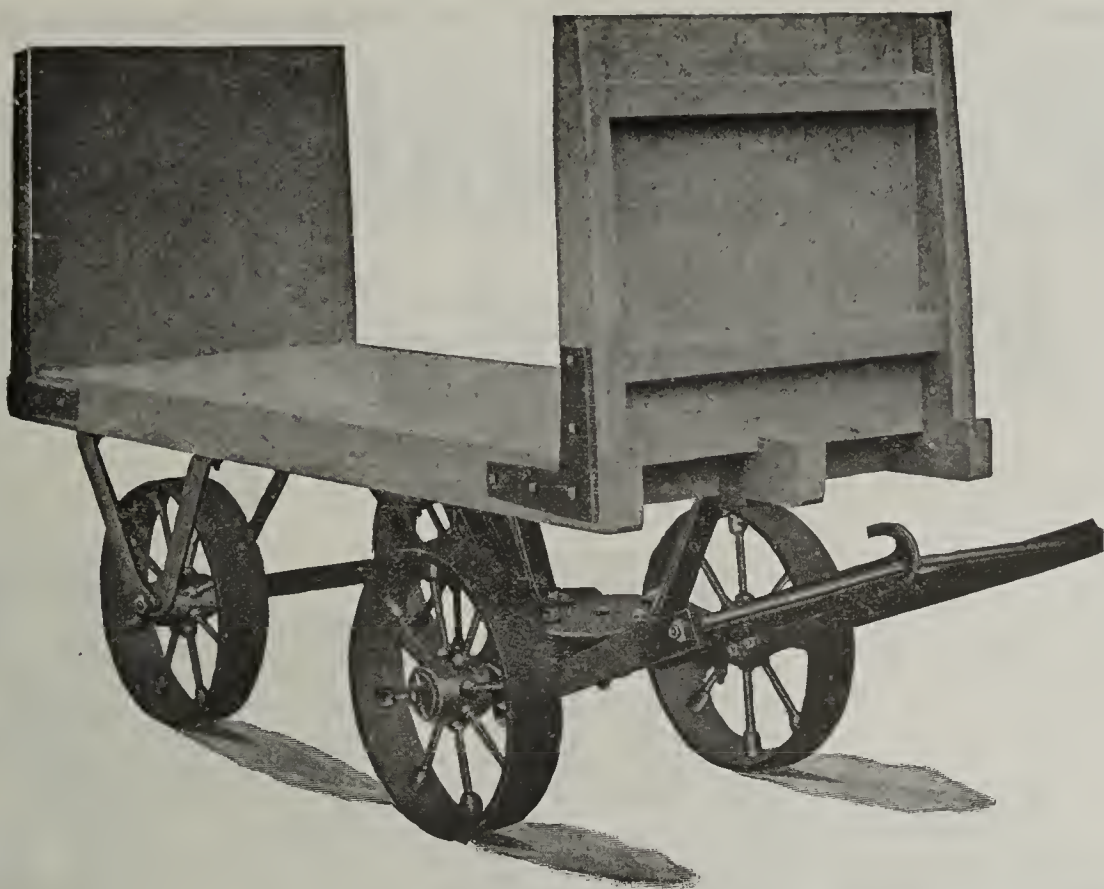
Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

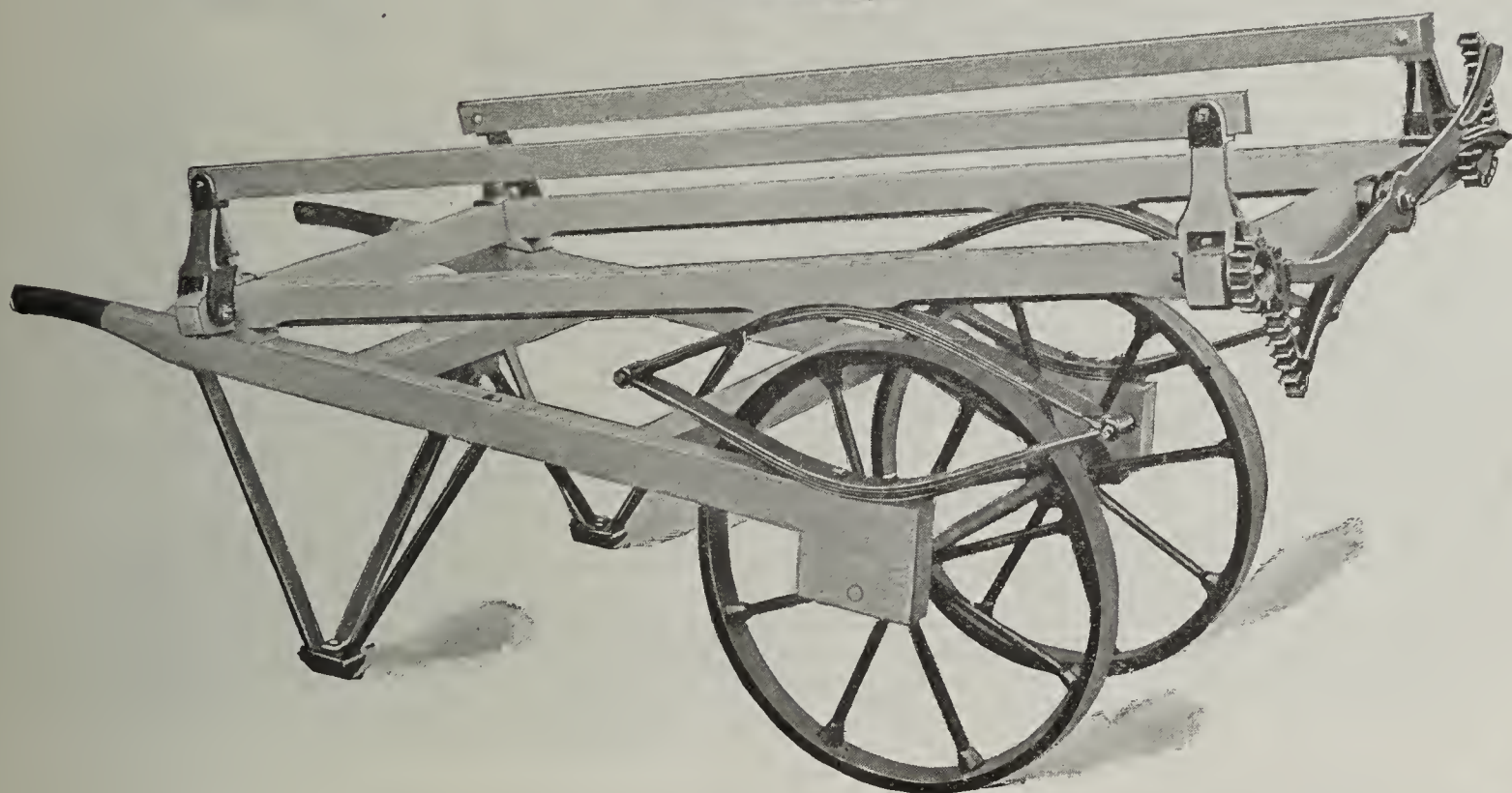


Heavy Wheels
18 in. x 4 in.

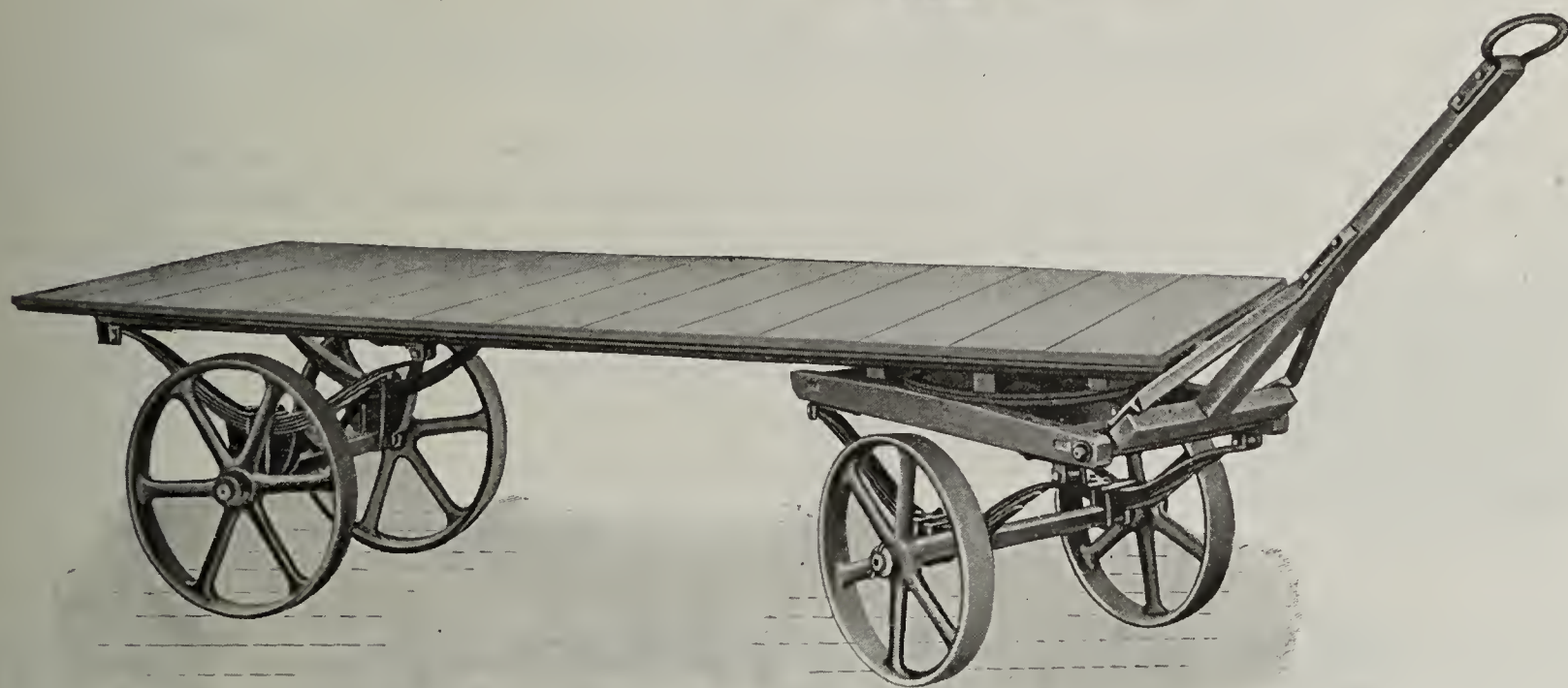
Size of bed
68 in. x 30 in.

Ends 26 in. high.

Heavy, durable
Fifth wheel.



Brick-
makers
in every
Section
of the
United
States
Are
Using
Hundreds
of our
Double
Deck
Pallet
Trucks.

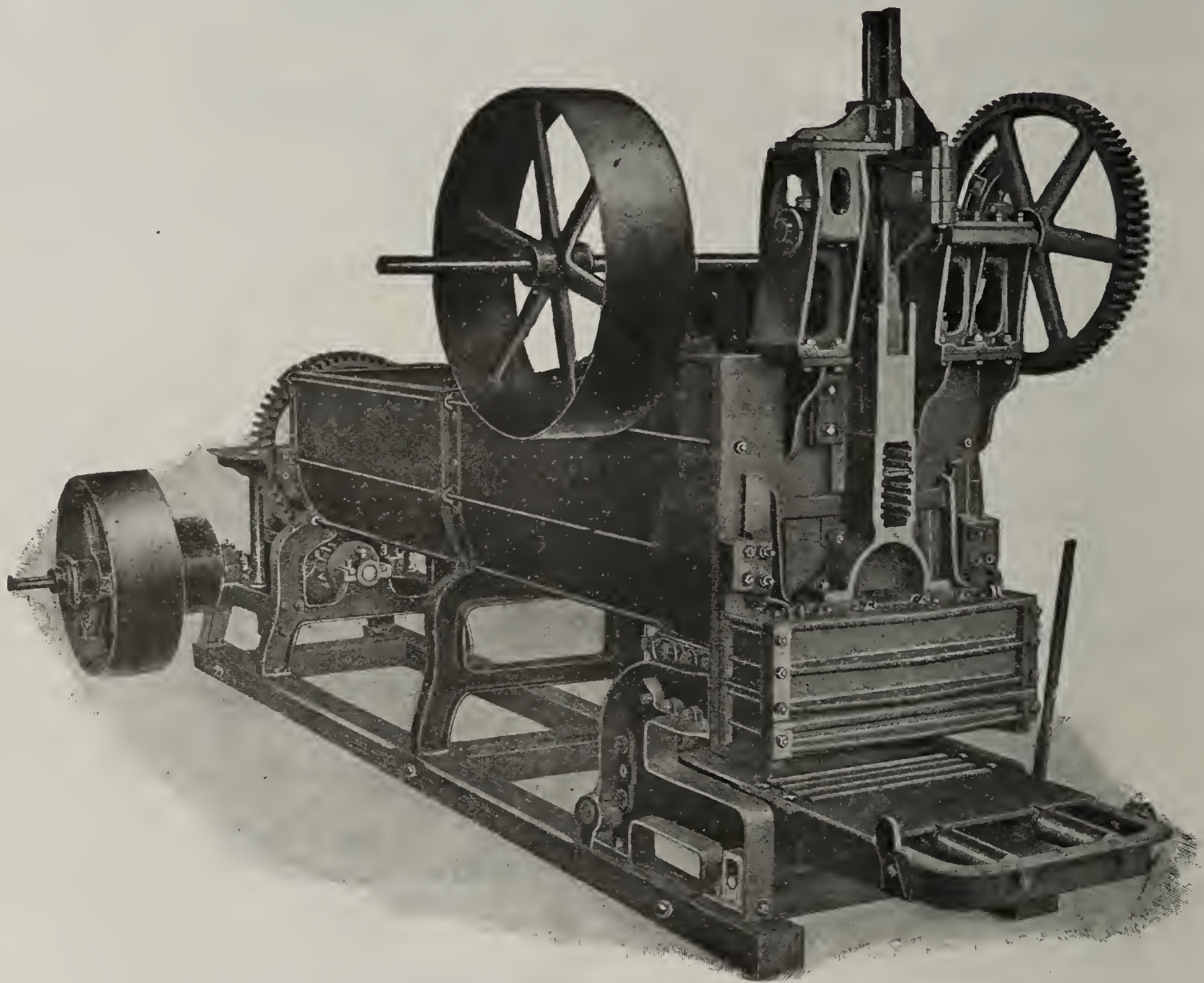


Platform
96 in. x
38 in.

26 in. from
the
Floor.

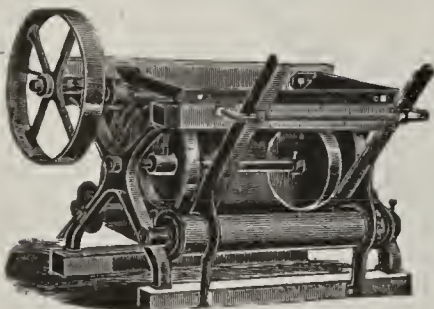
Substan-
tial
Fifth
Wheel.

The Potts Sand Mold Horizontal Machine



THE ONLY MACHINE HAVING CAST STEEL GEAR
THE BEST CONSTRUCTED MACHINE MADE

A machine well built, of the best material, by skilled workmen. You cannot make a mistake in purchasing this machine. It cannot be equaled for quality and quantity of brick made. It will run steadily every day, making a given number of brick with little or no cost of maintenance.



POTTS MOLD SANDER

We manufacture the most complete line of SAND MOLD machinery, and are prepared to erect modern and up-to-date plants of any desired capacity, guaranteeing results.

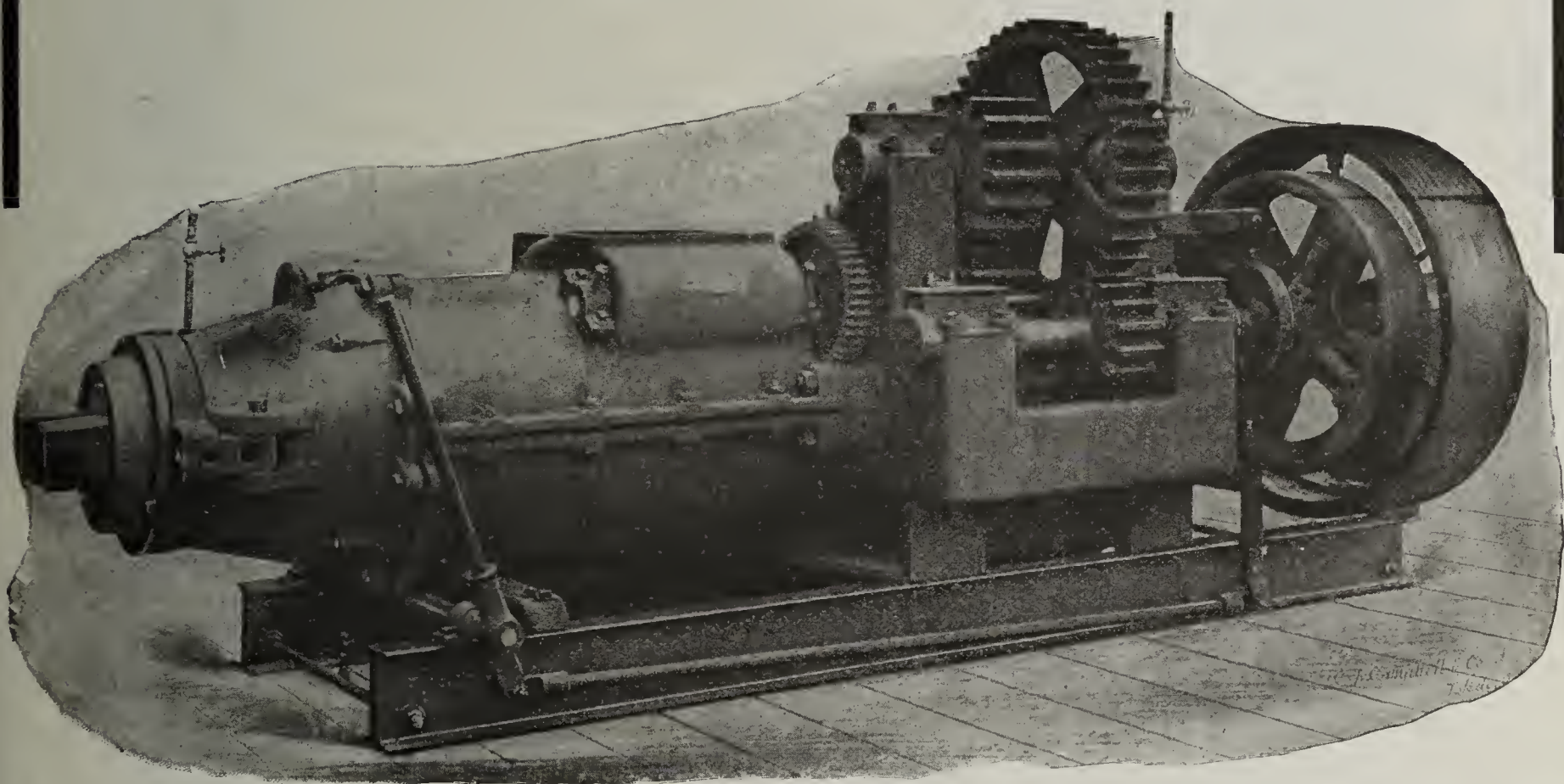
WRITE FOR PRICES

C. & A. Potts & Co.
INDIANAPOLIS, IND.



HORIZONTAL BRICK MACHINES

Brewer Horizontal Brick Machines are built in three sizes, ranging in capacity from 2,000 to 5,000 bricks per hour, in weight from 5,000 to 14,000 pounds. In many cases the machine rated at 2,000 brick per hour is making 3,500 and the 5,000 machine 7,500. The rated capacity is low, the weights are high in proportion.



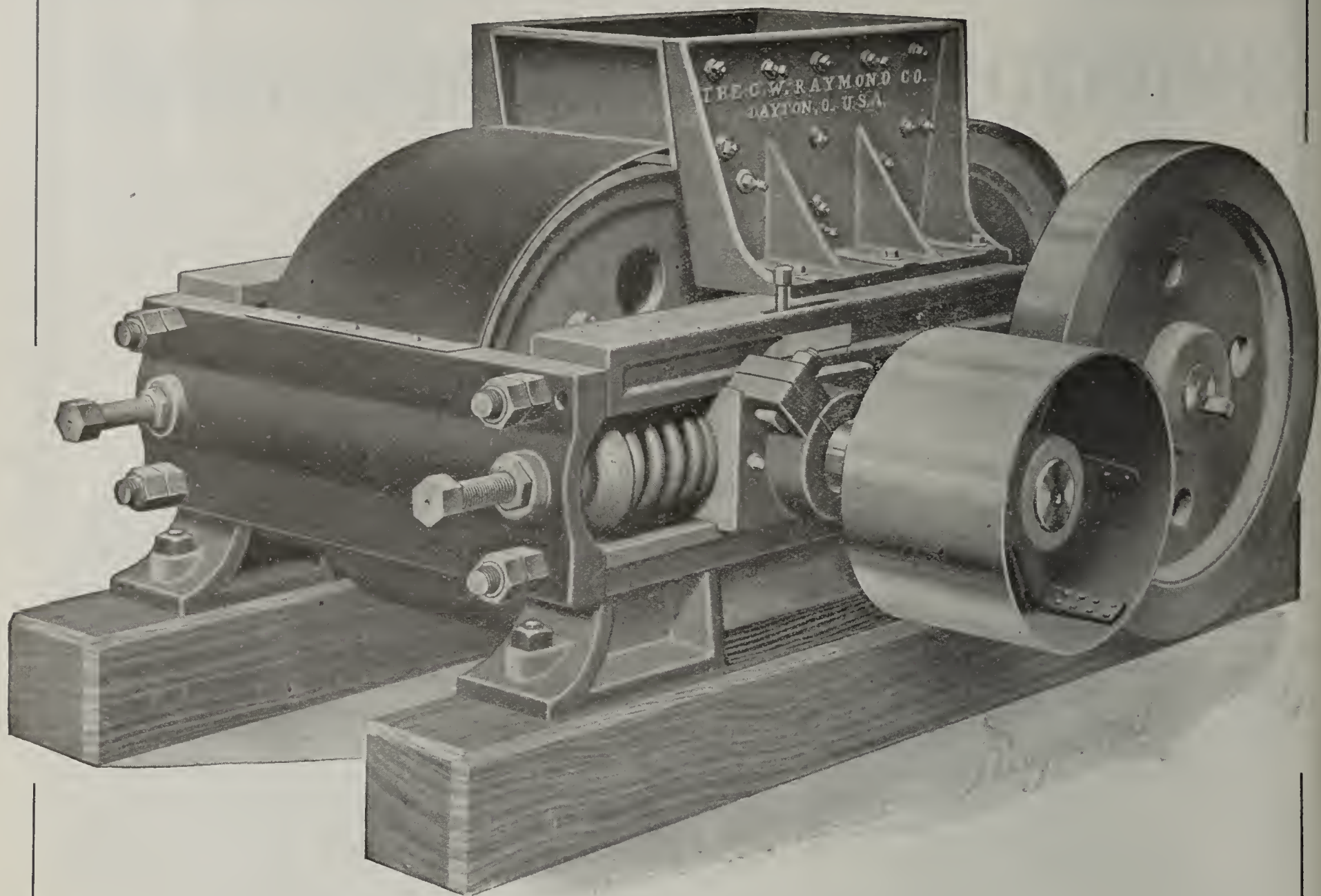
Some Features of Construction.

The knives are forged from hard, high-carbon steel; each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The backthrust bearings are self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

Full specifications in our catalog. Ask for it.

H. BREWER & COMPANY, Tecumseh, Mich.

The Raymond Equal Roll Crusher



A new form of construction in smooth roll crushers, which abounds in intensely practical points.

The fast roll is held rigid in the framework while only the slow speed roll is adjustable, which allows the impact to be taken against a solid frame. This framework is held together by heavy through-going bolts, equalizing the strain on the entire structure.

The adjustable roll is relieved by heavy springs which allow the passage of foreign substances should any happen to get into the material unnoticed.

The bearings are equipped with oil reservoirs holding sufficient lubricant for a considerable time.

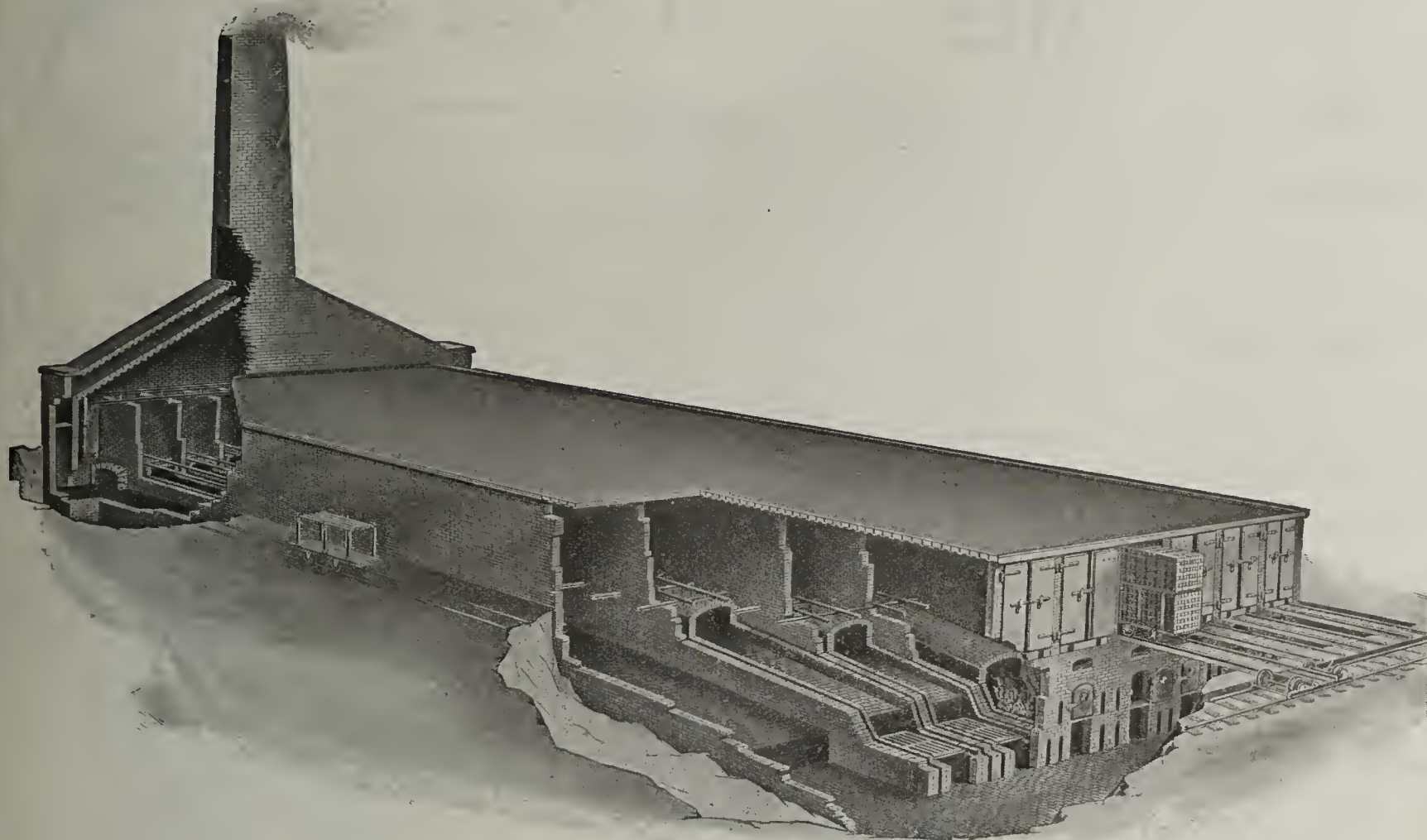
The scraper device is new. Write for Exhibit 2715 which explains in full detail.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The Raymond Radiated Heat Dryer



Are You Having Drying Troubles?

The Raymond Systems of drying clay products have been a boon to the clayworker with drying troubles.

Our Raymond Radiated Heat Dryer is simplicity itself—no fan or engine troubles—temperature and air circulation in each tunnel under absolute and separate control. Ware only in contact with pure air. Cars never in contact with gases or acids. Fuel cost per ton of dried ware less than in any other dryer.

The tenderest clays can be dried without injury, and the same successful results are obtained with every description of clay ware.

Exhibit sheets covering our Drying Systems sent upon request.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The C.-W. Vest Pocket Kit

The
Handiest
Combination
Ever
Invented

18 TOOLS IN ONE.



AN ARTICLE OF REAL MERIT.
CAN BE USED IN A THOUSAND WAYS
AROUND THE HOME AND OFFICE.

This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

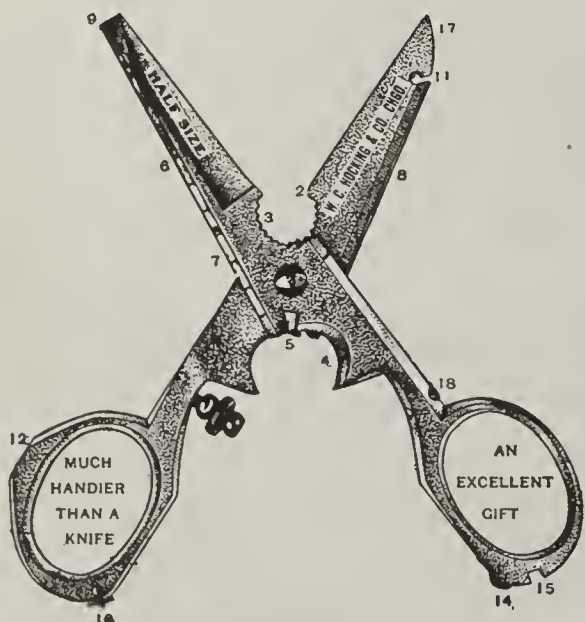
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every new subscription to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE C.-W. VEST POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued.

beginning with the.....issue. Enclosed find \$

Name.....

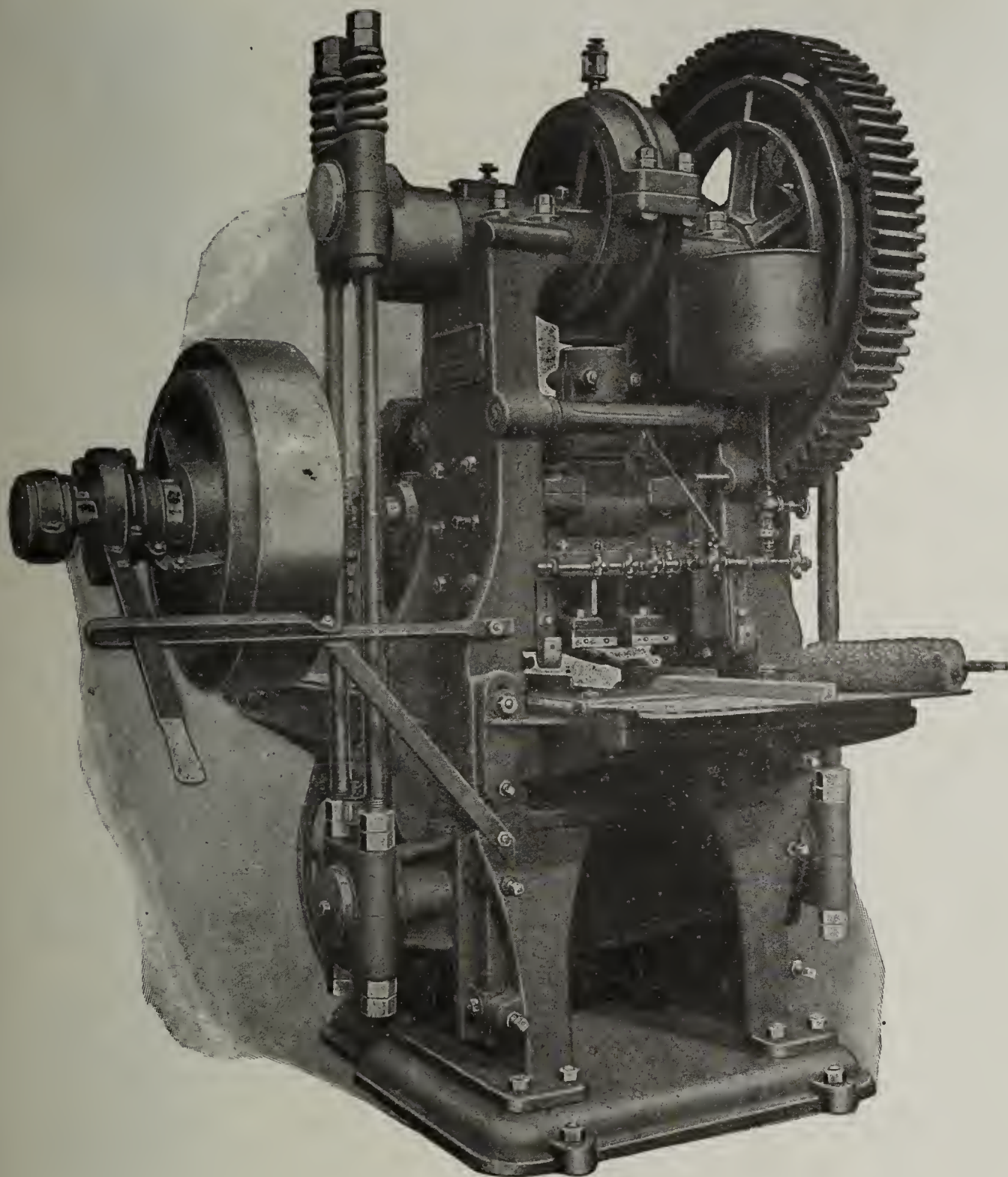
Postoffice.....

Street and Number.....

County.....State.....

Canton Repress=Ask Those Who Use It

Has a die of extra depth and brick are moving downward in the die while pressure is applied. Result—Smoother brick.



Capacity 20,000 to 25,000 brick in 10 hours.

Generally conceded by clayworkers to be the best repress built.

Continuous motion.

No links or toggles.

Wearing parts out of the dirt.

AUGER MACHINES, CUTTING TABLES, PUG MILLS,
DRY PANS, SCREENS, ETC.

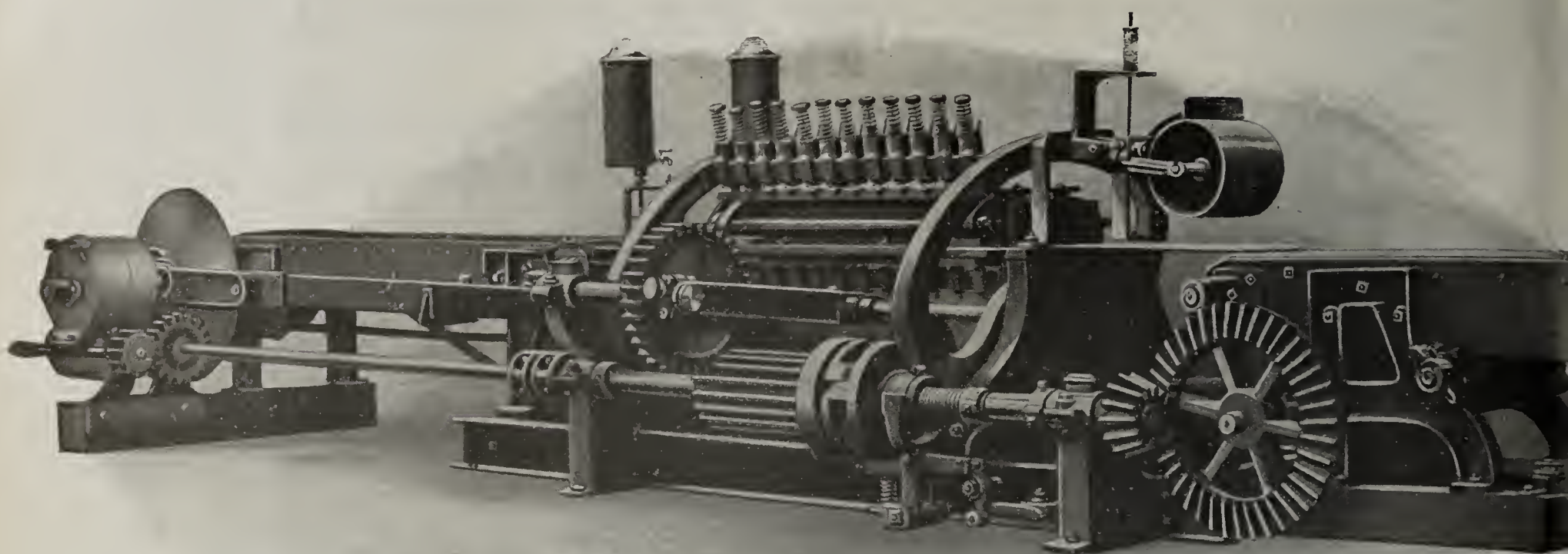
We solicit your inquiries.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

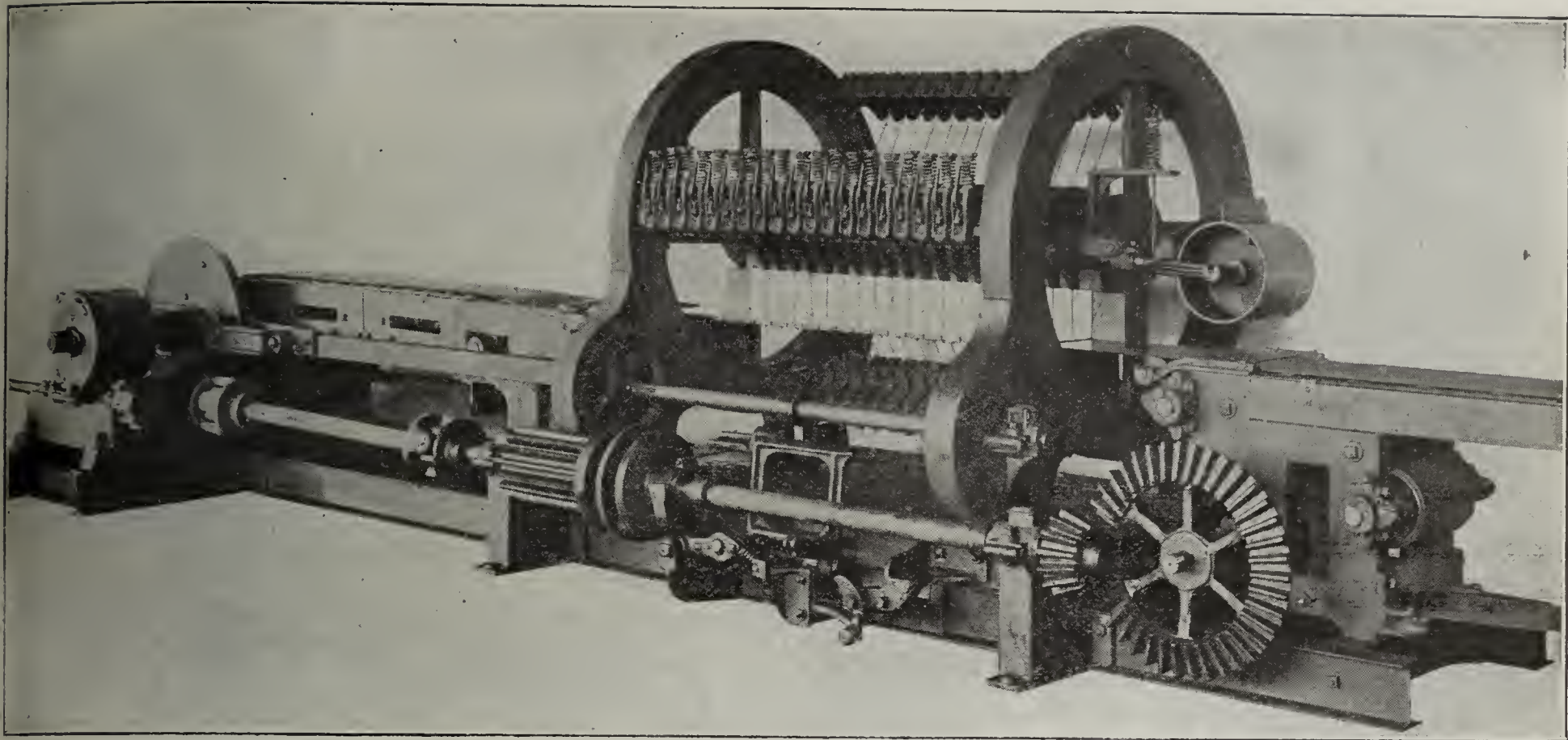
This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

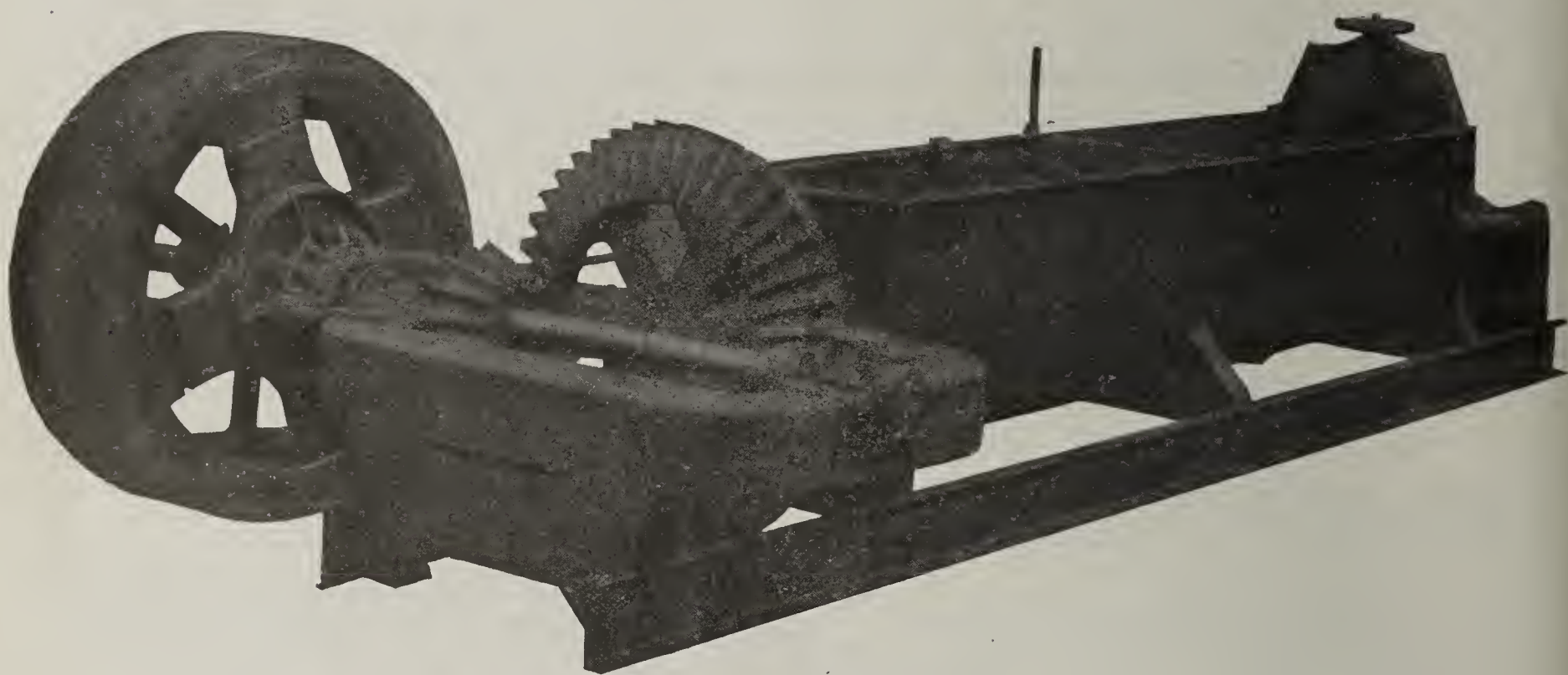
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

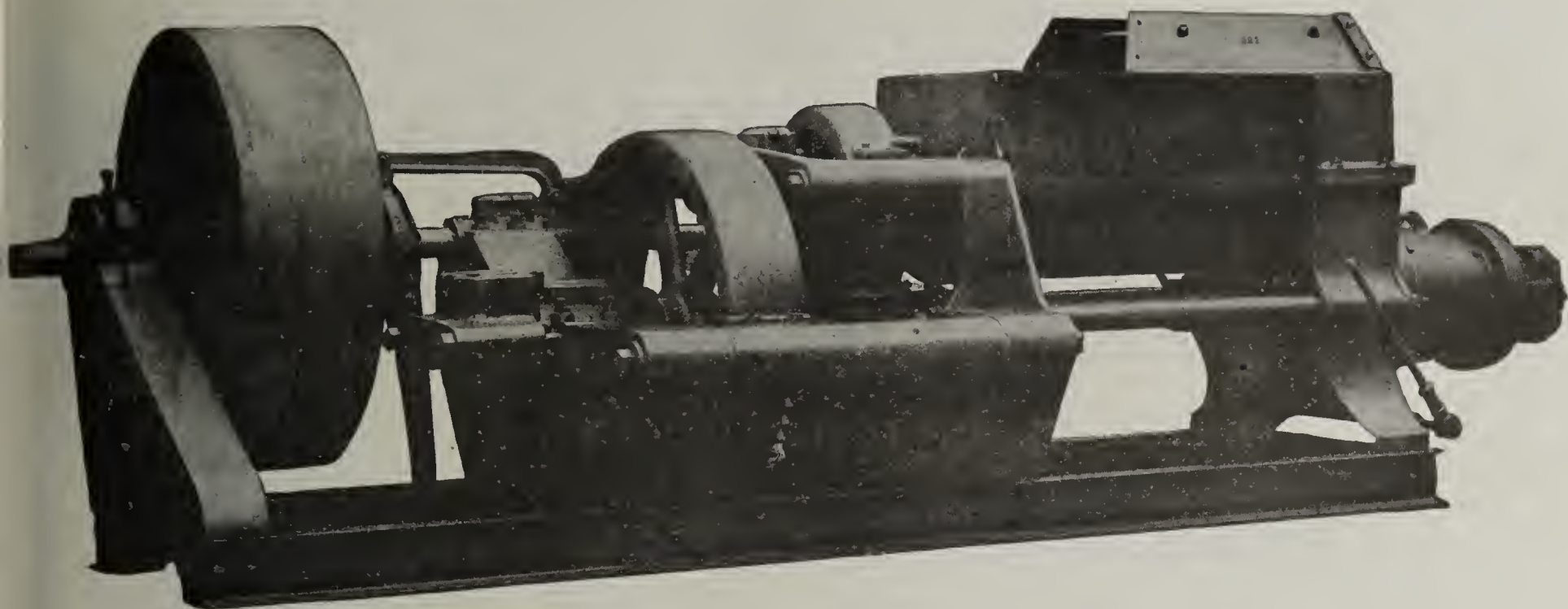


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.

STEVENSON PANS

Famous the World Over
for
Strength—Durability—Efficiency.

9 ft. iron frame

Grinding or Tempering Pan

Built for heavy duty grinding and tempering of silica, fire clay or limestone.

Frame extra heavy.

8 ft. iron frame

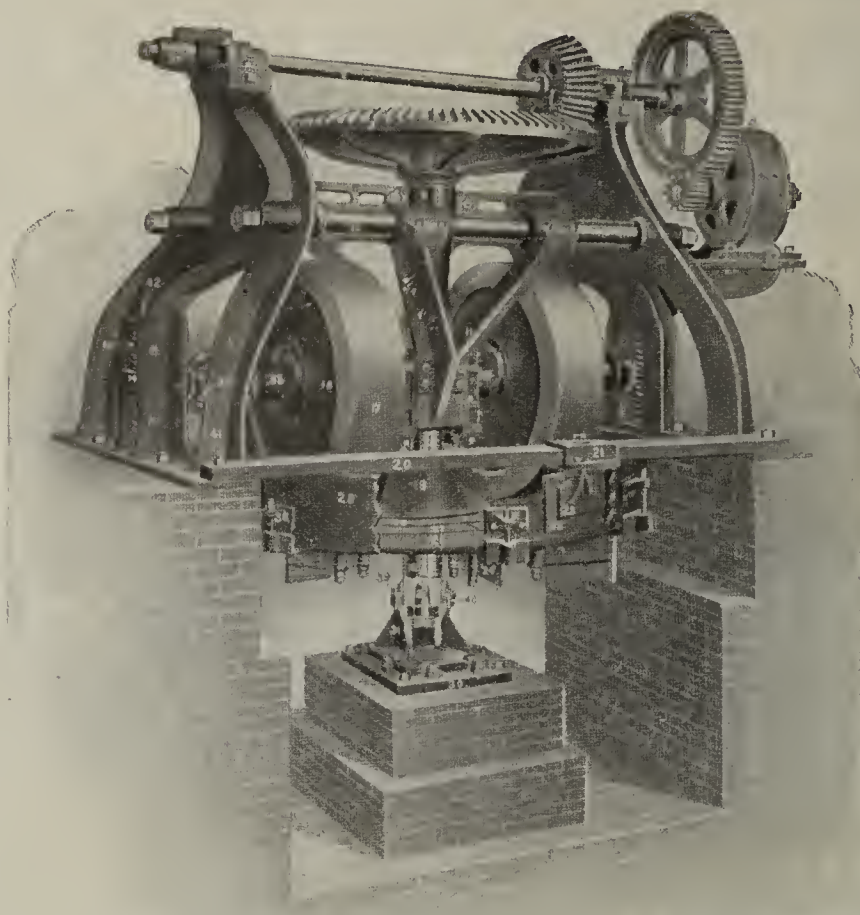
Tempering Pan

Specially adapted for tempering clay or shale, for sewer pipe, hollow ware and tile.

10 ft. iron frame

Heavy Duty Grinding Pan

One of the latest improved pans on the market. Constructed for heavy duty work and durability. Made with adjustable scraper and other improvements.



9 ft. iron frame

Grinding Pan

Pulley or Motor Drive. Rigid, and built to stand severe work.

7 ft. iron frame

Dry Grinding Pan

This is what is known as 7 ft. 7 $\frac{3}{4}$ in. pan, and is the same as 9 ft. pan, but reduced in width 18 ins.

5 ft. iron frame

Grinding and Mixing Pan

Pulley or motor drive. Thoroughly efficient and especially adapted for sand and clay. Special adjustments for line shaft. Our wet pans same style excepting solid bottom instead of screen bottom.

Stevenson Presses

For Making Large Drain Tile or Sewer Pipe.

There is money in big tile, and the largest profits are made by plants which can turn out tile up to 36 ins. diameter.

The Stevenson Press will enable you to meet all competition and to operate your plant at a profit when others are losing money. Consult us about the making of big tile.

THE STEVENSON CO., = Wellsville, Ohio

For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

Thousands of Horse Power in
Frost Engines and Boilers used in
nearly all parts of the civilized world.

Our Dry and Wet Pans are being
operated in best yards of this and
other countries.

POWER EQUIPMENT
TO MEET THE NEEDS OF ALL USERS.

Write for Special Bulletins and Specifications.

The *Frost* Manufacturing Co.

Works at
GALESBURG, ILL.

CHICAGO OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

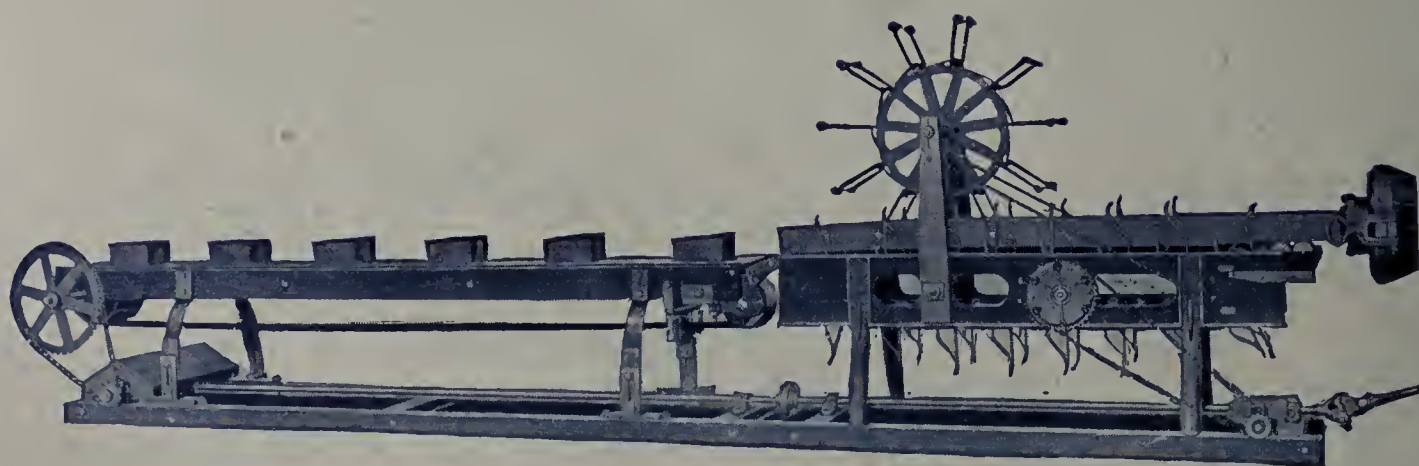
Mention THE CLAY-WORKER.

Two Interesting Pages for Manufacturers



The Fate "Premier" Machine. Too well known to need any description. The best Block or Fire Proofing machine made anywhere by anybody.

The standard Bensing Automatic Tile Table, arranged for cutting Hollow Blocks in sizes from $9\frac{1}{2} \times 4\frac{3}{8}$, but it will cut any block not larger than 10×12 inches. Can be built to cut any length from $12\frac{1}{4}$ to 14 inches.

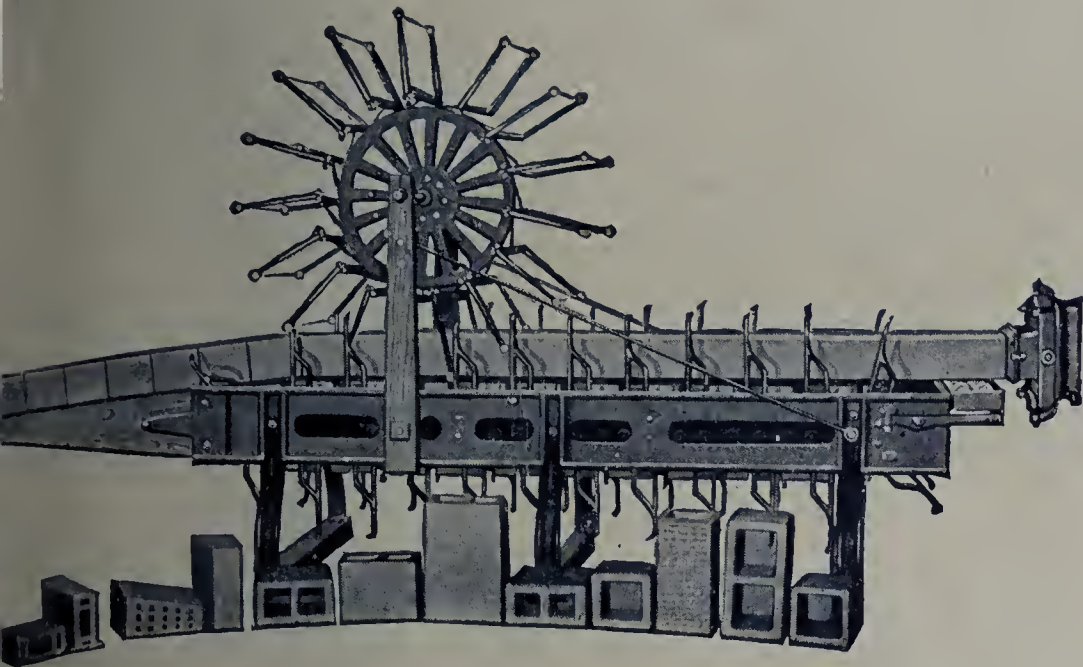


Bensing's End Cut Brick Table, cutting hollow end cut brick. Is equipped with belt delivery and friction device, and is especially adapted for this work.

The J. D. FATE COMPANY

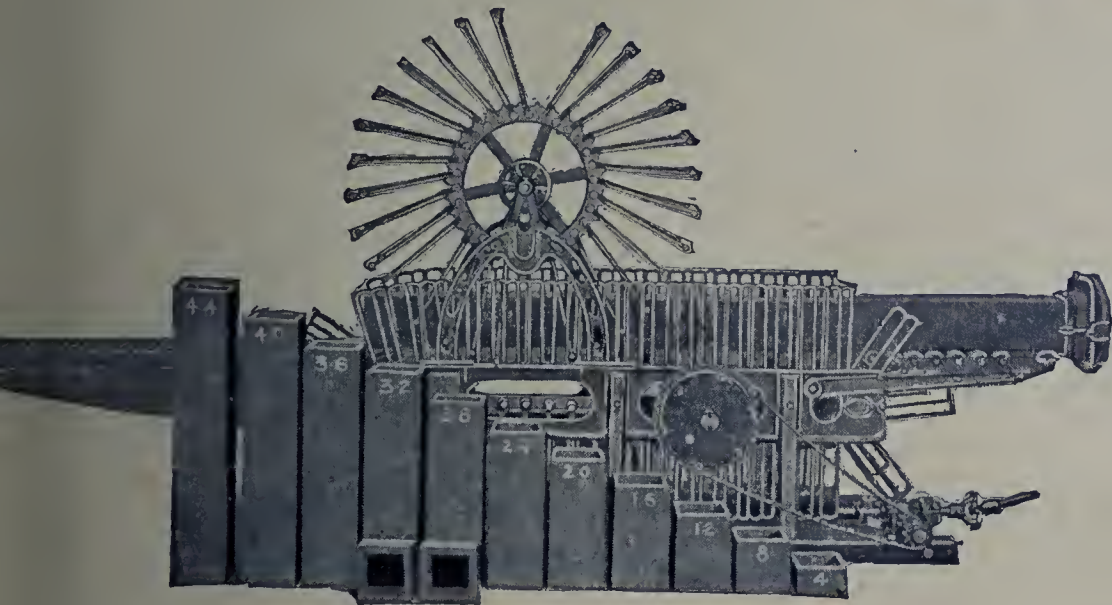
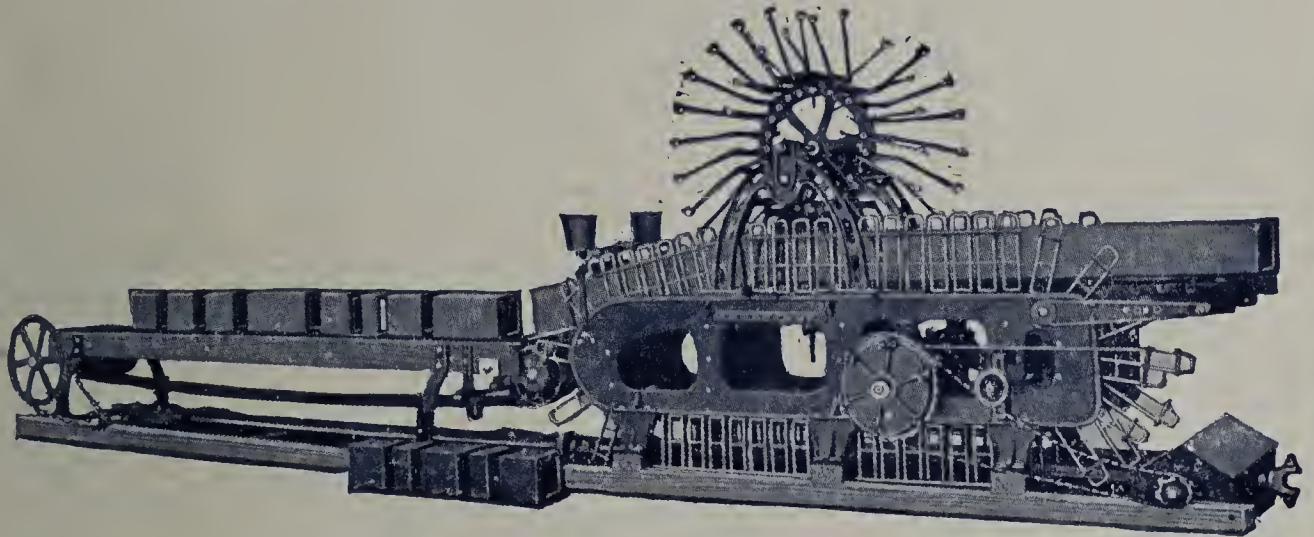
Manufacturers Equipment Co.

All Types of Hollow Building Ware.



This is a special Bensing Automatic Table for large Hollow Blocks. It will handle blocks as large as 18 inches wide by 9 inches high. The length of cut can be anything desired, from 9 inches to 18 inches. Fitted with roller rack delivery.

Bensing Automatic Table for cutting Hollow Blocks, Face Blocks or Hollow Fire roofing. It will handle blocks 11 inches high by 12 inches wide, and will cut in multiples. It has belt delivery.



This Bensing Automatic Table has roller rack delivery and friction driving device. Can be built for any multiple, and will handle blocks 11 inches high by 13 inches wide.

Plymouth, Richland Co., Ohio

on, Ohio, Sales Agents

WINTER IS COMING

Then screening clay becomes more difficult. If you have the Perfect Clay Screen installed

Cold, Wet Weather

will not affect your capacity or the quality of your product.

The Perfect Clay Screen

relieves all screen worry. Now is the time to equip your plant and be assured of full capacity during the period which usually means decreased output on account of inability to screen your clay. We Guarantee Results.

Let us ship you one on trial.

DUNLAP MFG. CO., Bloomington, Ill.



Two-Way Dump Car No. 241



Single Deck Dryer Car No. 133

LAKEWOOD LINE

"Lakewood" Soft Mud Rack Cars.
 "Lakewood" Single Deck Dryer Cars.
 "Lakewood" Double Deck Dryer Cars.
 "Lakewood" Three Deck Dryer Cars.
 "Lakewood" Flat Cars
 "Lakewood" Turntables.
 "Lakewood" Transfers.
 "Lakewood" Portable Track.
 "Lakewood" Dump Buckets.
 "Lakewood" Clay Cars.
 "Lakewood" Kiln Bids.
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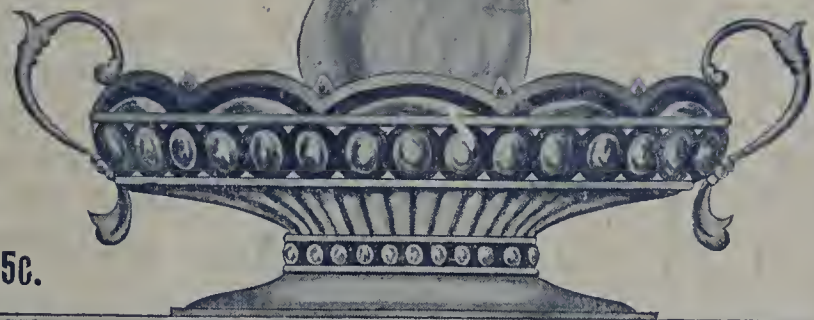
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INDIANAPOLIS

OCTOBER, 1911

Subscription, Yearly, \$2.00. Single Copy, 25c.

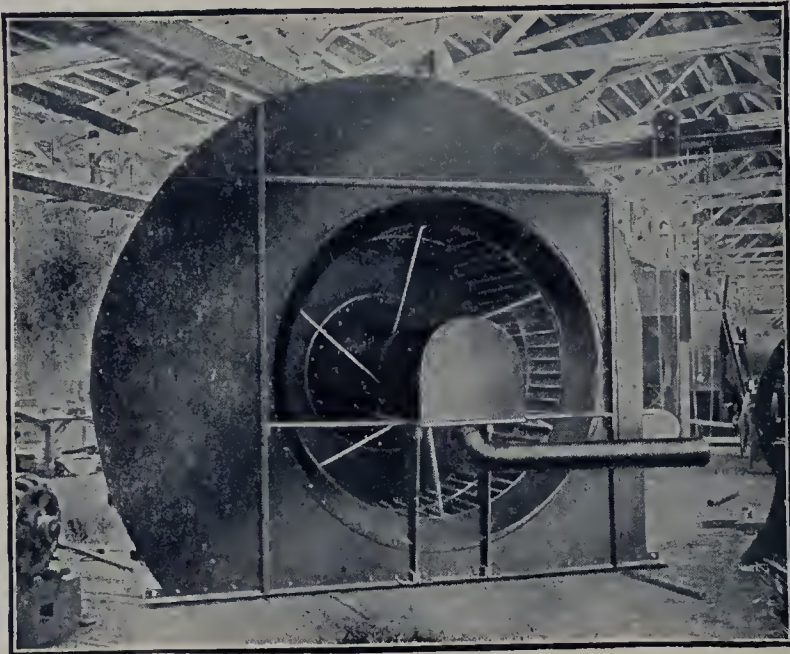


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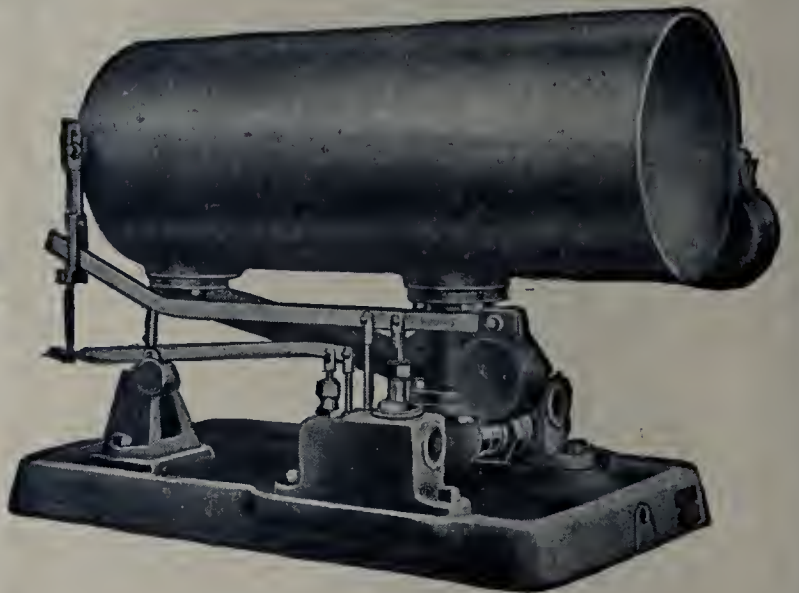
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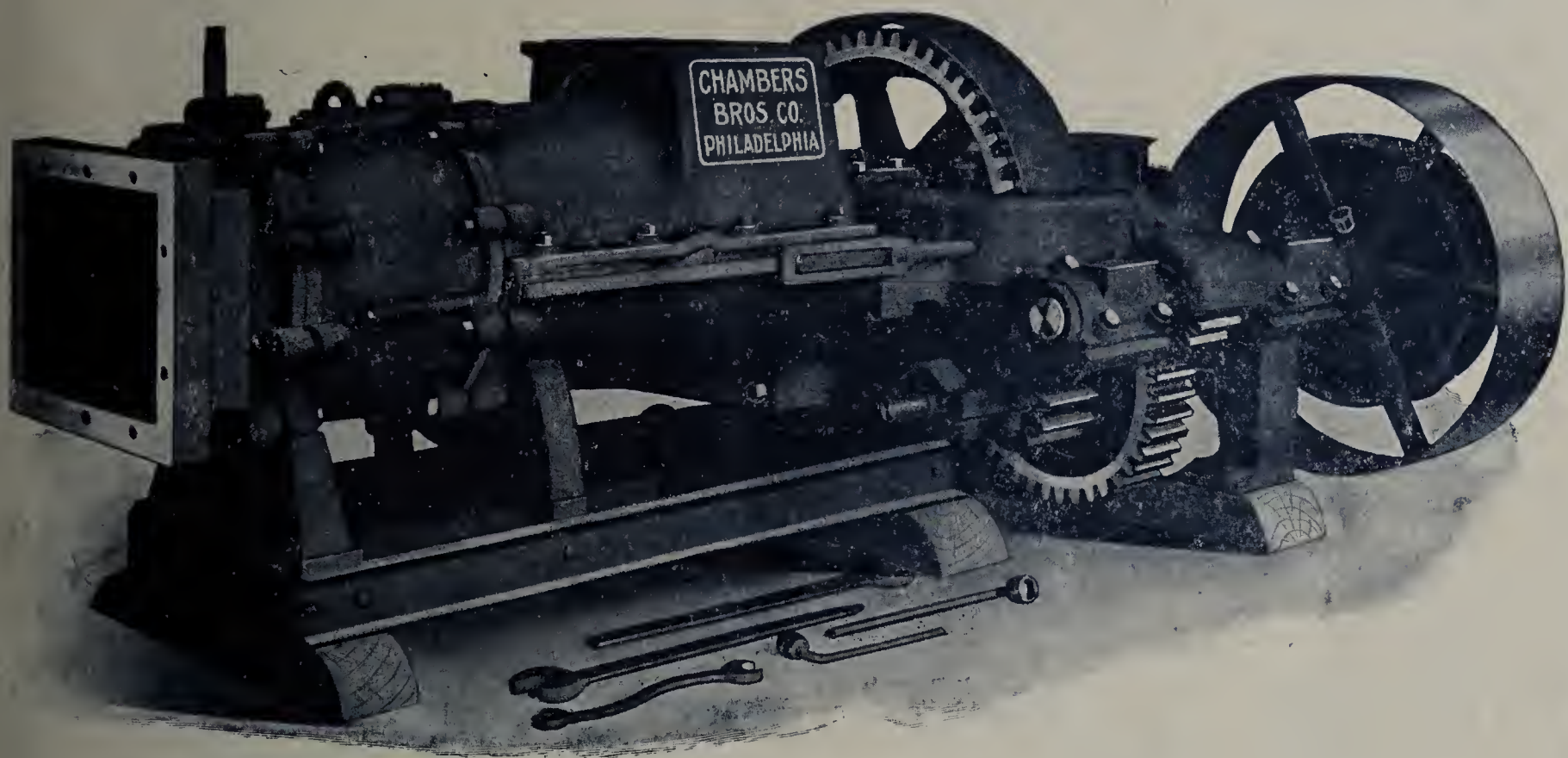


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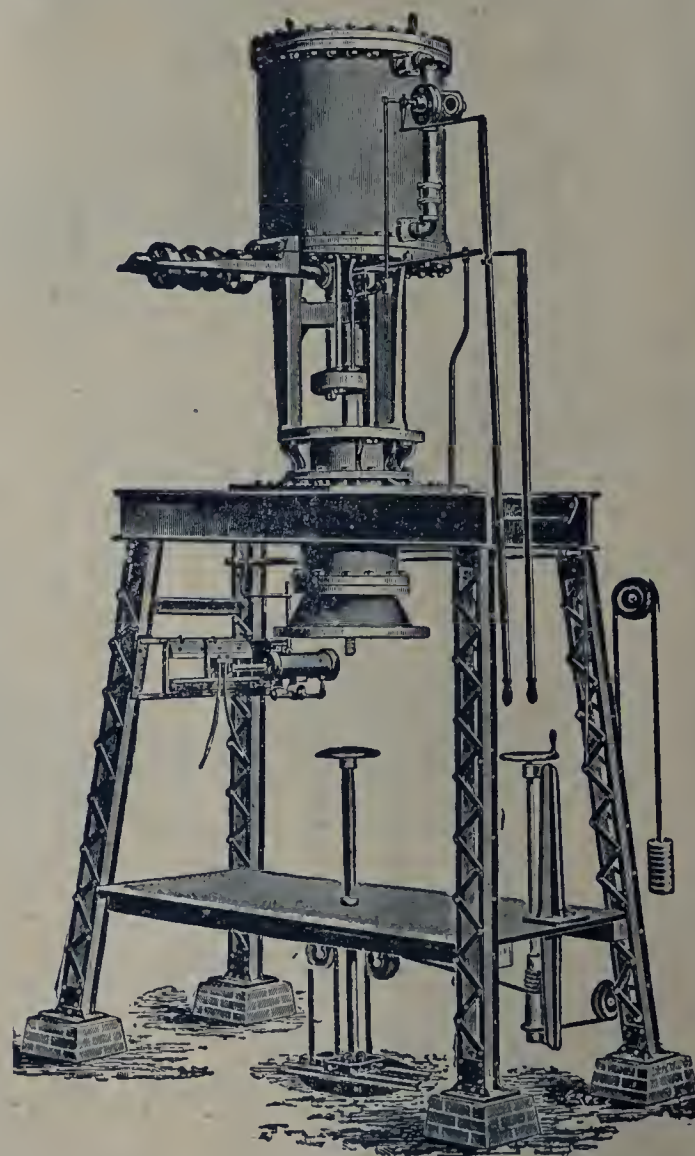
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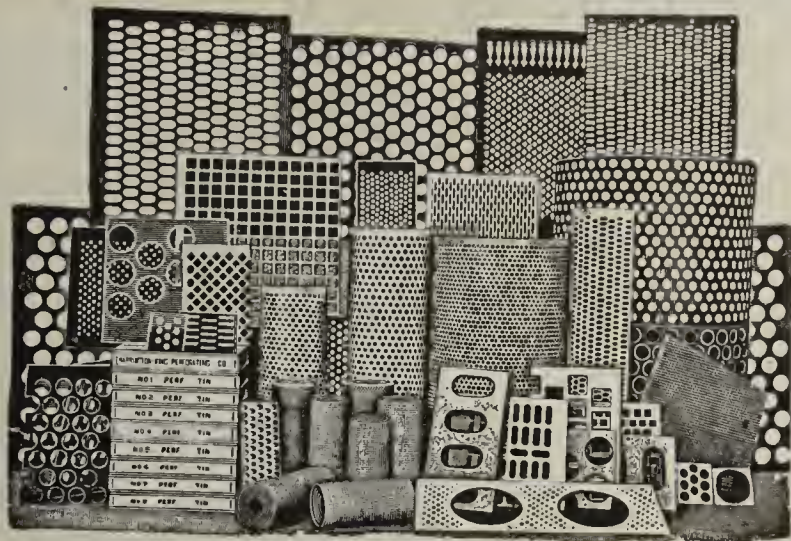
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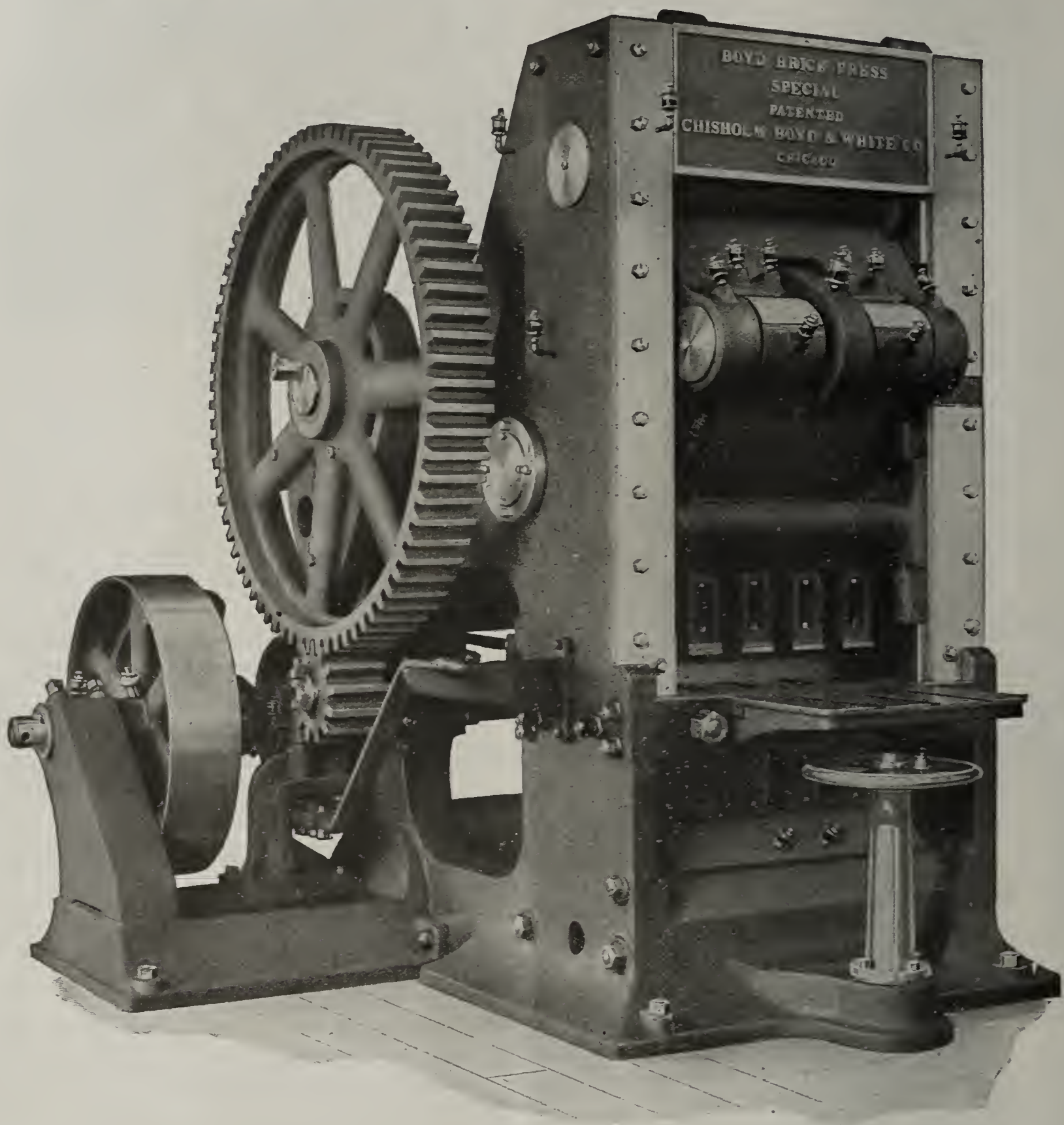
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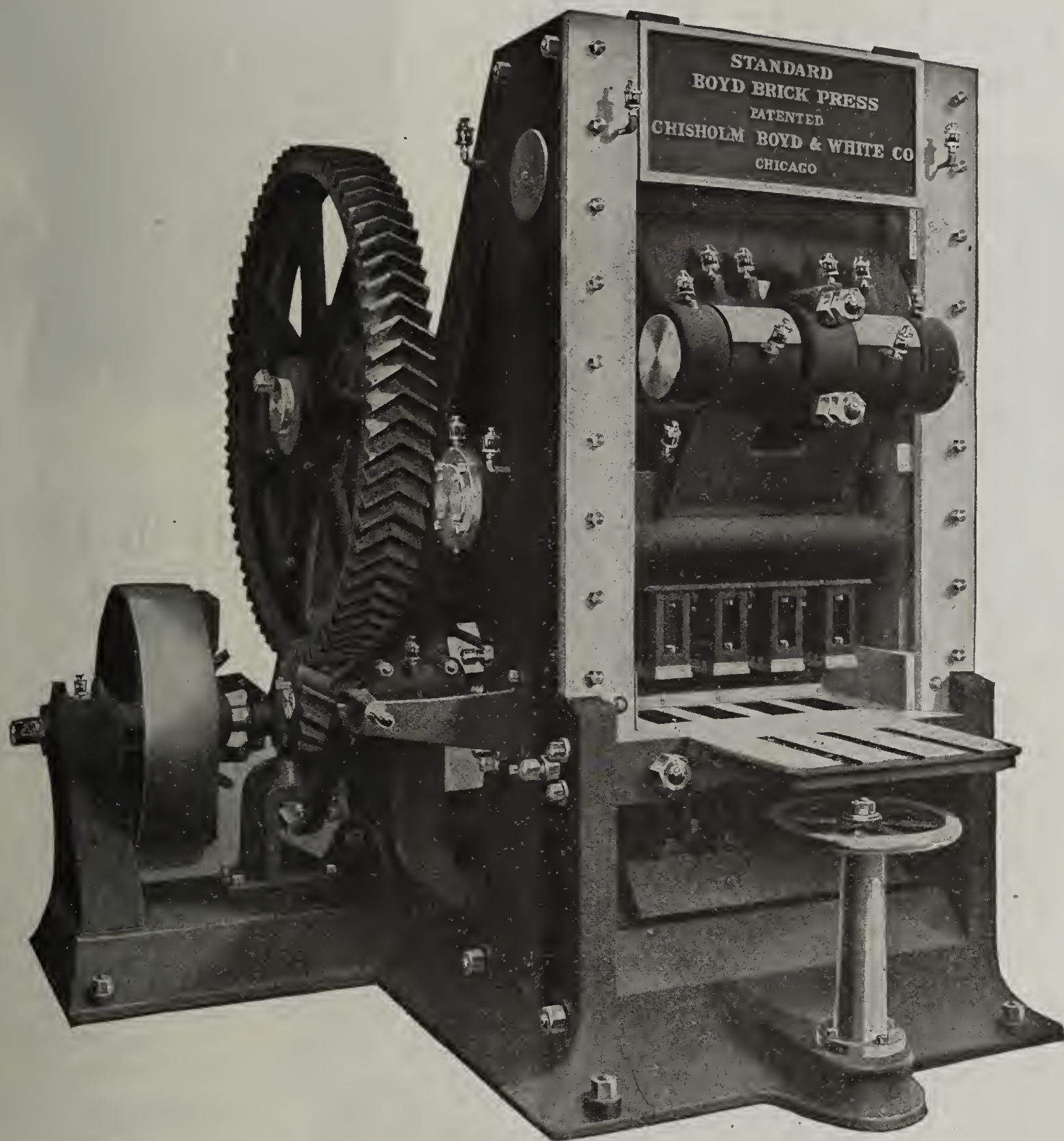
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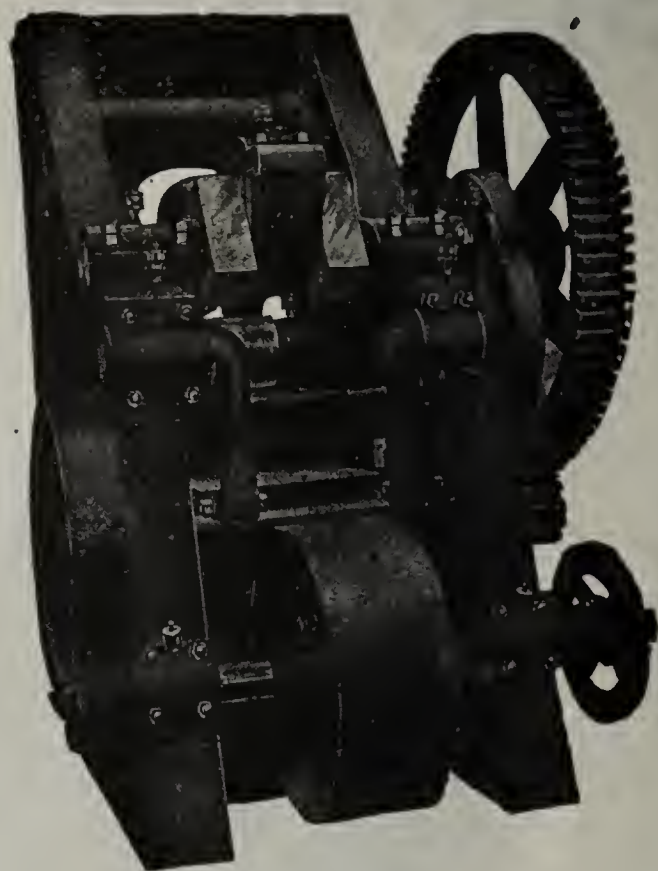
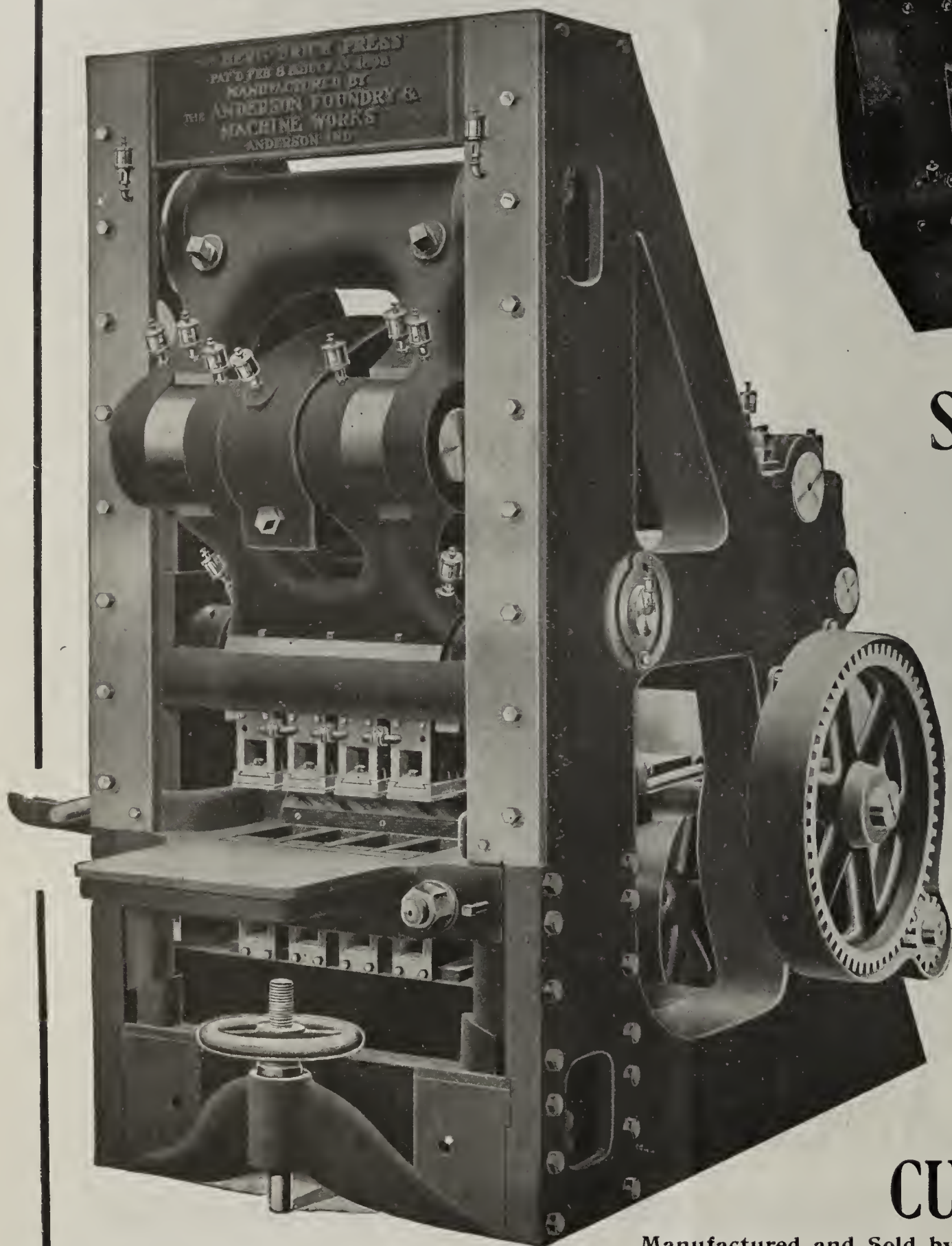
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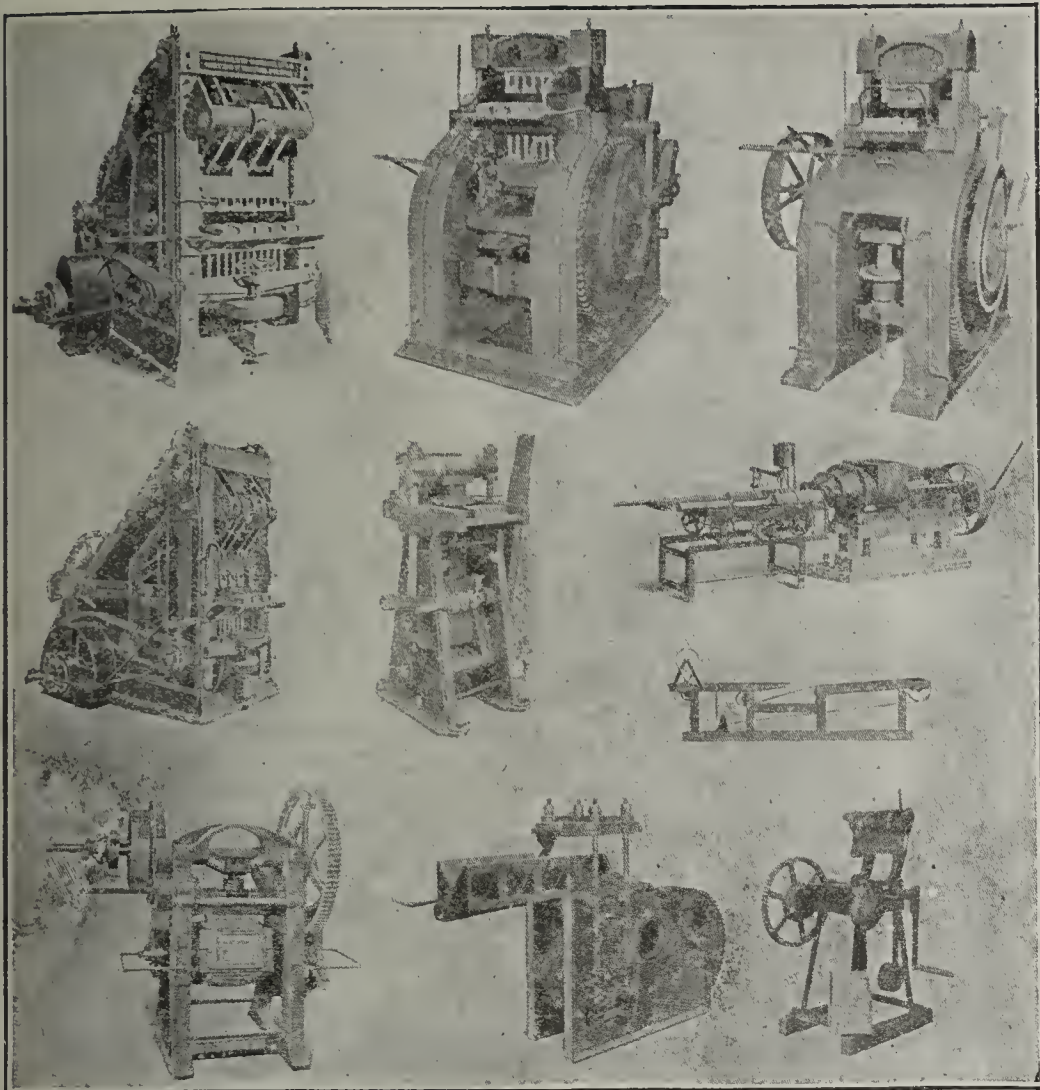
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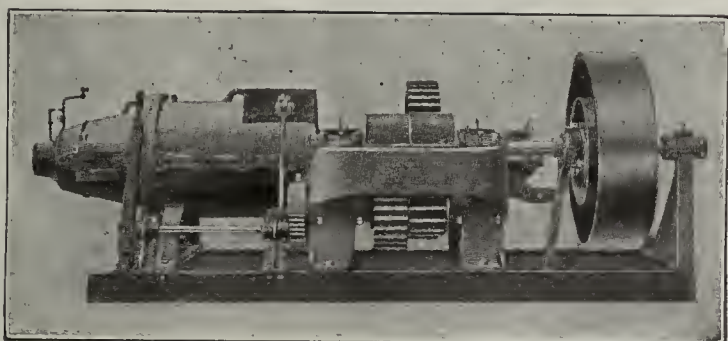
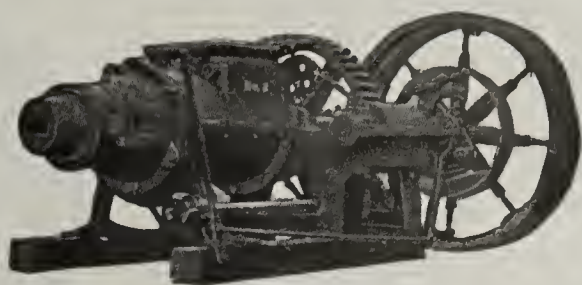
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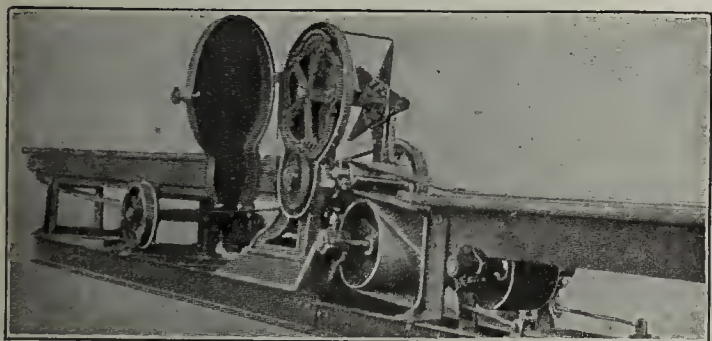
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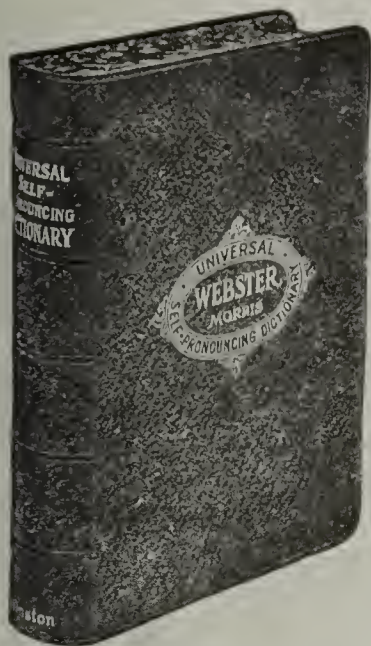
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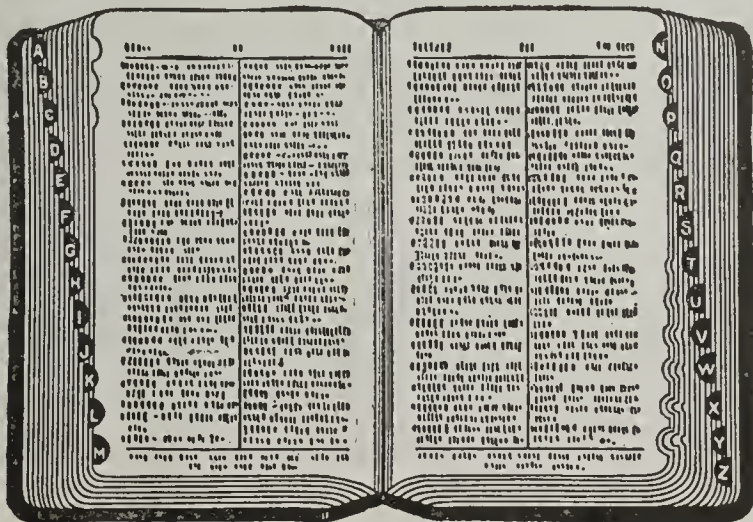
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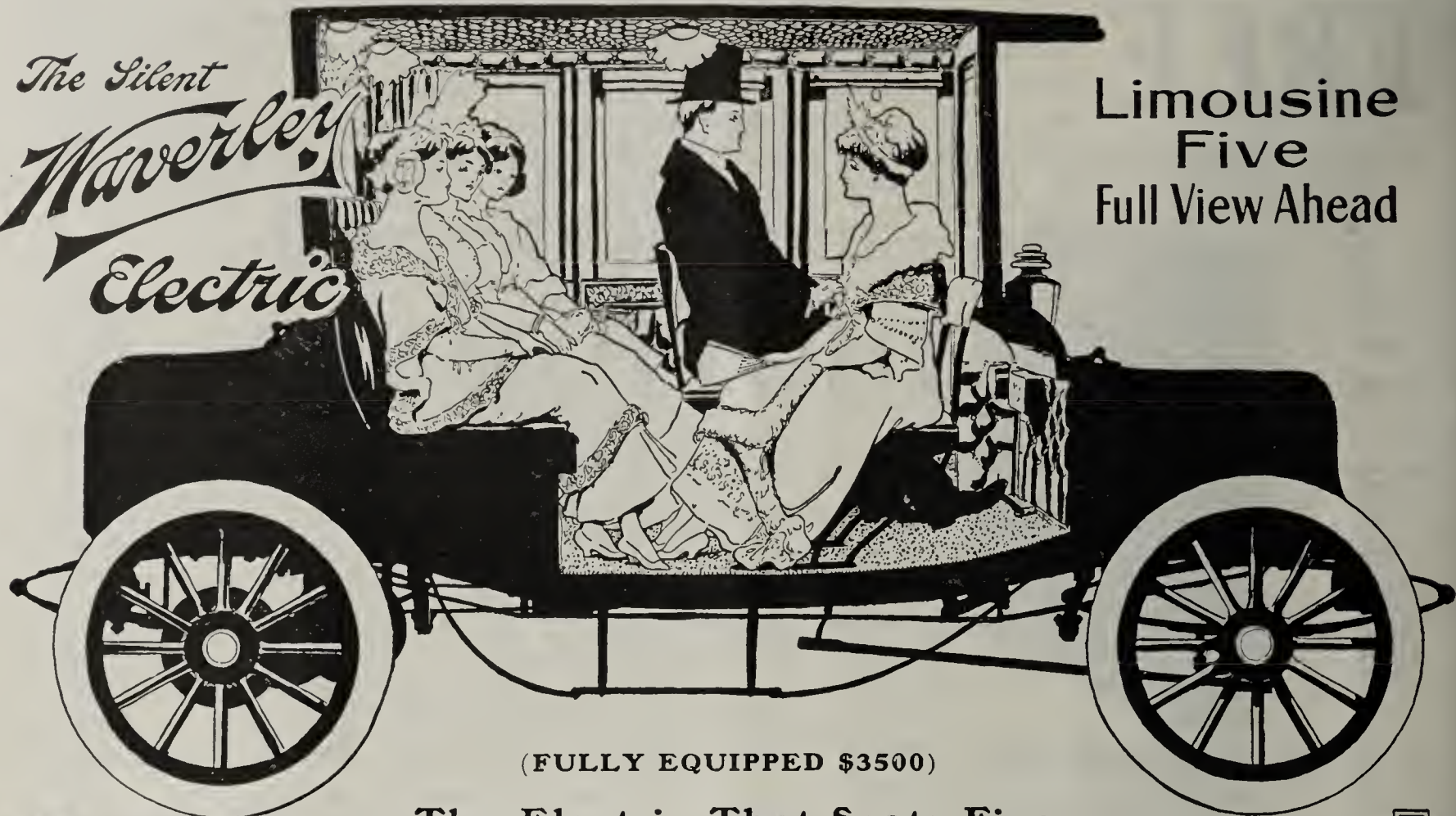
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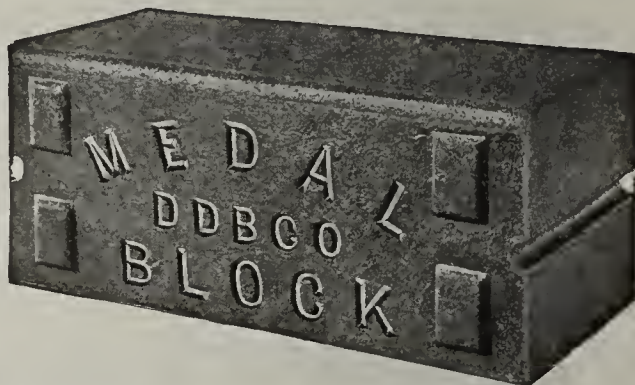
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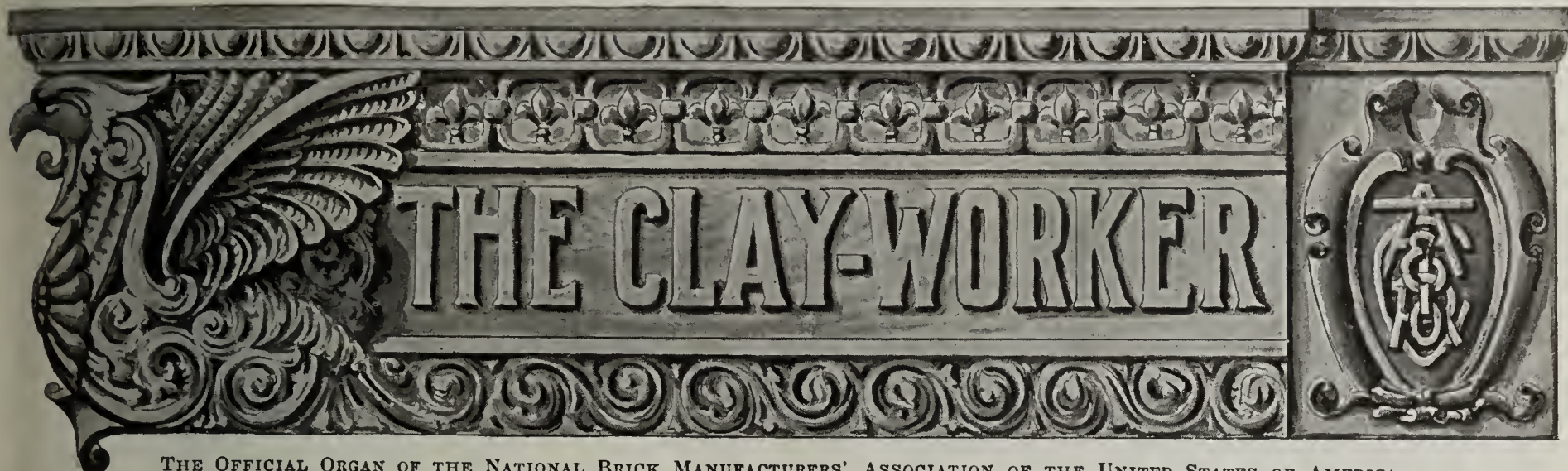
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Stripped of every hallowed association and robbed of all historic interest, the pile would still be a notable structure because of its construction and design.

Clayworkers, already interested in all things having to do with bricks and mortar, will study with the alertness of experts, every detail of the brick masonry in the edifice; they will note the sharp edges of the bricks and will surely marvel at their superb condition after these 180 odd years in situ.

The legal name of the building is "State House," and not Independence Hall, as geographers and historians persist in publishing. The original building cost something under

\$28,000, as proved by vouchers preserved among the personal papers of Andrew Hamilton, one of the three building commissioners charged with the responsibility of overseeing the contract. The cellar was begun in 1729 and many rare and curious relics were unearthed by the excavators. They found a keg of spear heads of curious design and exquisite workmanship; bomb shells, undoubtedly imported from Great Britain, and to this day, one of these is imbedded in the south wall, where a bricklayer with a sense of humor placed it after making sure that it contained no explosive.

The bricks for this building were made by Benjamin Fairman and James Stoops, and the \$4,000,000 one-story building now occupied by the Girard Trust Company marks the spot from whence the brick-clay was taken. Tysons kiln furnished the lime and a huge apartment house now covers the lot once known as Tyson's kiln.

Benjamin Fairman also made the clay tiles used for the interior pavement and all existing literature suggests that the making of clay tile in Philadelphia at that time was a most notable performance. These tile are still in evidence, but the pavement in front of the building, the first street paving put down in the Colonies, was covered with clay to deaden the noise of passing carriages, which noise, in turn, disturbed Ben Franklin, Dr. Rush, and the other savants who met thereabouts daily.

All the bricks in and about the edifice were laid by Thomas Boude, his journeymen and apprentices. It is significant to note that these three men, Benjamin Fairman, James Stoops, and Thomas Boude, were entrusted with their share in the work because of their high personal character and exceptional skill "in their several arts and trades." As the hall stands today,



Facade of Independence Hall, Barry Monument in Foreground, Recently Photographed for The Clay-Worker.

none would suspect that it has weathered the storms and wars of one hundred and eighty-two years; that there is no record of any part of its brick structure having been rebuilt except in the process of restoration and, in this connection, it must be said that the new brick used in the restoration shows to no advantage whatever over the old, and, too, it must be known that in the restoration old brick was used

block to its original condition as nearly as possible, and ever since it has been a museum of American history.

Franklin M. Harris, one of the best judges of masonry in America, asserts that there can be nowhere found an example of perfect bricklaying excelling the work in the old State House. He claims that the artisans who put those bricks in place knew all there was to know about bricklay-



Main Entrance Independence Hall, Showing Details of Construction, Recently Photographed for The Clay-Worker.

whenever and wherever it could be, and high prices were paid for all such brick.

Perhaps it should be explained that the old building had been remodeled in parts for use as a city hall by the local authorities prior to the completion of the great city hall now in use, and that after it was vacated by the officials competent men and women were employed to restore the whole

ing, and that the present superb condition of the building is due entirely to the quality of brick used and the exceptional skill of the masons on the job.

Under the care of the Bureau of City Property the State House is kept in perfect repair at all times. Bricklayers are constantly looking for defects and repairs are made instantly when necessary, but the exact truth is, that the

bricklayer assigned to the old State House might as well have no hands for all the bricklaying he has to do.

To preserve the woodwork and masonry much attention is paid to the roofing and drainage. It follows then that the bricks are always free from rust stains and white markings.

The accompanying illustrations show the perfection of the work and the condition of the bricks better than any words can convey the facts.

SELLING PLAN MAKES CHANGES.

The new plan for selling brick promises to revolutionize the brick trade in all its aspects throughout New York dis-

quirements and peculiarities. The result was a mutual understanding which enabled them to do business upon a very satisfactory basis. Probably in the years which this market has been in existence it has exerted more influence upon the building material trade of the city than any other combination ever known. That would go along with the rest.

The effect of the new selling plan has not been altogether satisfactory so far. To be sure there has not been time since the middle of July, when it actually took effect, to get everything in connection with it regulated. The hopes of the promoters that prices would immediately go up when this plan was announced, has not been fulfilled. The range of quotations has remained about the same as before. Some



Windows of Independence Hall on Chestnut St. Facade, Showing Present State of Preservation.

trict when once it is in operation. As has been pointed out before, the famous brick market at Fifty-eighth street will be wiped out. This was the only one of its kind in the world and it was conducted much as the public markets for other classes of products elsewhere, and with one man in control of all the sales in the district. This institution is no longer necessary and must disappear. The famous building material exchange on Vesey street, which has been a recognized institution among purchasers of building material for many years, will have to go, too. The advantage of this market lay in the fact that builders and material men came in contact with each other and understood each others' re-

dealers have said winter prices still prevail on practically all the brick offered in the metropolitan district.

Assuming that this assertion is true, possibly some of the difficulty may be traced to the lack of demand. Building operations have been curtailed as compared with previous years, and sales have consequently been smaller than might have been reasonably expected. There seems to be no good reason why the plan can not be a success, but, like everything else in which large interests are involved, it may take time to get it into successful operation. In the meantime, manufacturers can assist by reducing their product wherever such a thing is possible.

Written for THE CLAY-WORKER.

FULLER'S EARTH.



WE FREQUENTLY receive samples of clay and are asked if they are fuller's earth.

Fuller's earth is one of our ceramic puzzles. It is not a mineral in the ordinary sense, but like clay is made up of a number of minerals, and it can not be identified by looks, feel, color, taste, streak, hardness, nor by chemical analysis.

We know what it does and how to test it, but we do not know what mineral in it, what physical properties, what chemical features, give it the peculiar properties which it possesses and to which it owes its value. It gets its name from the early use in fulling cloth—removing oil and grease stains. The later and by far most important use is that of clarifying oils, grease, etc.

One can best judge of the uncertainty of its mineralogical character from the definitions, or descriptions, found in the various text books.

From Williams' Manual of Lithology we find fuller's earth is: "A somewhat greasy, earthy and soft substance with greasy streak, with light shades of green and brown, that falls to mud on placing in water and is not plastic."

The only objections that we have to this definition is that some earths are not greasy, nor earthy, nor soft, nor have they a greasy streak, nor are they either green or brown, and finally they are highly plastic.

Dana describes fuller's earth as "gray to green in color, being in part kaolin and in part smectite." Smectite, it may be noted, is one of the many hydro-silicates of aluminum, to which kaolin belongs, differing in percentage composition. There is quite a list of hydro-aluminum-silicates derived from eruptive silicate rocks just as kaolin is derived from feldspar, and the chemical composition of the derivative is influenced by the mineralogical character of the parent rock. Many of these hydrous silicates have higher percentages of combined water than kaolin, and because the majority of fuller's earths have such higher percentages of combined water, it was but natural that the absorptive power of the earth should be ascribed to one of these rarer silicates, since kaolin did not possess the power. Some of the English earths from which the early descriptions originated, have a greenish color—"blue earths"—and since smectite is green, the source of Dana's description is not difficult to see. It is now well proven that smectite is not necessarily the feature of fuller's earth, and a green color is not descriptive, since we have yellow, gray, brown, and other colors as well as green.

Professor Rolfe in a recent Illinois bulletin defines fuller's earth as "A silty clay having little plasticity but carrying large amounts of combined water." Since we find small deposits of the earth in situ, the term "silty" does not apply, and as some earths are very plastic, the lack of plasticity is not descriptive except in individual cases.

The samples of earths which we have examined were plastic, and John T. Porter, in U. S. Bulletin No. 314, Economic Geology, says that the four samples which were examined by him were "most decidedly plastic," and the theory which he advances does not apply unless plasticity is a feature instead of non-plasticity.

S. W. McCallie, State Geologist of Georgia, in Bulletin No. 23, issued in 1910, describes the earth as "a clay-like mineral of various colors. The most common color is light cream or brownish gray. It differs from common clay in being porous, carrying high percentage of combined water as compared with alumina and in having but little or no plasticity." In Bulletin No. 18 of the same Survey we find that of the three earths tested, one developed fair plasticity, one low plasticity, and the third required "90 per cent. of water to de-

velop any plasticity." A comparison of a number of analyses of fuller's earths show that some have less combined water than kaolin, some the same amount and some a greater amount, the latter being the majority, but we must conclude that the higher percentage of combined water is a coincident rather than a factor.

There are many clay-like minerals with higher than the normal kaolin percentage of combined water which do not possess the absorptive power of fuller's earth.

Slaking in water—"falling to mud"—appears in several descriptions, and the samples examined by us had this property, which we hoped to save as a characteristic feature, but many kaolins also slake when placed in water.

Dr. Ries' description of the material leaves no room for criticism: "Fuller's earth is a peculiar type of clay which has a high absorptive power for many substances."

It is lithologically a clay made up of a mixture of hydrous alumina silicates together with more or less detrital minerals as are commonly found in clays. As the mixture varies, so will the physical properties vary, and also the chemical composition, and any description based upon these properties is faulty.

It is simply a clay-like material which possesses absorptive power in sufficient degree to make it commercially valuable for clarifying purposes. Many clays, perhaps all clays if our means of detections were sufficiently delicate, will be found to possess the absorptive power in some degree, but only when the absorptive power is in sufficient magnitude for commercial work may the material be classed as fuller's earth. The only test, then, is that of degree of absorption with the accompanying bleaching.

Several authorities claim that the absorption (bleaching) is a physical property—an entanglement of the colorific salts in the pores of the clay, but it may be very properly questioned whether the bleaching effect is not due to both chemical and physical conditions.

One eminent authority said that all vinegars could be clarified by fuller's earths, but all fuller's earths would not clarify vinegar. There appears to be a selective chemical action. One earth will rank another in bleaching a certain substance, but with a different substance the rank of the two substances may be reversed. This should be considered in any tests to determine the value of the earth. Any material being tested should be tested against earths of known market value, and its value will be greater or less than the market earths in proportion as its bleaching power is greater or less, other things being taken into consideration.

Professor Rolfe gives a simple test of putting oil in a glass of water and dropping in a lump of earth and stirring. The earth will absorb the oil. Such a test may be of assistance in the field, as well as slaking, degree of plasticity, water required to develop plasticity, etc., but they are not conclusive. The slaking which we have observed differs from ordinary disintegration in water, in that it is flocculent. Clays which show any of these peculiarities are worthy of laboratory investigation. The conclusive test as previously mentioned is that of bleaching power, but in addition to this, since the oil must be separated from the earth, the latter must filter readily, and also since edible oils are prepared for the market in this way, the earth must not impart an unpleasant taste or odor to the oil.

C. L. Parsons, in Journal American Chemical Society, adds to the above that the earth must not absorb more oil than a standard earth, that the cakes from the filter press must not be inflammable, and the oil treated must not return to its original color.

Numerous theories have been advanced to explain the bleaching power of fuller's earth but none of them fully satisfy the conditions nor explain the phenomenon. Dana's theory that bleaching power was due to the presence of a rare hydrous alumina silicate has been abandoned, and Dr.

Ries theory that it was due to the presence of hydrous silica is not maintained.

There is a leaning toward a purely mechanical theory, in effect that the colored salts are mechanically retained by the pores of the earth, but in view of the erratic behavior of different earths on different substances, and in view of the fact as indicated by Parsons that there may be a reversion of the oil to the original color, and that taste and odor may be imparted to the oil, it seems to us that we must also recognize a chemical effect. Reversion can only be explained by an interchange of bases or salts. Such an interchange could easily destroy a colored salt and substitute a colorless one, or the substitute salt might also be colored or become colored in time by reactions with the acids in the oil and the influence of light.

We know that bleaching will continue long after the oil is removed from the earth, and this can only be explained by chemical conditions introduced into the oil by the earth. Changes in odor and taste may also involve chemical change.

Porter ably advocates the colloid theory as explaining the phenomenon of fuller's earth, but he adds the statement that "the non-existence of plasticity in fuller's earth would be a stumbling block to my theory." That fuller's earths are not necessarily plastic is beyond question. If we had no other evidence than that of the Georgia Survey it would be sufficient, but several investigators report the non-plastic character of some earths. We have become accustomed to consider colloids as concomitant to plasticity, and if they are so, Porter's theory can not be maintained.

H. E. Ashley accepts the colloid theory for fuller's earth and says that the colloids may be dissolved and separated from the earth, thus making a concentrated earth if we may so designate the dissolved colloids.

There are three colloidal conditions: A soluble colloid, a coagulated colloid and a set or permanent colloid. The first can be changed into the second, and vice versa, by the addition of proper chemicals, and by such juggling we may make both bleaching effect and plasticity attributes of colloids, and yet neither will be a measure of the other. Since, however, one colloid can be changed into the other, and thus bleaching effect and plasticity become measures of each other, we are skeptical of the possibility of bringing all fuller's earths of equal bleaching power to an equal degree of plasticity. We are aware that chemical conditions of colloids permit further juggling, that acid colloids may be more slippery and less absorptive than alkaline colloids, or vice versa, but acid colloids can be converted into alkaline colloids, and thus all earths become of equal plasticity and alike. We are not convinced that this is possible.

Ashley further states that if the body is not sufficiently porous, it may be made so by heat treatment, converting the soluble colloids into set colloids—"mineral charcoal" is the term he uses—which retains the colloidal structure but no other features.

After all, this brings us back simply to a large surface, and we do not need to confuse it with the term "colloid."

We know that every surface has the power of absorbing substances in some degree, and also has the power of dissociation. Given a mass with an immense number of minute pores, a spongelike mass, a micellean structure, call it colloidal if you wish, and we have the physical conditions for a fuller's earth. A certain amount of every salt is required to saturate the surfaces or walls of the pores, and these are called absorbed salts. The colorific in any oil, which is a salt of some kind, will be absorbed by the walls of the pores until the latter are fully saturated. It requires no stretch of imagination to believe that Nature in the disintegration of rocks will in one instance give a resultant mass made up of an infinite number of thin walls, a highly porous mass, and in another instance a limited number of larger grains inclosing fewer larger pores. We do not know the shape of molecules but may they not be as varied in

shape as the masses they make up? Witness the massive cube of galena and the thread-like filament of asbestos. Nature may easily provide the physical structure for fuller's earth.

Surface alone is insufficient. It is probably already saturated with absorbed salt of some kind incident to the clay. This salt may satisfy the absorbent affinity of the wall surface for a certain colorific in the substance to be bleached, and a test of the clay would rule it out as a fuller's earth, but if the absorbed salt does not satisfy the wall surface, then the colorific salt will be absorbed until saturation of the wall surface is complete, and bleaching results. Or it may be a chemical reaction between the absorbed salt in the earth and the colorific salt in the oil, giving to each a different salt and to the oil a salt which may be colorless and subsequently become colored, or which may be colored and subsequently become colorless, through the reactions with the acids in the oil, or through the influence of light.

Such interchange between the salts in the earth and in the oil will explain the selective action of fuller's earths, and their erratic behavior. The treatment of the earth with acids, alkalies, and heat, would affect the absorbent power in just such degree as it changed the physical structure, or modified the chemical character of the absorbed salts.

The conditions for fuller's earth, it seems to us, are both physical and chemical. Physically it is a minutely porous body, and chemically it has such absorbed salts on the wall surfaces of the pores as will assist in the bleaching action.

We have quoted several descriptions from well-known authorities on the subject, and in conclusion wish to quote the description from a well-known handbook of minerals, omitting the author's name:

"A very fine grained, white earth resembling chalk, but harsher to the touch and capable of scratching glass when rubbed upon it. It is composed of the silicious remains of very minute plants or animals and is either loose or moderately compacted."

With such descriptions to guide us, the wonder is that we have ever discovered any beds of fuller's earth.

CAREY P. ELLIS.

MAKE LARGER TILE.

HERE is an increasing demand for large tile. The manager of one of the largest factories recently said that there is an unsupplied demand for large tile. He referred more particularly to those sizes used in public or drainage district work where tile twelve and fifteen inches and larger are required.

Drainage engineers are finding many lines where they would like to use the twenty-four to thirty-six-inch tile and larger but can not be sure of getting the tile when wanted. This deficiency in the supply of large clay tile has led to the manufacture and use of cement tile in many places where clay tile would have been used could they have been obtained. Thus, because the clay tile manufacturers failed to "rise to the occasion" and supply the demand—failed to occupy the field—competition was invited and tempted to come in and did embrace the opportunity and divided the business that might have been held by the clay interests had they foreseen and been aggressive enough to hold the market.

The older and smaller tile factories have an increasing demand for larger tile. When the first tiling was done few large tile were used because tilemakers were not able to make them on the machines then in use and because the cost prevented land owners from using large sizes, and because those who did early work in drainage did not realize the need of large drains, nor the future requirements when thorough drainage would be practiced.

Now that these conditions have all been improved and better and more thorough work is being done, large tile are called for. Large tile can be sold at a fair profit and many would be sold if it was known that they were on the market ready for use. Many manufacturers are having inquiries for large tile that they can not supply, and are advising farmers to use two lines of smaller tile instead.

Written for THE CLAY-WORKER.

KNOW YOUR BUSINESS.



ARE YOU attending to your own business? Do you know your own business? The man who does not study and know every detail of his business is either lazy or not wise. Do you know how much your brick or tile cost you? If you do not, how can you know at what price to sell them? Are you getting your clay in as cheaply as it could be done? If not you are not giving yourself good service. If you found a man in your employ who was not giving you good service, you would discharge him. If you do not give yourself good service, competition and creditors will discharge you sooner or later. Are you keeping your machinery in good order and getting the best possible results from it? If not you are neglecting your duty to yourself and neglect deserves punishment.

Are your dry houses all right? Do they do their duty by

the machine room, the dryer and the kilns, how much your finished goods cost per 1,000? If you do not know this you can not know what price you can afford to sell them for.

Do you run on without keeping books; paying bills when they come due or borrowing money if you do not sell enough goods or have money enough on hand when the bills come in, never knowing just how you will come through at the end of the year? Those who do business that way can not be sure whether they are doing well or not.

As to selling prices—some tile-makers say that the prices are fixed by the other fellows and they have to meet them. Unfortunately, tile prices are not fixed as the fixed stars are fixed; that is, they do not stay fixed away up high, but the prices are apt to be like shooting stars or falling stars—they come down very fast sometimes. When a little lull in sales comes some makers get scared for fear they will not sell their stock and when a customer comes they need his cash so badly or fear to lose his patronage and allow him to beat prices down. Competitors are soon told by shrewd buyers of the cut in prices and the result is a gen-



Ninth Street, Near Public Square, Anderson, Ind., Paved in 1892. No Cost for Repairs in the Meantime.

the ware on its way from the clay bank to the market? Could you make an improvement here or a change there that would result in more and better dried ware? If you could you should do it so that you will know that you are faithfully doing your part.

Are your methods of handling the ware from machine through dryers and kilns to market the best for your particular case? If not, you had better abandon your present methods and install those that will give you the best results for the least money.

Have you studied your kilns and looked them over carefully and repeatedly so that you know just what they are doing for you? If you will put your mind on them you can easily know what they are doing for you and discover wherein they are failing to work for you faithfully and advantageously.

Do you know how much per ton or yard or thousand it costs you to get in your clay; how much to get it through

eral decline in prices.

Some cut prices "to keep the factory running," forgetting that the thing to be desired is not to keep the factory running but to make money by running it. If a manufacturer knows what his goods cost him he knows just how low he can sell and when it is time to shut down to avoid running at a loss. You do not do business for fun, or charity or "to keep the factory running," but to make money, and when the business fails to make money it is time to change the methods of business or go out of business. Business is business. And finally—

If you have business
With a man of business,
State your business,
Transact your business,
Go about your business
So the man of business
May attend to his business.

THE SPLENDID BRICK PAVED STREETS OF ANDERSON, IND.

**A Fine Record for Durability That Has Convinced Taxpayers of the Superiority of Brick
—Good Pavements After Twenty Years of Use Without Repairs.**

GOOD, CLEAN, well paved streets are a valuable asset to any city. When such streets are permanent in character, they are a source of unending gratification to the taxpayers who pay for them, and a constant comfort to those who use them. Whether the traffic be light or heavy, a smooth, clean street is a benefit to every citizen, not alone from a sanitary point of view, but as well for the influence it has on all who live near or travel over it. Like begets like, the world over. A clean street means tidy homes, well kept lawns, etc., etc.

These facts are exemplified in the thrifty city of Anderson, one of Indiana's chief industrial centers. Some years ago

but it proved erroneous. Anderson has not gone backward, but has continued to grow and prosper, as a good, substantial Hoosier city should. Today, she has a population of 30,000 well-to-do, self-respecting people for whom the best in every department in municipal and social life is none too good. Having enjoyed good sanitary streets for nearly twenty years they demand more of them, and so each year several additional miles of brick streets are laid. Most of the main thoroughfares of the city are paved with brick and this past summer a brick pavement was extended beyond the city limits on one of the country highways. This is proving so satisfactory to those who travel over it that it is well-



Fourteenth and Lincoln Streets, Manual Training High School to the Left.

Anderson went through a "boom" period due to the discovery of natural gas and oil in great quantities in that vicinity. At first it was thought that the supply of these fuels was utterly inexhaustible. Great glass works and similar industries, to which cheap fuel is a necessity, were established in the vicinity and in a comparatively short time the city's population doubled. With the use of gas and the consequent freedom from the dirt and grime of soot and smoke, tidy habits were acquired. Clean streets were demanded, and the main thoroughfares of Anderson were paved with brick, luckily for the taxpayers, as our readers may see and judge from the accompanying views of a few of them.

As is usually the case, the supply of natural gas gave out after a decade or so. Since then, the large plants have been compelled to return to coal as a fuel, and some there were who prophesied that Anderson and the adjoining towns would lose many of their manufacturing industries and become "back numbers." Perhaps this was a natural supposition,

high certain the good work will go on until permanent brick paved highways join Anderson to the towns about her on all sides.

We are pleased to include among our illustrations two views of the brick paved country highway, being the extension of Pendleton avenue. It was paved early in 1911 with Metropolitan block from Canton, Ohio. The pavement is thirty-two feet in width, has a six-inch concrete foundation, with a two-inch cushion and a one-inch pitch filled expansion joint at the curb. A cement filler completes the job and constitutes a first-class pavement, which in all probability, regardless of the traffic that may pass over it, will prove a good pavement twenty or thirty years hence, with no expense at all for repairs in the meantime. No other paving material can match such a brick-paved roadway for smoothness, cleanliness and durability.

Our first illustration presents a view of Ninth street near the Public Square, a glimpse of the court house, a large red



Pendleton Pike at the End of the Brick Paved Roadway, a Mile from the City Limits.

brick building capped by the figure of Justice, appearing on the left. The pavement is an object lesson in permanent street improvement. It was laid in 1892 and has been subject to quite heavy traffic ever since; nevertheless, it is now, after nineteen years' use, a good, smooth street. It was paved with Canton brick of the size in common use twenty years ago, and though a sand filler was used, the edges of the brick are worn but little. Where in all the country is there a wooden block or asphalt street that can compare with this street, which has been subject to no repairs whatever.

The view taken at Fourteenth and Lincoln streets tells of Anderson's thrift, not alone in the brick street, which was paved with Brazil block in 1902, but as well in the splendid brick school buildings shown in the background. These were constructed during the past year of dark brown vitrified brick and are model structures for the purpose.

Anderson has a number of fine residential streets, which

are paved with brick. We give a view of one of the best of them, West Eighth street, which was paved in 1893. This, too, was paved with small Metropolitan brick, and though laid on a gravel foundation, without expansion joint, and with a sand filler, it is now in excellent condition after eighteen years of use. No repairs have been required in all that time.

Our final illustration is that of Jackson street, paved in 1901. It is of particular interest to our readers in that in the background may be seen the factory of the Anderson Foundry and Machine Company, manufacturers of soft mud and dry press brick machinery, which has carried the fame of Anderson to every section of our own country and other countries as well. Though a small part of the view, W. N. Durbin, secretary of the Anderson Foundry and Machine Company, and his Packard touring car may be seen in the background of the picture. We are indebted to Mr. Durbin for a very pleasant ride over the brick streets of Anderson, during which the accompanying views were taken early in August, 1911.



West Eighth, a Fine Residential Street, Paved in 1893 on Gravel Foundation. An Excellent Pavement After Eighteen Years of Use, Without Repairs.



Pendleton Avenue, a Mile Stretch of Fine Brick Paved Roadway, Looking Toward the City.

THE IMPORTANCE OF PAVING SPECIFICATIONS.

THERE is nothing perhaps that has lately served to emphasize more the importance of paving brick specifications than the recent investigating wrangle in Detroit, where it is claimed brick paving is bad, and where it has been developed that it is bad mainly because it is laid without due regard for proper specifications.

The paving brick manufacturers have gone to great trouble and expense and conducted experiments lasting through many years to determine the best method of laying paving brick to secure satisfactory results. That this work has been well worth while has been demonstrated by the fact that without due regard for specifications, it is hard to get the satisfaction one should out of pavement. In this it matters not whether one uses brick, granite, asphalt, or wood block, unless some due regard is shown for approved methods of laying by following specifications, satisfactory results will not be obtained.

It brings forth this thought, too, that the establishing, by experiments, of a good comprehensible set of specifications for laying paving brick, and the getting of these specifications followed, are two different things.

It naturally follows, too, that the importance of specifications, or, rather, the value that is realized from them, depends on the extent to which they are followed.

They are not good to any city or to any person unless they are used, and now that the paving brick manufacturers have demonstrated, by experiment, the best methods for laying paving brick, there seems to be the further task before them of not only convincing city authorities of the importance of following specifications, but of seeing that they do it after they are convinced.

In some respects this is the hardest task of all. This getting people to understand and appreciate fully the importance of specifications and then to follow them. Sometimes the departure from them may be due to lack of proper regard for the importance. Again, it may be a case of false



Jackson Street, Paved in 1901, Photographed August, 1911. Factory of Anderson Foundry & Machine Works in the Background.

economy, and there are various influences at work it seems to keep people from readily entering into the matter of following closely specifications for doing street paving.

Then the pity of it is that when a street goes bad, there is a natural inclination to blame the material, to blame the brick instead of the method, and that is where it impresses one with the fact that it is incumbent on the paving brick manufacturers to keep hammering at this thing until they get the builders of streets to thoroughly understand and appreciate the importance of following specifications. It ought not be so. It is really no more a part of the brick

manufacturer's duty to follow his material and see that it is properly laid, than it is a part of the sawmill man's duty to follow his lumber and see that it is properly fitted and nailed into a building. But, the paving brick manufacturers, by taking the initiative, and doing the experimenting, have gotten themselves into the way of leading the procession in this work and it seems up to them to continue the good work and impress this importance of following specifications on all who contemplate street paving. As unfair as it may seem, they must continue and do it to save the reputation of their raw material.

THE EFFECT OF PRELIMINARY HEATING TREATMENT UPON THE DRYING OF CLAYS.

By A. V. BLEININGER.

Reprint from Bulletin of the Bureau of Standards, Vol. 7, No. 2.

VI. The Practical Effect of Preheating.

IN the experiments just described it has already been shown that preheating has decreased the drying shrinkage. From this it might fairly be assumed that clays should dry more easily in the preheated than in the raw condition.

Experimental proof of this fact was obtained by working

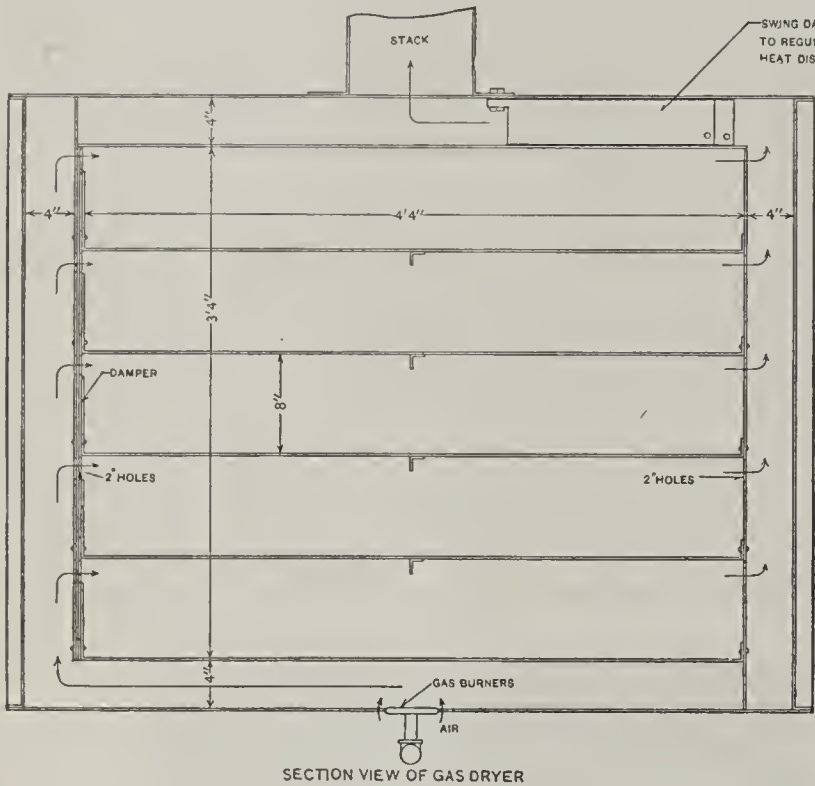


Figure 9. Diagram of Gas-Fired Drying Oven.

up batches of about five hundred pounds each of seven clays, both in the raw and in the preheated condition to the plastic state and putting them through an auger machine of commercial size. The clays were of the red burning type as employed in brickmaking, and were obtained from the following localities: Albert Lea, Minn.; Heron Lake, Minn.; Urbana, Ill.; Peoria, Ill.; Groveport, Ohio; Athens, Ohio, and a so-called swamp clay from Curtice, Ohio.

The clay samples were preheated in a specially constructed sheet-iron oven fired with gas (see Fig. 9), in which the heat distribution permitted of close regulation. This is accomplished by carrying the gases under the bottom plate up a collecting space on one side, from which they are distributed to each compartment. The admission of the heated air to each space is regulated by means of a grid sliding damper. At the exit sides of the oven the gases are again collected in a flue of the width of the oven and taken to the top, where they were removed through a central opening into the stack. In the double space on top through which

the gases are removed, two hinged dampers are provided for throwing the heat to either side to compensate for the radiation losses on the front and back sides of the oven. Through tubulatures thermometers are inserted for controlling the temperature. After proper damper adjustment was made it was possible to keep the temperature constant within several degrees, assuring an accuracy ample for the purpose of the work. The preheating temperature adopted was 250° C and the time of drying six hours.

The raw clays were tempered in a wet pan, while the

TABLE VI.
Percentage Drying Loss.

Clay	Per cent drying loss of test pieces made from raw clay	Per cent drying loss of test pieces made from preheated clay	Remarks
Albert Lea, Minn.	95	0	Repeated with clay preheated to 300° Repeated with clay preheated to 300° Repeated with clay preheated to 300°
Heron Lake, Minn.	0	0	
Urbana, Ill.....	90	0	
Peoria, Ill.....	95	0	
Groveport, Ohio..	100	0	
Athens, Ohio.....	100	0	
Curtice Ohio.....	100	0	

preheated materials were ground dry, screened through a piano-wire screen, and then made plastic in the pan. After tempering, the clay was taken to the auger machine and pressed through a non-lubricating die into a round column 3½ inches in diameter. The cylindrical bar was cut up into discs 1½ inches thick, which were dried and their volume shrinkage noted. It was found in this connection that while the working behavior of two clays was decidedly improved by preheating, the others showed the need of lubrication, which it was impossible to provide. The result was that the test specimens were produced under conditions of strain.

In drying, it was found that one material, the clay from Heron Lake, Minn., cracked neither in the raw nor the preheated condition. Of the remaining six clays, in every case the discs made from raw clay cracked more or less badly, while those made from the preheated clay did not crack at all. The drying losses are compiled in Table VI. The number of test specimens made varied from 60 to 100, and for this reason the percentages expressing the drying losses are not of equal value.

It was observed especially on two preheated clays, the ones from Peoria and Groveport, that drier efflorescence was quite marked. From this it would appear that preheat-

ing releases the soluble salts such as the sulphates of potash, soda, lime, and magnesia contained in the clay, which, on the evaporation of the water, are carried to the surface and give rise to the discoloration commonly known as "white wash." The absorbing power of clay thus seems to be diminished by this treatment, and in some clays the resulting discoloration might prohibit their use for the manufacture of face brick and similar products. It was evident, however, that this effect varied with the character of the clay, its physical structure, and its content of soluble salts, and hence can not be considered a necessary result in every case.

7. The Cause of the Improvement in the Drying Behavior Due to Preheating.

It has thus been shown beyond doubt that the drying of excessively plastic clays is facilitated by preheating, that evidently the resistance to the capillary flow has been decreased so that the difference between the amount of water evaporated from the surface per unit time and that supplied from the interior of the clay mass is no longer great enough to cause strains which lead to checking.

There remains now the task of determining the cause of this improved condition.

This part of the problem was attacked by means of the following methods: 1. Determination of the specific gravity of the clays preheated to different temperatures. 2. Me-

TABLE VII.
Specific Gravity of Clays.

No. Clay.	Normal	150°	200°	250°	300°	350°	400°
1	2.451	2.456	2.630	2.603	2.603	2.657	2.621
2	2.537	2.548	2.636	2.612	2.609	2.644	2.647
3	2.577	2.591	2.600	2.600	2.590	2.593	2.590
4	2.596	2.589	2.646	2.629	2.629	2.664	2.664
5	2.560	2.560	2.550	2.605	2.601	2.600	2.600
6	2.510	2.512	2.562	2.545	2.556	2.580	2.573
7	2.510	2.490	2.648	2.638	2.627	2.653	2.665
8	2.603	2.621	2.653	2.650	2.655	2.692	2.696
9	2.784	2.741	2.728	2.725	2.721	2.747	2.751
10	2.746	2.560	2.605	2.639	2.638	2.637	2.644
11	2.575	2.587	2.649	2.650	2.645	2.676	2.697
12	2.680	2.707	2.709	2.729	2.769	2.732	2.696
13	2.768	2.739	2.701	2.761	2.820	2.825	2.773
14	2.645	2.666	2.684	2.712	2.662	2.743	2.708

chanical analysis of the normal and preheated clays. 3. Determination of the absorbing power of normal and preheated clays from malachite green in solution. 4. Determination of the distribution of shrinkage and pore water.

Specific Gravity: In these experiments a pat of plastic consistency weighing about a pound was made up at the different temperatures. The preheating was done in the small drying ovens referred to above. The preheated specimens were then crushed and passed through a 60-mesh sieve. By means of the pycnometer the specific gravity of each sample was determined, care having been taken to eliminate the inclosed air by connecting up the specific gravity bottle to a suction pump and heating in warm water up to the boiling point. Ample time was allowed for cooling in running water and the final temperature of the liquid in the pycnometer was taken into account. It was found that the specific gravity of the clays differed even in the same lump, and it proved difficult to bring about the desired homogeneity of the sample. The results of these determinations are given in Table VII. Though the irregularity in the results is evident, it is seen that all but one clay show a noticeable increase in specific gravity due to preheating which must be ascribed in part to the expulsion of the small quantity of hygroscopic water held so persistently and in part to a con-

densation of the specific volume of the clay. Since it is not likely that the crystalline constituents have suffered and such change at the temperatures involved, we must conclude that the effect is confined to the nongranular clay matter. The contraction in volume might be explained by the closing up or shrinkage of the assumed colloidal matter very similar to the contraction of the silic acid gel and other substances of like character. It is evident that this condensation would involve only the minute, micellean structure of the material and does not refer to the capillary system of the clay aggregate. In making up the preheated clays with water it was observed that some heat was given off. It was thought to be interesting to determine approximately the amount of heat thus evolved from a normally dried clay and a preheated material. For this purpose a sample of red plastic surface clay was divided into two parts. One was dried at 105° C, the other was heated to 300°. By placing weighed amounts of the clay into an improvised calorimeter, adding a known amount of water and noting the temperature rise by means of a corrected thermometer reading to 1/50° the heat given off by the clay dried at 150° was found to be almost 4-gram calories and that by the preheated material practically 5 calories per gram.

(To be continued.)

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



DESPITE THE FACT that the building season is drawing to a close, the volume of projects is keeping up well in Cleveland, and both contractors and brick manufacturers and dealers are pleased with the showing which has been made during the present year. It seems likely that the work already under way will keep the forces busy until snow flies and weather conditions prohibit further work for this year.

Building permits for the year, although somewhat less in number, have up to date shown a decided increase in total value in Cleveland, and it looks as if this year will surpass all others when final totals are struck at the end of December. There are a number of big projects just getting well under way which were announced earlier in the year, but which are just beginning to get their heads up in the air. The twelve-story \$2,000,000 Statler hotel is up with its steel three or four stories and the frame will be completed before weather prevents further work. It is hoped that some of the masonry work can also be gotten under way. Large quantities of terra cotta and brick are to be used. The Y. M. C. A. building is busy spending about \$600,000 on three new buildings, a main building costing about \$400,000, and two branches which will cost at least \$100,000 apiece and perhaps more. The six-story mercantile building for the Commercial Building Company, on Euclid avenue just east of East Ninth street, is also beginning to loom up, several stories of the steel already being erected. It will have a solid front of white glazed terra cotta, which is meeting with wonderful popularity for the construction of business blocks in this city.

It was definitely announced during the past week that work is to start on the new \$1,000,000 art museum building to be erected in Wade Park, facing Euclid avenue. The foundations are to be installed and actual work on the superstructure will be proceeded with early next spring. The choice of material has not been definitely made as yet. In any event, large quantities of brick will be used for the foundations and interior walls, as the building is to be of classic design and to be what is known as the wall bearing type. The contracts will be let through the architects, Hubbell & Benes, who work under the direction of a group of trustees in charge of the various funds being used to do the building work.

Details were made public here a few days ago of a

large interurban terminal station which is to be erected at the southwest corner of Ontario street and Prospect avenue. A solid block of land has been leased by interests represented by Warren Bicknell, railroad promoter and builder. Already several hundred thousand dollars has been invested in real estate. Architects are to begin within a few weeks to prepare plans for a terminal station of suitable proportions. It is believed that the steam railroads are in some way interested in the project and that it may mean the securing of a new steam terminal for the city. The promoters estimate that from \$500,000 to \$1,000,000 alone will be required for the depot proper. It is not expected that much work on the building can be done before next spring. It looms up as one of the real big projects for next year, however, and the brick men are hard on its trail.

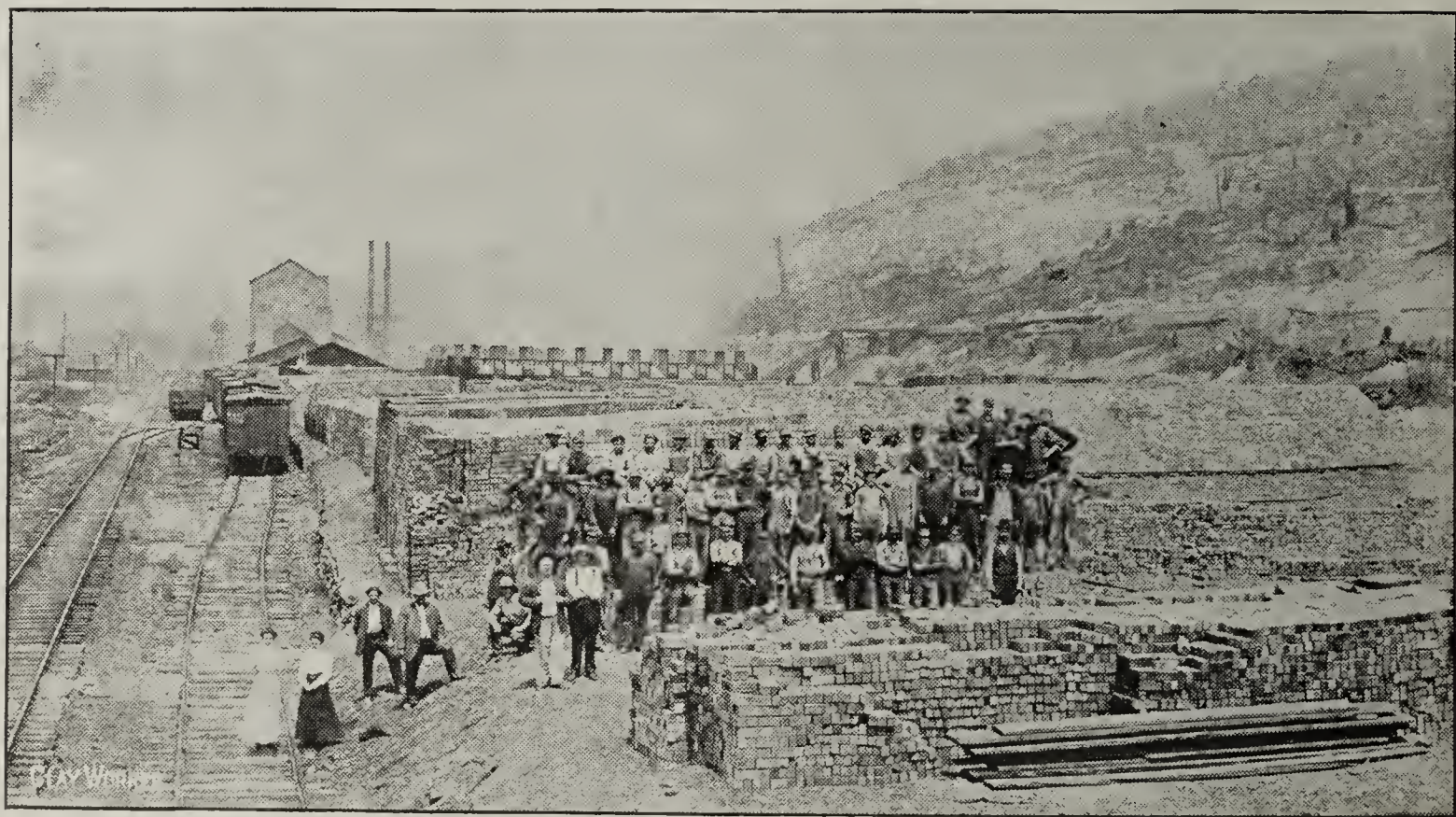
F. F. Prentiss, in charge of the citizens' campaign to raise \$800,000 for the erection of a new auditorium and music hall for Cleveland, is back from a trip to Europe and announces that work is to proceed at once with the collection of the balance of the sum needed. Just as soon as the money is available a site will be procured and architects engaged to proceed with the work. This, too, will be

Gleichman. A number of new buildings are also being erected at the city farm at Warrensville, brick being used for the walls with a stucco finish. Plans were prepared by Architect J. Milton Dyer.

A new six-story business structure is to be erected on Euclid avenue opposite East Seventeenth street for Arthur F. May and John A. Zangerele from plans by Frederick Baird, architect. The building will cost about \$60,000, and will have a frontage of about seventy feet and a depth of 165 feet. Foundations are already in and the building will probably be under roof by the end of November.

The Hunkey Construction Company has been awarded the contract for the construction of the large twin cloak factories for the Sunshine Cloak Company and the Silver Cloak Company, designs for which were made by Architect J. Milton Dyer. The buildings will be four stories high, will be about 300 feet front and 150 feet deep. The two will have a common power plant with a brick chimney 135 feet high. Work is being rushed with considerable speed in an effort to get them enclosed before bad weather sets in.

Architect Frank Barnum, for the school board, made public a few days ago plans for a new \$100,000 school which



Stock Yard of the Shawmut (Pa.) Mining Company's Paving Brick Plant.

another job to be rushed to completion early next spring. At least \$600,000 will be invested in the building, which may be built of terra cotta imitation of granite, as it is proposed to put the building on the group plan if a suitable site can be procured for that purpose.

The city of Cleveland is rushing work on a number of building projects so they may be cleaned up before the cold weather interrupts them. Three new shelter houses of steel, brick and tile are to be erected on the public square. The William Moore Company was the low bidder on all three jobs. The buildings were designed by Frederick Striebinger, architect. The city is building a new market house on Broadway from plans by E. A. Ruggles, and a fire station on Ashbury avenue from plans by Dercum & Beer. Contracts have been let for the new \$18,000 Sterling branch public library to be erected on East Thirtieth street near Central avenue. Another building, a duplicate of the Sterling branch, will be built on Quincy avenue near East Seventy-second street. Bidders are figuring on a new bathhouse for Edgewater Park. It will be of brick and plaster construction. Plans were prepared by Architect M. M.

is to replace the present Eagle school. Work on the building is expected to begin within a few weeks. The school will have twelve standard class rooms, a large auditorium, rest rooms, kitchens, public baths, a completely equipped public dispensary and space on the roof for two outdoor school class rooms. It will be of an attractively colored pressed brick. An innovation will be the installation of an elevator to take anemic and invalid children to the roof class rooms. It will be the first school in this part of the country to have an elevator. It is meant to fill the need of a neighborhood settlement house as well as a school. Contracts for the work will be let soon.

Cleveland is being well supplied with theaters this year. Harvey Brothers are building a \$50,000 structure at Broadway and East Fifty-fifth street; Albert Merian is erecting a \$30,000 structure at Euclid avenue and East Fifty-ninth street, from plans by George F. Steffens, and Harry Cone is building a \$35,000 theater on Broadway near Harvard. In addition A. F. Hartz, of the Euclid Avenue Opera House, is negotiating for a site in the new business district on upper Euclid avenue for a large theater costing about \$500,000.

He hopes to begin work on it early next spring and have it ready in September of next year.

A new \$25,000 brick church is being erected for the Glenville Presbyterian congregation, in old Glenville, from plans prepared by Architect R. H. Hinsdale. John Grant & Sons have been awarded the contract and are well under way with the work.

Robert L. Queisser, president of the National Association of Face Brick Manufacturers, called a meeting of the executive committee of the organization in New York City during the past month for the purpose of discussing affairs relating to the management of the organization and to make preparations for the association's annual convention in Chicago next spring. An energetic campaign is to be waged to get more brick manufacturers and dealers interested in the work of the association, which hopes to do much for the uplift of the business.

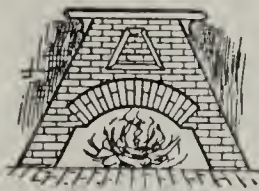
A BUCKEYE.

TAPESTRY BRICK POPULAR IN TRENTON.

The advent of tapestry brick in Trenton has made quite a sensation and a number of buildings have been specified for

Written for THE CLAY-WORKER.

AN INTERESTING PAVING BRICK PLANT.



THE SHAWMUT, PA., is located the interesting paving brick plant of the Shawmut Mining Company. This factory has been in continuous operation for the last seven years, with the exception of legal holidays only. The officers of the company are Frank Sullivan Smith, president; H. S. Hastings, auditor and treasurer, and Alfred Yates, general manager. The company owns a large tract of rich shale and clay lands which afford them an abundance of raw material, including a vein of coal underlying a large 75-foot bed of shale. Below the coal is a fine clay deposit which is mixed with the shale. The raw materials are hauled to the plant in steel cars over a tram road by means of horses.

The shale and clay is ground in C. W. Raymond dry pans, and delivered to an American Clay Machinery Company's double shaft pug mill and thence to an E. M. Freese Com-



Sixteen Yates Patent Kilns at the Plant of the Shawmut Mining Co.

this material. A number of citizens are dissatisfied with the selection of domestic marble for the new city hall, especially as this is a clay center, while the marble has to be imported from other states. Cass Gilbert, the architect of the art school, has shown what may be done with brick in the erection of a public building of a monumental character. It is a well known fact that marble will discolor and even decompose in our atmosphere, which cannot injure the burnt clay product.

The decorative possibilities of tapestry brick are very great. This material combines all essentials of a decorative facing. It has a great variety of color, a characteristic texture, and while it is a modern product, it reminds one of the classical Roman period. The tapestry brick furthermore readily lends itself to combinations with other materials, such as terra cotta and richly colored faience tile, which are quite frequently used as inserts, borders and panels. The setting of tapestry brick naturally demands better craftsmanship than that of plain pressed brick, but our contractors are quickly learning to cope with this material.

pany's brick machine. The blocks are repressed on C. W. Raymond Company's represses, loaded on dryer cars and pushed into steam and furnace dryers, the latter of the Sharer type, which will be turned into the King type of dryer within the very near future. The company has also granted an appropriation for the construction of an entirely new dryer and two Yates rectangular kilns, which will increase the capacity considerable.

The construction of their present steam dryer is on their own plans and includes a Morehead steam trap system which returns the condensation back to the boilers. Exhaust steam is used during the day while live steam is used at night.

The seven million brick made annually are burned in sixteen Yates patent kilns. Excellent transportation facilities are offered the company, as the Pittsburg, Shawmut and Northern railroad passes through their property and connects with the main trunk line. This railroad is managed by very able and far-seeing men, who are always willing to assist their patrons as far as possible in order to obtain business

for their road, which will eventually extend from the lake to Pittsburg. When this is accomplished, there will be excellent opportunities for the marketing of goods along the lake towns. There are large shale, clay and coal deposits in this section of the country which offer exceptionally fine prospects for the erection of more clay plants.

The present prosperous condition of the Shawmut plant is due to a large extent to Mr. Yates, for when he took up the management eight years ago the company was making a very inferior brick and was struggling under many difficulties. Many changes were made in their attempt to produce a good product without success, the blame being centered on the raw material. Mr. Yates proved that this was a mistaken idea and soon reconstructed the plant, placing the blame on the method of manufacture and the burning. Today the company enjoys a heavy demand for their product, so that the brick are generally sold before they leave the kiln.

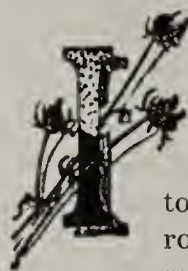
The workmen are of that sturdy Pennsylvania "Dutch" stock to whom Mr. Yates has become strongly attached, for they are sober, industrious, and attentive men.

Mr. Yates extends a cordial invitation to all clayworkers

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

Peter.



TELL YOU what I did, Charlie, when I was married. I just took a pair of my trousers, threw them on the floor and said to her, 'Now, who's going to wear them?'

It was the voice of Peter that came down to me through the scuttle, or companion way, or roof door, or hatch, or whatever the opening into my stateroom in the yacht may be called in nautical language. Peter, a veteran, matrimonially talking and advising Charlie, just newly wed. So I kept still and listened.

Years ago I had hoped some day to own my own yacht, but, unfortunately, I had not attached myself to a business that carried that kind of trimmings, and so had given up my dreams. Now, however, through the kindness of a more fortunate friend, I was afloat in one where every comfort was anticipated and provided for. We were cruising down the Indian river in Florida, way down in the "Land of Rest,"



Entrance to Coal Mine of the Shawmut Mining Co.

to visit the Shawmut plant and inspect every feature of the plant. A cordial welcome awaits every visitor and especially members of the N. B. M. A. and allied organizations.

THE MOTOR SERVICE TRUCK.

The fact that the motor service truck, the truck for delivery and for all purposes for which horses and wagons are used, is coming to the front rapidly, has been mentioned before. It is a fact, though, that should be kept conspicuously before everyone using wagons and trucks, either light or heavy. The use of them indicates they make for economy and convenience. They are coming to be a strong feature in the display and advertisements of motor manufacturers now instead of the pleasure automobile, and it is worth while to investigate them for you may find here and there something that will just fit into your needs and may prove a matter of economy as well as a good display of enterprise. Why not get in line early on these things and when it will attract attention, and not simply trail along behind?

down where the blue sky shone gloriously pure above our horizon, to be again reflected in the beautiful waters of the lagoon. Along the shores sentineled the tall cabbage palms to be again mirrored in the sparkling waters. Peace and quiet and rest abounded. We were at peace with the world. If we hated anyone we forgave them, and if anyone hated us we were sorry for them. The rush and worry of the north were beyond our horizon and forgotten. We had had nights of phosphorescent waters, when, in the black darkness of a squall, every wave was tipped with liquid fire, and every startled fish left a comet trail following him in his flight. We had passed days in balmy breezes, and had fished everything from clams to tarpon.

But the tarpon spoiled us for any other fishing, the sudden strike, the immediate upheaving of six feet of flashing silver, thrown writhing and struggling high in air, kept our hands busy, our blood boiling and our nerve strained. Dashing this way and that, again and again, then again high in air, he fought above and below the water until at last the boat held a captured fish and a wild but exhausted fisherman.

My host had provision for every want. The commodious

yacht in which we coasted some 250 miles, the "Old Reliable," for the deep sea fishing, in comfort and safety; the launch for sheltered waters, the tender for landing, and the speed boat for a twenty-odd clip over the waters and riding on foam. These five made a wondrous fleet. Soft, luxurious beds, abundant pantry, fresh sea food and equally fresh, ripe, juicy, tropical fruits. We went where we pleased and were always at home.

But to get to where I started as to Peter.

Peter and I could not keep apart, nor could we associate together without having our troubles. Peter was breaking in a new set of teeth, and I was breaking in a new set of spectacles. When I laughed, my nose wrinkled and my glasses fell off. When Peter laughed, his teeth fell in his mouth. Neither of us could look at the other without laughing, and hence there was constant trouble with glasses and teeth. Then, too, we seemed to be mutually attracted, each had interest for the other. Peter was constantly giving utterance to quaint sayings which I was afraid of missing, and I think he enjoyed seeing my nose wrinkle and liked to watch the wrinkle extend and lap over—there was so much nose for it to travel over—until it worked its way up in waves and unseated the glasses.

And so here was Peter, who had drifted fifty years in all corners of the world, giving this important advice to Charlie, newly wed, on the most important question of married life.

I kept still and listened. I knew for me to appear

KILN RUN VS. HARD AND SOFT.

I DON'T KNOW just how he managed it," said the contractor, telling a brick man about it afterward, "but some other fellow beat me by so many hundreds of dollars on a \$9,000 house job that I thought maybe I had figured something wrong. I went back over my figures two or three times, basing them on the actual cost of material and work and then adding only ten per cent. for profit, and somebody else beat me by just the amount my profit figured."

The brick man studied over the problem for a while and then asked this question:

"How did your architect's specifications read as to brick?"

"They read hard brick for the basement and kiln run brick for the main wall."

"That is perhaps where you lost," said the brick man, "and for that very reason we will not quote kiln run brick. We quote hard brick at so much per thousand and soft brick at so much per thousand, and the architect really should specify them that way."

"It is probable that the other contractor knew the tricks of the trade in this respect and while you were figuring on perhaps fifty or sixty per cent hard brick in kiln run he was figuring on one-third hard brick and two-thirds soft brick in his walls above the ground."

"How could he do that?" the contractor inquired, "when



Cars Filled With Shale on Way to Plant of the Shawmut Mining Company.

would start the catastrophe of the glasses and the teeth, and thus break the charm, and the wisdom would be lost. So I listened through the hatchway.

"I tell you, Charlie, what I did when I was married. I just took a pair of my trousers and threw them on the floor and I said to her, 'Now, who's going to wear them?'"

Peter paused, while I could fairly feel Charlie drinking in this great lesson, then Peter heaved a deep sigh and continued, 'Unfortunately, she picked them up.'

GATES.

NEW METHOD OF HANDLING PLASTER.

Handling plaster with a "gun" is one of the latest stunts of the building world. The "gun" is merely a form of hose and nozzle in which is used pneumatic pressure to spread the plastering on to the wall surface, pretty much after the manner which the pneumatic spray painting apparatus is used. Only instead of paint it uses cement or some hard plaster material and sand, with a spray of water going with it. It is said that in doing work of this kind no plasterer's trowel is used at all. This is not a warning against a young man learning the plastering trade, because it is only a novel experiment being indulged in by our own government in some of its structural work.

the architect's specifications called for kiln run brick?"

"It is simply this," said the brick man, "there is no such a thing as kiln run brick unless in connection with it there is some qualifying phrase that specifies the percentage of hard and soft."

"When it comes to using hard and soft brick above the ground a man might just as well use two-thirds soft brick as one-third. If one part of the inner wall or backing is made of soft brick, it might just as well all be made that way and hard brick used only on its face. On a thirteen-inch wall, three brick wide, that means one hard brick and two soft ones. That is, perhaps, the way the other fellow figured it and in figuring that way he saved on his brick cost enough to make quite a difference in the figures on a job of this kind."

"Architects really should bear this in mind and cover it clearly in their specifications. We know the benefit of hard brick below the grade line in the ground, but when it gets above ground and an architect permits the use of soft brick to reduce the cost of the wall, he might as well have it two-thirds soft brick and one-third hard as have it any other way. If he wants the wall of hard brick all the way through, that is a different problem, and should be so stated. In other words, to prevent confusion, there should be no kiln run specifications. They should be specified as brick sorted and graded from the kiln."



STATE DRAINAGE IN MINNESOTA.

Unlike the older states, Minnesota has vast areas of state lands that require drainage in order that they may become tillable. When drained these lands become very productive and add materially to the wealth of the state in general as well as to the taxable lands, thus returning the money expended by the state in drainage and preparing these lands for cultivation.

Appreciating the importance of improving such lands by drainage, the State Legislature created a State Drainage Commission consisting of the governor, the state auditor and the secretary of state.

The drainage commission was given power "to construct

provement of the same and preparing estimates of the cost of the work to the end that drainage work might be facilitated and disastrous overflows prevented.

The report of the commission on state drainage work, August 1, 1903, to August 1, 1910, contains a resume of work done. During the years 1909 and 1910, eighteen state ditches were established and ordered constructed. The last one is No. 95, indicating the number of state ditches constructed or considered by the state. As those ordered during the years 1909 and 1910 are not consecutively numbered, but running from No. 61 to No. 95, we may infer that many ditches are taken under advisement that have not yet been ordered constructed.

During these years the commission has constructed, or has under construction, fifteen state ditches having an aggregate length of 460 miles, requiring an excavation of 6,828,378



State Ditch No. 53, St. Louis County, Minn.

as hereinafter provided any ditch, drain or other water course within the state of Minnesota, and such ditch, drain or other water course, may in whole or in part follow and consist of the bed of any creek, stream or river, whether meandered or not, and they may widen, deepen, straighten, change, lower or drain the channel or bed of any creek, river, lake or other natural water course, whether navigable or whether meandered, or not, and may construct new and additional outlets to any marshy, shallow or meandered lake, for the purpose of draining the same * * * and may confine any such creek, river or other natural water course by means of dykes, levees, and embankments, to its natural or artificial bed as laid out."

These powers are attended by a series of provisos.

Under a co-operative agreement between the commission and the United States Geological Survey, a topographical survey was carried on under the joint supervision of the surveyors of the state and federal government, the expense of which was borne equally. Under this agreement a large area in Ottertail, Douglas, Grant, Traverse, Stevens, Pope, Swift and Big Stone counties has been surveyed at a cost to the state of \$9,121.76.

Surveys have also been made of several of the streams of the state for the purpose of devising plans for the im-



State Ditch No. 47, Marshall County, Showing Highway Along Bank.



State Ditch No. 88, Aitkin County, Minn.

cubic yards, costing \$605,837.30, or an average of 8.8 cents per cubic yard. These ditches will drain and reclaim 141,444.63 acres of state land and 403,640.81 acres of private lands, at an average cost per acre of \$1.25.

The report also shows work done on forty-six state ditches constructed by the Red River Drainage Commission, 1893 to 1899. The lengths of these forty-six ditches vary from one and one-half to twelve miles. The cubic yards of excavation range from 7,047 to 200,364, and the prices paid in cents per cubic yard for excavation varied from 7 15-16 to 20.9.

The following extracts from comments in the report as to the efficiency and condition of the ditches will be both interesting and instructive, as they show from actual experience what difficulties may be encountered and where

errors may have been made in the plans and specifications under which the ditches were constructed:

Ditch No. 1. This ditch drains a large area of rich prairie land and has always been a very effective drainage channel, requiring no expense for repairs. The ditch was completed in September, 1896.

Ditch No. 2. It has always been in fairly good repair. Some repairs, however, were made in the year 1905, consisting of extending the ditch, giving it a better outlet. This ditch was completed in September, 1896.

Ditches Nos. 6 and 7. Known as Sand Hill River state ditch and Sand Hill River ditch extension, have always been in good repair, but should be enlarged, as it frequently overflows and causes considerable damage.

Ditch No. 9. This ditch has been enlarged to many times its original size and is in good repair.

Ditch No. 11. This ditch has always overflowed in times of high water. Its outlet, which consists of a small, shallow, winding coulee, was wholly insufficient to carry of the waters that flowed down the ditch. As a consequence, thousands of yards of sediment carried down the ditch was spread over the land at the outlet, and numerous wash-outs were made through the waste banks for a distance of about four miles back from the mouth of the ditch, through which large quantities of sediment were carried and deposited upon adjacent lands.

Ditch No. 13. This ditch is not in good condition. It is filling up near the outlet and should be extended to a more adequate outlet.

Ditch No. 17. This ditch was designed to carry off the overflow waters from Ottetail river, but was wholly inadequate for that purpose. It is partly filled up and not of much value as a drainage channel.

Ditch No. 19. This ditch is not in very good condition. It has a very flat gradient and is filling up to a considerable extent, especially along the lower four miles.

Ditch No. 21. This ditch drains a large swamp lying south of what is known as Roseau Ridge, and consists of opening up the lost channel of Two Rivers. It is in good condition generally. Some repairs, consisting of removing bars and other obstructions, could be made, which would largely increase the capacity of the ditch.

Ditch No. 24. This ditch consists of an opening up the channel of Lost River. It is a very efficient ditch and is in good condition.

Ditch No. 25. It has a steep gradient and as a consequence the ditch has enlarged to a considerable extent by erosion.

Ditch No. 27. It consists of four cut-offs in Wild Rice river. As a result this stream has been shortened about five miles and its carrying capacity largely increased.

Ditch No. 31. This ditch for nearly its entire length ran through soft black muck, which has caved and oozed in to a considerable extent. This has largely impaired the efficiency of the ditch.

Ditch No. 32. The lower part of this ditch is in good condition, the upper portion should be deepened. Considerable mud has oozed in since the ditch was constructed which, with the rank growth of rushes, is choking up the channel in places.

Ditch No. 34. Numerous pockets of quick sand are found along the upper mile, which has run in and choked up the channel in places.

Ditch No. 35. This ditch runs northeast across a large swamp lying between the Shotley Brook settlement and Kelliher, the nearest railroad station. A good road was built along the ditch with the earth excavated therefrom.

Ditch No. 36. The soil along a portion of this ditch is of a sandy nature and has caved in in places along the ditch, obstructing the channel. This ditch should be repaired.

Ditch No. 37. This ditch consists of the deepening and

straightening of the channel of Roseau river from Roseau lake westward, down stream. This portion of the river had numerous obstructions to the flow of the water which have all been removed. As a consequence the carrying capacity of the river has been nearly doubled.

Ditch No. 40. The soil along this ditch was a soft black muck having an average depth of about eight feet. This soft material has run in and partly filled up the ditch. It should be repaired.

Ditch No. 42. This was the first ditch constructed in the big swamp known as the Floodwood swamp. Since the construction of this ditch, contracts have been let under Chapter 448, General Laws, 1907, for the construction of a system of ditches which have a total length of twenty-five miles, and plans are being worked out for the complete drainage of this big swamp. Very profitable crops were grown along the Floodwood ditch the year following its construction on what used to be the wettest part of the swamp.

SEEKING THE LIGHT.

THE aldermen of Newburgh, N. Y., have been seeking light upon the paving problem in a very practical way. Instead of having experts come to them and dope out all sorts of fanciful and glowing schemes for pavements of various sorts, they donned their hats and coats and went out to look for themselves. There are a number of towns along the Hudson river which have put down considerable brick pavement with uniformly good results. These aldermen visited these towns and heard the testimony of all sorts of people upon the subject. They heard first what the average resident had to say. And, like the average resident elsewhere, they found him somewhat indifferent to the kind of pavement, just so it was pavement. The average citizen wants his streets paved, but he isn't so particular about the variety of the paving.

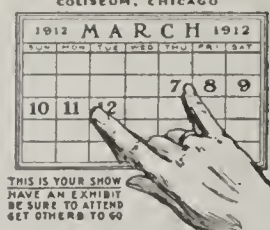
Next they saw the business men and almost to a man they were enthusiastic in favor of brick. They gave their reasons, which need not be repeated, for they are too obvious to require repetition. Suffice it to say that they declared that brick fulfilled every requirement of an ideal pavement and that no board of aldermen would make a mistake if they put it down. They went further, however. And in this way they were different from boards of aldermen. They went after information and they sought it where they considered it of most value. This time they went to the truck drivers, the men who handle the teams that haul the heavy loads through the streets. Here, surely, if any of the reports about the undesirability of brick paving was true, would be opposition. But, strange to say, these drivers did not oppose. Quite the contrary, they expressed themselves as heartily in favor of brick and declared that horses had no difficulty in maintaining a footing on the worst grades, excepting in winter, when the pavement is covered with ice, and that observation holds true of any pavement, even Belgian block and cobble stone.

They did not think it necessary to look further. If the heavily-loaded truck has no difficulty in negotiating heavy grades then no one else need have.

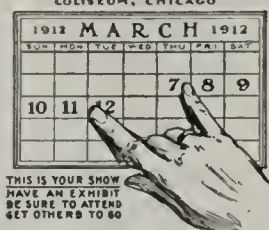
This board is entitled to the thanks of all paving brick manufacturers. They did the practical and right thing. They went out and saw for themselves. It is one thing to listen to what is said about a certain sort of paving—it is an altogether different thing to go and see for one's self just what a specified variety of paving will do under use. There are steep grades in all those Hudson river towns and if the truck drivers have no difficulty there the same thing would, or should, apply to every other place where brick might possibly be used.

If it can be shown that brick is not open to the objections which have been time and again raised against it, then there will be no further difficulty in securing the consent of boards of aldermen and others to use it more freely in paving. The trouble is they don't know and they listen to what others say, always with disastrous results to brick.

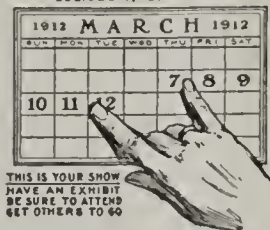
CLAY PRODUCTS SHOW



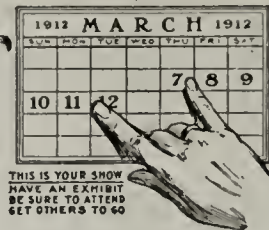
CLAY PRODUCTS SHOW



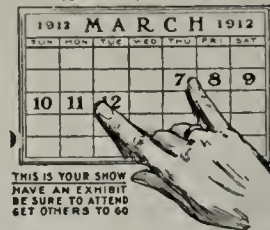
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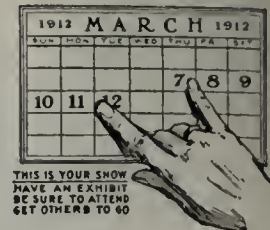
CLAY PRODUCTS SHOW



CLAY PRODUCTS SHOW



CLAY PRODUCTS SHOW



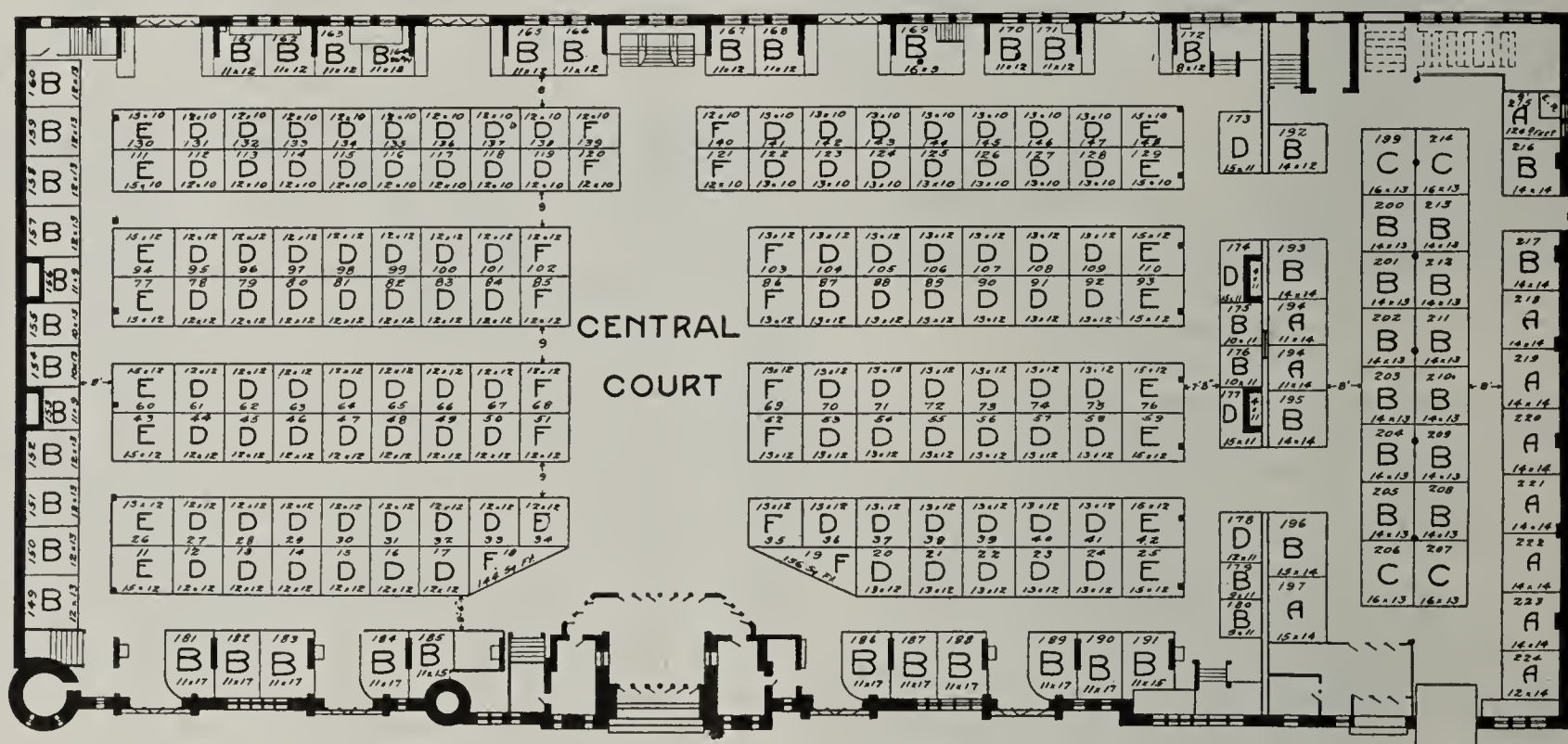
Interest In Clay Products Exposition Spreading

Floor Space Now Being Allotted—If You Have Not Secured Space Confer at Once With the Secretary of International Clay Products Exposition Co., 815 Chamber of Commerce Building, Chicago.

IT BEGINS TO LOOK as though the Clay Products Exposition to be held in Chicago next March would be of much greater scope than was at first contemplated. The manufacturers of clay products have long needed a revivifying movement in some of its branches, while others can always be helped by joining in anything progressive. From an exhibition of clay products the exposition has broadened into a home-beautiful and permanent fireproof building feature which will add much to the interest, as there is no more important problem in the United States today than fireproof

At the Ohio convention of the Builders' Supply Association, held at Cedar Point last month, a telegram was read from the exposition company inviting the association to join the movement for cutting down the enormous annual fire loss via the burned clay products route and promising to show the association the way at the exposition. The message was favorably received and acted upon. Other associations will also take advantage of the opportunity offered by the exposition and its exhibits.

The Interstate Association has also been invited to meet



Floor Plan of the Coliseum.

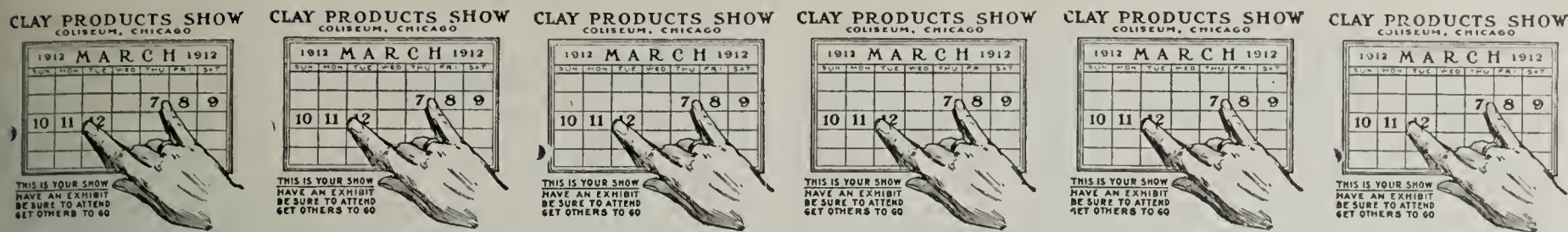
construction and the ideal home. This feature of the exposition makes it of more value and interest to the manufacturers and dealers in mantle, tile and grates. These are the more finished and refined of the clay products and are of decided interest to the builders of beautiful homes and finer types of business buildings. The exposition, however, is not being built especially for the manufacturers of clay products, but is more especially for the buyer and user of these products. This feature of the show gives it a selling power and value to the manufacturer which has won the approval of both the manufacturer and those who buy and use clay products. On the one side the users will have an opportunity to see and investigate, at this exposition, everything that is best in clay products. On the other hand, the manufacturer will be able to promote the use of his products with the very people he wants to meet. It is, therefore, apparent that while the exposition is a school of clay products it is also a school of architecture where every visitor is a possible customer. The interest in the Clay Products Exposition is spreading to the dealer in building materials.

in Chicago at the time of the exposition both to take advantage of the selling opportunities and to present the advantages of this class of clay products to the interested visitors in the very best possible way. No action has as yet been taken on the matter but the wisdom of the suggestion is easily apparent.

The exposition management reports that the show is already an assured success and that advance sales of floor spaces are more than satisfactory.

ROMAN BRICKS.

When the preparations for building the Campanile in Venice were undertaken the archaeologists were afforded an opportunity to make some interesting studies of the bricks. It was found that they had been used in arches, fortifications, the tops of walls and in other ways before they were built into the Campanile, and that they were not Venetian, but Roman bricks. These ancient bricks were made in slices, for in many layers could be seen undis-



turbed. The bricks examined were of the first century. One of them bore the imprint of a horseshoe, which may prove that Romans used horseshoes like ours, although it is generally believed that their horseshoes were strapped on, not nailed.

Among other attractions planned for the Clay Products Exposition in Chicago next March will be some of these old Roman brick, which will be shown side by side with the excellent and much superior brick of today.

THE SIZE OF BRICKS.

If bricks were made larger it would save a great deal of time and labor in building, said a contractor, but the standard has been set and any change would be attended by considerable inconvenience. In England, bricks were first made, and up to sixty or seventy years ago there was a tax on bricks, and in order to evade it the bricks were made of larger and larger sizes.

These were used for cellars and other concealed places. To stop this evasion of taxes an act was passed in the reign of George III., fixing the legal size of bricks. Early in Queen Victoria's reign the tax was taken off and bricks may now be legally made of any size whatever. But any change from the standard size would bring about great inconvenience. All calculations are made for building on this standard size and the London and other building acts have practically fixed it.

Some of these old time large size bricks have been secured for the Clay Products Exposition in Chicago next March.

BRICKMAKERS WERE FIRST STRIKERS.

According to scriptural quotations the brickmakers were the first strikers, as is shown by the following extracts from the Bible:

"And the Egyptians made the children of Israel to serve with rigor. And they made their lives bitter with hard bondage, in mortar, and in brick and in all manner of service. And Moses and Aaron went in and told Pharaoh, 'Let the people go that they may hold a feast.' And the King of Egypt said unto them, 'Wherefore do ye let the people from their work? ye make them rest from their burdens.' And Pharaoh commanded the same day the taskmasters, saying, 'Ye shall not more give the people straw to make bricks as heretofore. And the tale of the bricks which they did make heretofore, ye shall lay upon them; ye shall not diminish aught thereof; for they be idle; therefore, they cry, saying, 'Let us go.' I let there be more work be laid upon the men, and let them not regard vain words.' Pharaoh said to the children of Israel, 'Ye are idle, ye are idle; go therefore now and work; for there shall be no straw given you, yet ye deliver the tale of bricks.'"

What followed is a matter of history. They walked out and stayed out for forty years, and then their descendants got other and better jobs.

Something more striking in brick than this old, old strike will be the display of every class of clay products from the highest art ware to the humblest utility atom, to be shown at the Clay Products Exposition in Chicago next March.

Written for THE CLAY-WORKER.

NEW YORK'S CAPACITY.

EXPERIENCED manufacturers who have been sending brick to the New York market for years are now declaring that they misjudged the consumption of New York the past season, and therefore attribute much of the present dullness in the market and the further fact that many dealers have not sold as many bricks as expected the past season, are due to the misjudgment of the market. If this is true of course there is nothing to be alarmed about. If other causes less easily overcome or understood are responsible for the condition that now confronts makers then there should be some careful examination of the situation before another season opens.

The Greater New York Brick Company startled the entire industry in the East, and particularly about New York, by its organization and the propositions which it put forth. The declaration was made at the time it was consummated that it would eventually increase prices, but this was denied and there was a vigorous attempt to overcome any prejudice of this sort which existed.

Builders have become thoroughly frightened and are looking about for some other source from which to draw the brick required in their operations. But their success will scarcely be liberal enough to do or exert any permanent influence upon the result. He has said this before, but the distributor laughed at him and told him to go.

The tables are turned. The maker is in a position to dictate terms upon which his product shall be bought. It seems an entirely legitimate process. The price of brick has not been and will not be unduly advanced. If the manufacturer, now he can do it, asks a reasonable profit upon his work who can find fault with him? It seems to be an altogether commendable thing to do. The organization has merely vested the control of the business in the hands of the manufacturers themselves, a wholly correct and progressive precaution to take in the conduct of any great enterprise.

The organization does not exist for restraint of trade. That has been clearly pointed out before. It is merely to guarantee to the manufacturer his rightful share in the legitimate profits of the brick business.

Shutting down early was a surprise. But if the quantity of brick on hand is sufficient to supply the demand until the new season's stock is ready for delivery, why not do the obvious thing and shut down before the market is so heavily overloaded that no one can make a profit? This seems altogether logical and right.

The organization is destined to do still more for the industry. It is to be hoped that the man in authority will not be disturbed by any clamor which may arise. Such disturbances are certain to come. Their effect need not be serious unless those in control allow them to be. The brick business about New York is upon a better basis than ever before. A continuation of the present conditions will create a new situation which will be helpful to all concerned in the business. There need be no change and those most interested in maintaining the present circumstances should not swerve one iota from the sensible and conservative course they have taken. This is the consummation to be desired.

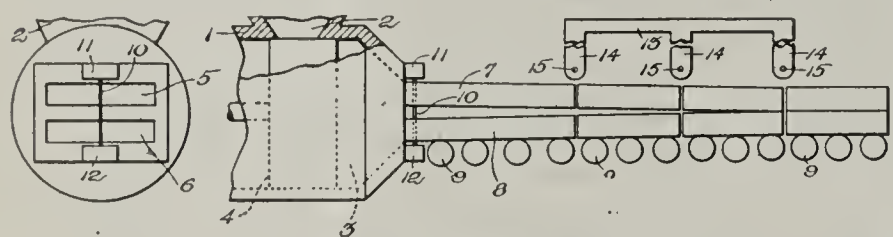
BURTON.

Pay and be paid and thus keep those important wheels of industry, with an eagle on one side, rolling.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

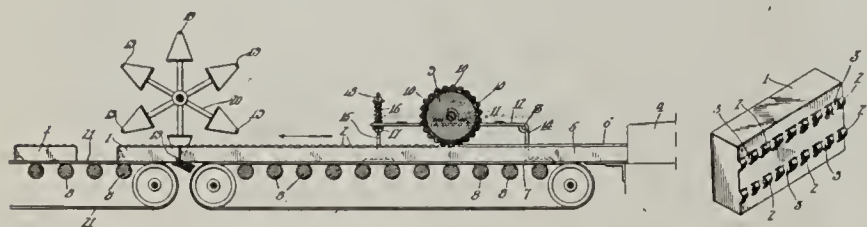
Brickmaking Machine: Clifford S. Estes, of Ridgway, Pennsylvania, and Jonathan P. B. Fiske, of Auburndale, Massachusetts, assignors to Fiske & Co., Inc., of Boston, Mass. 1,002,976. Patented September 12, 1911.—The object of this invention is to provide a machine for producing brick which shall have a smooth, compacted skin or surface on the sides which come in contact with the mortar and support the load and shall at the same time have rough finished ends and edges whereby the desired artistic effects may be produced. As shown in the illustration the clay issues from the press in two streams each twice the width of a finished brick. A central wire cutter (10) divides the streams and forms a rough surface along one edge of the finished bricks, while a transversely reciprocable wire cutter (14, 15), cuts



1,002,976

the brick into the proper lengths and forms rough surfaces on the ends thereof.

Brickmaking Machine: Charles H. Frost, of Pasadena, California, assignor to Los Angeles Pressed Brick Company, a corporation of California. 1,004,406. Patented September 26, 1911.—This invention relates to the manufacture of paving brick and seeks to provide means for spacing such brick apart so that sand or mortar may run between them after they are laid. In the improved machine the clay issues



1,004,406

from the press (4) in the form of a stream (5) having one or more ribs (6) on its upper surface. A stream passes under a corrugated roller (10) which indents the ribs and forms notches therein as shown in the illustration. The column of clay is then cut into the proper lengths by means of the wire cutter (19).

Brick-Handling Machine: William H. Francis, of Cherryvale, Kansas. 999,774. Patented August 8, 1911.—The present invention relates to a machine for handling bricks, said machine belonging to the general class wherein a lifting mechanism is employed for engaging at the base thereof a pile of bricks stacked up in accordance with a pre-arranged order. According to this method the bricks are stacked up with uniform spaces between the bricks of the basic layer so as to allow the lifting arms of the machine to enter these spaces to carry the superposed load, while the members of the basic layer are picked up and carried along with the superincumbent mass by means of the lateral gripping action of clamping devices arranged in connection with the lifting arms. When a load of bricks of this kind is transported and then set down again the basic layer rests

upon the ground or floor and upholds the superincumbent mass without imprisoning the lifting arms and hence the latter can easily be withdrawn so as to be set free from the mass of bricks, and the gripping devices can also be set free, the original stacking thus being undisturbed by the transportation.

The present invention consists especially in novel and ingenious devices for gripping or clamping the members of the basic layer of such a bulk or mass of bricks; and especially in gripping means which are automatically adjustable to irregularities in the surface and unevenness in the thickness or other dimensions of the bricks, in order that the clamping may be tight and effective even though the bricks vary slightly in one or more of their dimensions, as they ordinarily do in the manufacture.

Our illustration shows a sectional elevation of a part of the machine and for a fuller understanding of the device reference should be had to the complete patent.

WILL THE RULE OF REASON RULE?

Occasionally we come across some inconsistencies in the administering and interpreting of laws pertaining to industry that would be ridiculous were it not for the seriousness involved.

There is no better example of this than the fact that right now, when the legislative authorities are busy regulating trusts and monopolies, we are confronted with a gigantic railway strike when what is the greatest of all monopolies, if it could have its way, the labor union, undertakes to tie up several railway lines, regardless of what a hardship it may work on the public, to say nothing of the railway company itself.

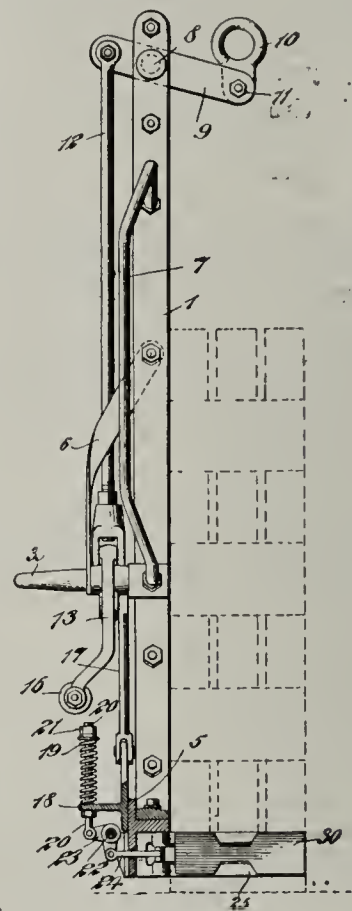
If some monopoly of business men should undertake to tie up and discommode the public and work a little hold-up of this kind, there would be indictment, heavy fines, and, perhaps, imprisonment, and also immediately there would be an injunction or an action in court that would break up the combination.

Yet our legal prosecutors sit by and see a strike called that involves public utilities, notwithstanding the fact that there can be found plenty of law on our statute books already to do something like was done in Iowa recently in the street car strike, when the labor union was enjoined from striking.

There are laws enough on the statute books, were it desired to administer them, to enjoin the employes of the railway system from striking and to either enforce some arbitration of the differences or else the employes would have to arrange to discontinue their services a few at a time, so that they might be replaced and the business carried on as usual.

It would be easy enough to find this law and it would be applied quickly enough if some railway corporation itself should tell the people or the government that it proposed to discontinue its operations until certain rates were paid or certain provisions made. In other words, there is a distinction of class enters here that even though our constitution provides it shall not exist, does exist and is recognized by law, or, rather, by the administrators of the law. One body of people will be permitted to do things that others would be penalized for.

When this subject is brought to the attention of law-



999,774

makers and philosophers some of them point out that an effort of this kind would simply result in the passing of anti-trust laws, which would make an exception of labor unions and possibly farmers' organizations, and we are told this, too, in face of the fact that our constitution is very plain spoken as being opposed to the class legislation.

It makes a queer jumble of things. A jumble in the administering of our laws that would be ridiculous and funny were it not that it is serious and deplorable.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



AN AFTERMATH of the recent municipal election at which James Rolph, Jr., was elected mayor of San Francisco for the next four years, his term of office to extend through the Panama Pacific exposition year of 1915, there has been a general

revival of building activities and dealers in brick and tile are experiencing a greater measure of prosperity than has been their lot for several years. Mr. Rolph, the mayor-elect, is one of the city's leading business men and his election has created a feeling of confidence in the prospects for the future that has spread to every branch of business life. This feeling of confidence has been manifested already by the announcement of plans for large building enterprises, not only in San Francisco but throughout this section of California, work on which will in many instances be started in the near future.

The Panama Pacific Exposition Company has appointed the committees which will be in charge of the various phases of construction work incidental to the colossal enterprise, and it is expected that preliminary plans for the commencement of activity will be made public in the near future. These plans will of course call for immense supplies of all sorts of building material, and the subsidiary enterprises which will be practically a part of the exposition work and swell the demand to a great extent. There will be numerous hotels and apartment houses built in this city during the next two or three years to accommodate the great influx of population and visitors which will mark the approach of the exposition, and local contractors are now submerged in the preparation of plans for the coming rush of business.

President Taft will break ground for the Exposition on October 14, and very soon thereafter the commencement of engineering work to prepare the fair site for the actual construction of buildings will take place.

The local brick market is firm, with common brick still quoted at \$7, a figure that allows the producers a fair margin of profit.

The United Materials Company announces that it has closed a contract with the James A. Stewart Company, contractors, to supply all the brick to be used in the construction of the new Southern Pacific company's depot at Sixteenth street in Oakland. About a million and a quarter common and face brick will be used on the building. All of the face brick will be made by the Los Angeles Pressed Brick company's factory at Richmond. The same company is furnishing brick for government contracts at the Mare Island navy yard and at Army Point, Cal. The company's common brick plant at Port Costa has been running steadily with no diminution of its recent output.

Several large contracts for brick and terra cotta are being handled by N. Clark & Sons, 112-16 Natoma street. Among these are the supply of building material for the new agricultural building at the University of California. The material for this work is already on the ground. Brick and terra cotta have also been supplied for the new St. Ignatius church, of which Charles J. Devlin is the architect, and the company also furnished the materials for the mammoth new

store of H. C. Capwell & Co., recently completed on Fourteenth street in Oakland. The roof tiling on the Dominican priory in this city is being completed at this company's plant in Alameda, Cal.

Officials of the Carquinez Brick and Tile Company report that business has picked up very encouragingly recently, after a lull extending over a period of two months or more. This lull was attributed to the uncertainty over the outcome of the local elections, which held back many buildings and other capitalistic enterprises. The company's factories have been running without a single day's let-up since 1906 and their standard production of 20,000,000 a year has been maintained at all times. It is expected that production will be increased after the commencement of work on the exposition buildings.

Members of the San Francisco Architectural club were the guests of Manager Pratt of the Golden Gate Brick Company this week on a visit of inspection to the company's sand-lime brick plant at Antioch, Cal. A bullshead breakfast was enjoyed and other novel features of entertainment were provided. The regular monthly meeting of the club was held Wednesday evening, October 4.

The Long Beach (Cal.) Brick Company has recently sold two large orders of brick, 200,000 for one building and 175,000 for another. The buildings are to be a bank and a garage.

The Livermore Fire Brick Company at Livermore, Cal., has made extensive plans to enlarge its plant and the scope of its work. Three more kilns and one repress will be installed immediately. The company proposes in the future to manufacture face brick, glazed brick and enamel brick, in addition to fire brick.

James Norton, formerly superintendent of the Carnegie Brick Company, whose plant was recently shut down, has been appointed superintendent of the Livermore Company, succeeding C. Congdon, head engineer of the company, who has been acting as temporary superintendent recently. Mr. Congdon continues as engineer.

The Remillard Brick Company of Pleasanton, Cal., intends to close its season this month and is now running but one machine. Electrical power was installed in the plant early in the season and the company's output for 1911 has exceeded the record for any former year.

The Coalinga Brick and Tile Company started fires at its factory, two miles east of Coalinga, Cal., on September 29. There are two kilns in operation, with an annual capacity of 800,000 brick, and a machine with a daily capacity of 25,000 brick was recently installed by the company. The market in the oilfields tributary to the plant is reported to be excellent.

A new brick making plant is in course of construction near Palo Verde, Cal., on the new townsite of Rannels. As soon as bricks can be produced construction work will be commenced on three new buildings there, a store, business house and an addition to the local hotel.

San Francisco, Cal.

SUNSET.

OIL USED IN PLACE OF COAL.

The small production of coal in California is offset by the enormous increase in the production of petroleum, most of which is used for fuel. The oil produced in California in 1910 aggregated between 65,000,000 and 70,000,000 barrels, which, on the basis of $3\frac{1}{2}$ barrels of oil for each ton of high-grade coal, would be equal to a production of nearly 20,000,000 tons of coal.

The use of petroleum by the transportation and manufacturing industries of California has practically eliminated coal as a steam-raising fuel in the State. Oil is also used in the manufacture of gas which is employed for cooking and for heating residences as well as for lighting. Oil is now also coming into use as a direct fuel for household purposes. —U. S. Geological Survey Press Bulletin.

VENTILATION PENNSYLVANIA RAILWAY COMPANY
BALTIMORE & POTOMAC TUNNEL AT BAL-
TIMORE MARYLAND.

THE PENNSYLVANIA RAILWAY COMPANY is installing a very large ventilating plant in one of the tunnels under the city of Baltimore. This tunnel has a length of 4,963 feet with a cross-sectional area of 432 square feet. The crown of the tunnel is 19 feet high above the rails at the portals and the cubic feet of space from end to end amounts to 2,150,000.

Above one of the portals is located a fan room measuring about 30 x 36 feet by 16½ feet in height, the floor of which is about 28 feet above the tracks. This building is very substantially built of brick, reinforced concrete and stone.

In this fan room are two enormous "Sirocco" fans, each measuring 15½ feet high above the floor, 18 feet in length and 14 feet in width, together with electric motors and driving mechanism for transmitting the power from the motors to the fans. Some idea of the huge size of these fans can be gained from the photograph taken in the shops while the fans were under construction. The photograph shows an automobile in one of the inlets, which latter is 11½ feet in diameter. On the other side of this fan is another inlet of the same size.

The fans discharge downward through the floor into a

age of air being so greatly reduced causes the air to travel much faster than the train; hence, any smoke from the locomotive is pushed before the train so fast as to give the engineer a clear view of the tracks, thereby enabling him to easily stop the train in time to avoid accident. The movement of air is so rapid as to make it perfectly comfortable for the passengers and train crew at any and all times, even if the train comes to a dead stop for a prolonged period.

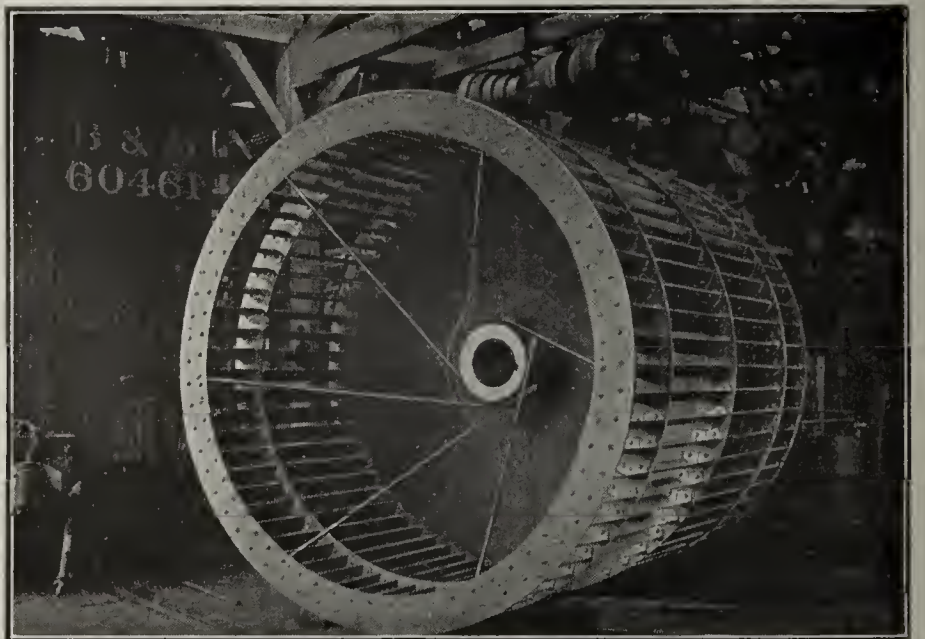
Four hundred and fifty cubic feet of air, as handled every minute by one of these fans, weighs about 33,500 pounds, or 16¾ tons. This weight of air is about the same as would be the weight of 5,000 bricks or 130 barrels of water. Even this is hard to comprehend, and the immensity of this volume may be made more readily apparent in this way: an ordinary barrel holds about 4 1-5 cubic feet, hence it would require 107,000 barrels to hold the air delivered by one of these fans every minute. If these barrels were placed close together standing on end, they would take up a space measuring 600 x 600 feet, or an area equal to about two ordinary city blocks.

While these fans are of huge proportions, yet they are small as compared with the dimensions of an old style fan to do the same work, such as was commonly used for the same purpose before the "Sirocco" fan was invented.

The height and length of the old style fan would be nearly double that of the "Sirocco" fan; the floor space taken



Inlet to "Sirocco" Fan Large Enough for an Automobile.



Double Inlet "Sirocco" Wheel.

chamber surrounding the upper part of the tunnel, the air being discharged from the chamber through a long, tapering nozzle carried around the entire perimeter of the tunnel above the tracks in such a way as to direct the flow of air forward much the same as it would from an injector.

The fan wheel or impeller is 10½ feet in diameter and breadth, with a division plate dividing the breadth of it in to two halves, air entering from both sides. The relative proportions of this fan wheel is more readily apparent in the photograph, where it is shown near the end of a box car. It will be noticed that it is about as high as the car, is 50 per cent. wider and almost half the length of it.

Only one of these fans is intended to be in operation at a time, the other being held in reserve for use in case of accident.

It was determined that this tunnel would require 450,000 cubic feet of air per minute. This volume will produce a velocity through the tunnel of 1,040 feet per minute or at about the rate of 12 miles per hour, and will give an air change in 4¾ minutes, or, in other words, a unit of volume starting at one end will only be 4¾ minutes in passing through the tunnel.

When a train is going through the tunnel in the same direction as the air current, the available area for the pass-

up, nearly 50 per cent. more; the wheel, 60 per cent. larger in diameter. One of these "Sirocco" fans weigh complete about 41,000 pounds, or approximately 20 tons, whereas an old style fan, to accomplish the same results, would weigh about 26 tons, being almost 30 per cent. more. Another, and above all, the most important consideration in the selection of this style of fan for the work was the tremendous saving in power effected thereby, as an old style fan would have required nearly 50 per cent. more power, representing thereby a saving of approximately five thousand dollars per year in the relative cost of operation.

Mr. Charles S. Churchill, chief engineer of the Norfolk & Western Railway Company, Roanoke, Va., designed the plant where these fans are to be installed, as he has several others, notably the Galetz, Big Bend and Elkhorn tunnels for the Pennsylvania Railway and the Norfolk & Western Railway. Previous to the installation of the ventilating plant at the Elkhorn tunnel at Coaldale, W. Va., on the Norfolk & Western Railway, it required from 17 to 55 minutes to clear the tunnel of smoke; the temperature inside the tunnel became about 30 degrees higher than the outside temperature after a train had passed through, and during the four years immediately preceding the installation of the

ventilating plant, twenty-six men were asphyxiated in the tunnel.

After the installation of the ventilating plant, smoke would appear at the portal ahead of an engine two minutes before the train appeared and in less than a minute after the engine had passed out, even the steam had vanished from the roof, where it usually clings so persistently.

East bound trains which have to run up grade now pass through the tunnel in 5½ minutes, and one train can follow the other as rapidly as it is safe to place them, regardless of the tunnel.

The installation of this ventilating plant made it possible to increase the load of east bound trains about 100 tons, saving four east bound trains per day on a run of eleven miles, which represents a net saving over and above the cost of operation of about fourteen hundred forty-six dollars per month, or from seventeen to twenty thousand dollars per year.

All this goes to show that the ventilation of a railway tunnel, aside from the comfort afforded the employes and the passengers, as well as the possible saving of lives, is just as much a profitable investment as it is proven to be in every other application, and accounts for the steadily increasing demand for fans and blowers of all sizes and for all classes of work.

The "Sirrocco" fan, made by the American Blower Company, of Detroit, Mich., and Troy, N. Y., is unquestionably the greatest advance made in air propelling machinery in the last century, and of itself has attracted more general attention to the use of fans for ventilation and the benefits to be derived from good, fresh, pure air than probably any other agent, because of the small size of the fan for a given duty, its remarkably high efficiency and very quiet operation.

NOVEL CLAY PRODUCTS TO BE SHOWN AT THE EXPOSITION.

The prospectus of the Clay Products Exposition to be held at the Coliseum, Chicago, March 7th to 12th next year, has met with favor. Like the clay trade, the prospectus combines art and utility. The range of clay products is from the finest pottery to brick and sewer pipe. The exposition is proposed to combine all these and will include every article made from clay. The complete model fireproof home and its equipment is one of the features kept in mind, and the exposition will include everything necessary to the complete home. The great unnecessary fire loss of the country is another feature to be specialized, and the building public and the people will be shown how the fire loss can be cut to the minimum. Most people do not appreciate that they are paying a fire loss each year whether they own property and have a fire or not. Such is the case, however, and the entire public will, therefore, benefit by what the exposition will try to teach. The architect and building trades are much interested in the exposition and many will make it a study.

At Hammond, Indiana, two ten-room houses are being built of round tile stood on end. The tile are manufactured under the Van Wie patent, and are made with four slots cut in each end of the tile. The slots are three by two inches and make it possible to interlock the tile together, thus making an interlocking wall. The tile are eight inches in diameter and twelve inches long. After the wall is built it is stuccoed. The wall is said to be very stiff and, being hollow, insures a dry, cool house. In cost it is said to be equal to frame. The Van Wie novelty is attracting considerable attention and will be exhibited at the Clay Products Exposition to be held in Chicago next March.

The fire insurance interests are much concerned over the excessive fire loss in the United States, which has put a number of companies out of business in the last few years. The

insurance people are much interested in the Clay Products Exposition to be held in Chicago next March, because it is recognized that burnt clay products are the best fireproof building material, and it is the aim of the exposition to educate the public on the importance of fireproof buildings. Such buildings are cheaper in the long run and will cut the excessive fire loss, which has amounted to nearly \$2.50 for each person in the United States each year. To lessen the fire loss is a worthy object and it seems wise to guard against fire rather than to have a fire and try to fight it.

SUBSCRIPTION TIME

Quick Action Necessary to Profit by the Present Low Prices.

THIS is subscription time for thousands of our readers, many of whom profited the past season by the Clay-Worker's clubbing rates. We give a few sample combinations below and more of them on pages 458 to 459 of this issue. These rates hold good till November 10th only, after which time many of the magazines increase their clubbing rates for the coming season. Those who wish to take advantage of the present low rate should send in their lists at once. Make any combination you desire, send us the list and we will quote you the lowest possible clubbing rate for the same. Quick action will save our readers a substantial discount. All orders must be sent to the Clay-Worker direct.

SPECIAL MAGAZINE CLUBBING PRICES GOOD ONLY UNTIL NOVEMBER 10TH.

Magazines Can Be Sent to Separate Addresses—New or Renewals.

	Our Price
CLAY-WORKER	\$2.00
Woman's Home Companion.....	1.50
American	1.50
Review of Reviews.....	3.00
	\$8.00

\$5.30

	Our Price
CLAY-WORKER	\$2.00
McClures	1.50
McClure's.....	1.50
	\$5.00

\$3.80

	Our Price
CLAY-WORKER	\$2.00
Hampton's	1.50
Pearson's	1.50
	\$5.00

\$3.20

	Our Price
CLAY-WORKER	\$2.00
Delineator	1.50
Everybody's	1.50
	\$5.00

\$3.70

	Our Price
CLAY-WORKER	\$2.00
Uncle Remus's Home Magazine.....	1.00
	\$3.00

\$2.00

	Our Price
CLAY-WORKER	\$2.00
Suburban Life	3.00
Cosmopolitan	1.50
	\$6.50

\$4.70

	Our Price
CLAY-WORKER	\$2.00
Brickbuilder	5.00
Scribner's	3.00
	\$10.00

\$7.75



Pottery Export to Siberia.—Germany, Russia and Japan are the main importers of pottery in Siberia. The articles sold in that market are mostly of a medium and inferior quality in both design and color. The style approaches that quality of goods which is usually found in the small towns of Europe. The prices are rather high, and the goods could be better. The Russian inhabitants lay great value on the possession of a complete table service set of the same design. In order to stimulate the trade, the merchants carry several designs of entire different styles, so that it is next to impossible to replace any broken pieces. The French Consul at Vladivostock advises, in order to obtain good orders, to send a French agent in that territory, which can speak the native language.—*Moniteur de la Ceramique*, No. 11, 1911.

Amount of Fuel Used in Continuous Kiln, a Premium System.—When the fire in a continuous kiln advances only 18 feet daily and the amount of fuel does not exceed 660 pounds per 1,000 brick, then the kiln has been fired all right. When the fire goes ahead quicker, and makes from 30 to 36 feet per day, then the fuel used should not amount to more than 440 pounds per 1,000 brick. Mr. Ulrich states that his firm allows him 250 pounds of coal for every 1,000 brick. When he does not go over this amount, the firm pays him ten cents extra for every 1,000 brick, which amounts to a good premium when it is taken into consideration that the yearly production is between three and one-half and four million brick.—*Tonind Z. No. 63*, 1911.

Kiln for Burning Roofing Tiles.—For the burning and bluesmoking of Dutch roofing tiles a chamber kiln with fire boxes on one side it is most frequently used. According to the quantity of production, chambers can be added. The construction of the kiln should be very good, on account of the pressure which will be exercised by bluesmoking. If the kiln is not built tight, the burning will be imperfect, and will show red tiles in place of blue tiles in many places. A good engineer should design your kiln. A red burning clay will better blue-smoke than a yellow-burning clay. While formerly the fire boxes were filled up with coal and then closed up, the use of crude oil is coming more and more in use. From eight to ten pounds of oil for every 1,000 tiles is sufficient to blue a kiln to a good deep color.—*Deut. Topf. & Z. Z. No. 41*, 1911.

Ceramic Course for Foremen and Superintendents.—Like in former years, the Royal Ceramic School in Hoehr had this summer also a technical-chemical course in which the superintendents and the foreman of the different clayworking establishments in Hoehr and Grenzhause took part. The course lasted from May 2 to June 9, and was divided into twelve evening sessions of two hours each. Among the subjects which were taken up are simple determinations of clay substance and sand in plastic clays which can be made in factories. Rational composition of body mixtures in connection with the vitrification of stoneware. Cheap and durable body coloring. Some matt glazes and colors both unfritted. Of all experiments—some twenty-three in all—about five pound mixtures were made, divided and burnt in the kilns of the different establishments. The results were then compared, and the defects of some studied. Dr. Eduard Ber-

del was the director in charge of the work. This shows how the Prussian government is working hand in hand with the manufacturers in order to elevate the quality of their products.—*Tonind. Z. No. 77*, 1911.

The Process of Firing.—The control of the firing is a very important part of the kiln burning. Too often this is left with inexperienced help, and the results are deplorable. The burning should always be checked up with gas analysis. The usual way to make a gas analysis is to determine the amount of oxide of carbon when the gases escape the chimney. Another and newer method to determine the amount of air necessary for firing is to determine the amount of oxygen necessary in excess of the normal amount for ordinary use. Multiply the amount so obtained by 4.75, deduct from this result 100, and divide the balance by 10,000. The result is usually the amount of air in the furnace. If the results shows that the amount of oxygen is not sufficient to produce complete combustion, the amount can be increased by damper regulation. It will only be necessary to make such determination once, as the air inlets are always the same.—*Revue Gen. De Ceramique No. 3*, 1911.

Comparison of Freight Paid for Raw Materials in Pottery Industry.—The careful location of a clayworking establishment and especially a pottery, where most of the raw materials are shipped in, is best illustrated by the cost sheet of two potteries which are located in Thuringia. "A" is located advantageously, regarding railroad and shipping facilities, while "B" is located in a district which has very poor accommodations. The potteries are nearly alike, they employ each about 250 men, and have six kilns. The cost sheet is divided into operating expenses and the price paid for the material at the shipping point and the freight paid on the same to the factory. The total yearly production amounts to 435,000 marks for undecorated white ware, and to 90,000 marks for decorated ware, giving a total of 525,000 marks. As the cost in both places differs according to the following table, we find that pottery "A" shows a profit of 49,219 marks, while pottery "B" only shows a profit of 26,848 marks. This difference of 22,371 marks was paid for additional freight, which is 4.26% of the cost of production, and in many instances this would represent the total net profits of the company.

250 employes' wages at 880	220,000	.....	.....
100 cars Kladner coal	15,500	8,000	10,500
220 cars Zwickau coal	41,800	8,800	18,230
100 cars Bruxer coal	8,000	6,600	10,200
30 cars furnace coal	3,300	1,080	2,700
40 cars kaolin	21,600	2,080	4,560
25 cars feldspar	8,000	2,900	3,100
20 cars of flint.....	6,000	2,400	2,560
8 cars China clay	3,360	864	928
2 cars limespar	240	54	134
1 car flint pebbles	330	63	75
15 cars of plaster	2,775	630	945
25 cars plastic clay	2,250	1,500	1,800
35 cars fire clay	1,925	1,330	2,940
Miscellaneous materials ...	4,000	600	600
Insurance premiums empl's	4,000	.....	.....
Office materials	2,000	.....	.....
Packing, shipping materials	3,500	300	300
Miscellaneous small frts....	.....	1,000	1,000
Fire insurance, taxes.....	5,000	.....	.....
Decorating materials	14,000	.....	.....
General expenses .....	.....	.....	.....
Salaries	37,500		
Traveling men	9,000		
Agents, commissions	8,000		
Traveling and incidental ex.	6,000	60,500	
Repair expenses	9,500		
Total marks.....	437,580	38,201	60,572
Total marks, Pottery "A"...	475,781		
Total marks, Pottery "B"...	498,152		

—*Spreschsaal No. 15*, 1911.

WAVERLEY ELECTRIC LIMOUSINE-FIVE.

THE Waverley Company, of Indianapolis, offers this year something entirely new in the automobile world—an electric limousine seating five passengers and giving the driving occupant a wholly unobstructed view through the front window.

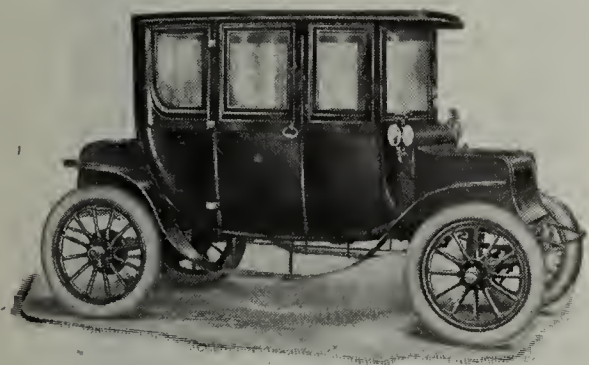
The difficulty that has always presented itself when an electric of this type has been proposed is the unusual dimensions of the car. Not until the present year has it been practicable to build an electric with wheel base of 104 inches, a body sill of 129 inches and a length over all of 144 inches. The very latest improvements in batteries, tires and gears are all necessary to give such a car the requisite speed and mileage.

These are the dimensions of the new 1912 Waverley and it is emphatically stated by the Waverley management that all the speed and mileage needed for any town car will be found in their Limousine Electric.

The car has practically the same regular equipment as the Waverley Roadster that recently made 1,400 miles in 124 hours' running time on a tour extending through four States. The chief difference is in the wheels and tires, which are 34 x 4-inch rear and 34 x 3½-inch front.

The design of the car is a refinement upon the lines of the town chariot of French design, used in the period of the first empire. It departs widely from received ideas in electric construction, but preserves the grace and dignity of line demanded by conservative Waverley patrons.

The mechanical features of the Waverley Electric Limou-



The New Model Waverly

sine-Five include the Waverley Multipolar Motor, with its 360 per cent overload capacity, feeding abundant power through a silent flexible gear to the transverse shaft of the Waverley High Efficiency Shaft Drive, which again transmits 98.7 per cent of the power received through herringbone gears to the full floating rear axle, all gears, bearings and shafts being housed in dust-proof cases and running in a constant bath of oil.

Battery and motor are completely under the control of the Waverley No-Arc Controller, approved by Edison, that provides for four speeds, either forward or backward, but can not be started in either direction on any speed but the low, a Waverley feature that adds greatly to the safety of driver and passengers.

An option is allowed with this car on either side lever or wheel steer with sector pinion. Instant responsiveness to the will of the driver is the distinctive feature of the Waverley steering mechanism. Internal expanding brakes with twelve-inch drums and motor shaft contracting brake, operated by convenient foot pedals, complete the safety controlling system.

Full elliptic springs, with platform springs front and rear, support the evenly balanced weights of the body and mechanism, no share of which falls uncushioned by springs on the axles or tires. Thirty-four-inch wheels, with fast 3½-inch front and 4-inch rear tires, form the regular equipment, reducing the amperage draw to the lowest possible limit.

Any approved make of battery will be installed. Recent improvements in the leading types of batteries give the

owner of a Waverley Electric Limousine perfect assurance of sufficient current for every requirement of town or suburban travel.

SEMI-ANNUAL MEETING OF DIRECTORS OF THE BUILDING BRICK ASSOCIATION OF AMERICA.

THE semi-annual meeting of the board of directors of the Building Brick Association of America was held in their main office in the Flatiron building, New York, September 18, and the session occupied the entire forenoon and afternoon. Out of the twenty-five present directors of the association thirteen attended this meeting, as follows: E. J. Burke, F. W. Butterworth, J. Howard Chambers, J. Parker B. Fiske, William Hanley, E. L. Ives, H. J. Jova, H. C. Kleymeyer, T. C. Moulding, R. L. Queisser, E. Rogers, John W. Sibley, Ralph Simpkins.

The fact that some of these gentlemen came from as far west and south as St. Louis, Chicago, and Birmingham, as well as points nearer to New York, is an indication of the live interest taken in the work of this association by leading brickmakers.

A number of routine and minor matters were quickly disposed of and a study was then made of the work of the association thus far this year, and plans were discussed for the continuance of the work upon an enlarged scale. Despite a shortage of funds, it was unanimously voted to proceed without hesitancy and carry out the advertising program formulated by the executive committee at its May meeting; this includes advertising in the following magazines for the balance of the year: Saturday Evening Post, Everybody's Magazine, Literary Digest, Cosmopolitan, McClure's, Craftsman, Country Life in America, Suburban Life, Good Housekeeping.

Several members of the board reported enthusiastically on the results of the association as reflected in their own business, among whom was Mr. Thomas Moulding, of Chicago, who stated that he had been able recently to convert two large building operations from wood and stucco to brick, with a result that many hundred houses would be built of brick in the future, which otherwise would have been of wood or stucco.

Considerable discussion took place regarding the possibility of a movement for more favorable and equitable freight rates on brick, attention of the directors being called to the fact that present rates on brick are higher than those on corn, wheat, breakfast foods, steel, cement and many other commodities the value of which and the risk of transporting which is far greater than in the case of brick, and a committee of three was appointed to look into this matter and to formulate some plan to be brought before the annual meeting in March, whereby concerted action may be taken by the brick interests in the near future.

The hearty sympathy of the Greater New York Brick Company was represented by Mr. Jova, who is a director of both organizations, and a subscription of \$1,000 was received from the Greater New York Brick Company, payable quarterly, to assist in the advertising campaign.

It was voted to continue for 1912 the same membership dues as are now in force.

The entire meeting was marked with interest and enthusiasm and will go down in the annals of the association as one of the best ever held.

People do not generally appreciate that false teeth are often made of clay, and yet such is the case. There are many uses for clay not known to the people. Linoleum is largely clay, paper is most of it clay, rubber water bottles carry a large per cent of clay, as do automobile tires. The best bath room equipment is all clay, including floors and walls. So wide and varied is the use of clay that an exhibition of all products made of clay would be unusually interesting. This is the aim of the Clay Products Exposition to be held in Chicago next March. Manufacturers of all the products of clay will unite in one great exposition.

Written for THE CLAY-WORKER.

THE DANGER OF CONCRETE CONSTRUCTION.

THE RECENT CALAMITIES at Austin, Pa., and Hatfield, Wis., resulting in the loss of many lives and much property, afford dreadful object lessons of the danger attending the use of concrete. The engineering magazines are giving the results of investigations with illustrations of the wrecked dams that picture in the most graphic manner the dreadful havoc wrought in the flooded district. The Engineering News in its issue of October 5th contains data that students of these problems may well ponder carefully. Speaking editorially of the lessons of the disaster, the News says in part:

"The terrible disaster which destroyed the village of Austin, Pa., last Saturday with a loss of two hundred or more lives, is a shock to the engineering profession hardly less appalling than that experienced when the Quebec bridge fell four years ago.

"So far as the newspaper reports have informed the world, the structure was designed and built under direction of a competent engineer of good reputation. The structure fails suddenly with great loss of life, and the public jumps to the

way. If it were, accidents and failures to engineering works would be far more numerous; but we do know that far too much of the work of engineers is done under conditions which prevent them from really bearing the responsibility that is nominally theirs.

"It is farthest from our desire to say anything at this time which may needlessly add to the burden of those, whoever they may be, on whom responsibility for this disaster may be placed and who are without doubt already suffering tortures untold. We should be derelict in our duty, however, did we not point out the salient facts in connection with the disaster, not for the purpose of locating the blame, but to indicate how similar calamities may be avoided in the future." * * *

Danger always lurks in concrete construction of any sort, due largely to the liability of contractors, or their employes, to slight the work while in course of construction and by improper mixture, or the careless application of materials, and so weaken a structure that it is a constant menace to life and property. Eternal vigilance and the most rigid inspection lessen but do not entirely obviate this danger. In work such as these great dams, government inspection should be required, and in lesser jobs where private inspection alone



View of Lower Face of Austin, (Pa.) Dam After Failure. Reprint from Engineering News.

conclusion that no engineer is reliable, and that no dam is safe.

"We wish, first of all, to combat this idea. Most emphatically do we declare that it is within the resources of engineering to so build such a dam as that at Austin that it shall be safe and secure. It is not our province to sift and apportion the responsibility for this sad calamity. It is our duty to say that the occurrence is without excuse; and that if the dam had been built with proper precautions and proper regard for safety the failure would never have occurred. There is no mystery in the art of dam construction and no problem in their design which competent engineers are not capable of solving with accuracy and reliability.

"But, it may be said, why then do dams and bridges and other engineering structures fail, even when engineers of good reputation are employed in their design? We can answer this question in a word. These disasters occur because too frequently those who build these structures buy just as little engineering and buy it just as cheaply as they possibly can.

"They do not quite dare to go ahead with an important structure without some sort of engineering advice; but they get along with just as little as possible; and too often they reject so much of it as does not suit their fancy or their purse.

"Of course not all engineering work is carried on in that

prevails, every safeguard possible should be insisted upon. Even then, there is always an element of danger in concrete work, especially if the structure is of any great importance.

A NEW DEPARTURE IN HANDLING GRITTY WATER.

For many years the Pulsometer has found favor for dredging work, coal mining, sand suction, etc., because it has no rubbing surfaces and therefore experiences no difficulty in handling gritty water. To overcome the terrific cutting action of high velocity water containing very hard flinty matter, the Pulsometer Steam Pump Company announces that Pulsometers are now being cast by special patented process wherein the shell, while of the usual cast iron construction to give ample rigidity, is completely lined on the inside with a surface of carborundum. Sand blast and other abrasive tests would seem to indicate that this lining will stand almost indefinitely the wear of water moving at high velocity and containing anywhere from 40 to 69 per cent. of the hardest kind of solid material. Special information on this type of pump can be had by addressing the Pulsometer Steam Pump Company, 17 Battery Place, New York City.

The way to the other place may be paved with good intentions, but it takes more than that to do good paving here on earth.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.



TO BE FULLY convinced that the old worn-out phrase "hard times" is unknown to a busy man, all one has to do is to visit among the Philadelphia brick manufacturers and their brethren in the trade. What is more convincing that the old cry has no meaning when books are shown and comparisons made for years past with the balance of credit to the season of 1911?

The building brick manufacturers have had a banner year. As it is well known, Philadelphia is the "City of Homes," and the tremendous number of dwelling houses now being built far surpasses the record of any three previous years taken together.

The paving brick manufacturers are also congratulating themselves on a banner year. There has been plenty of work and the contract prices have been good.

The building of new homes, hotels and apartment houses and the increased demand for bath-rooms has caused the tile makers to rush their plants. There are few, if any, houses being built at the present time that do not have a bath-room on each floor and in the larger houses there are several baths on a floor, and as the demand for sanitary conditions becomes the cry of the age, the tile makers are reaping a harvest.

Optimism is the watchword of the Philadelphia brick, tile and pottery manufacturers and the prospects for future business are more than bright.

The Mack Manufacturing Company, No. 2232 Land Title Building, report being oversold, and are now booking contracts for 1912. Their plants have been running full time and with full forces all summer, but they are unable to supply the demand.

The National Fireproofing Company, with offices at No. 317 Land Title Building, have been awarded the contract to furnish the fireproof brick for the Curtis Publishing Company's warehouse at Eleventh and Washington avenue. They have also been awarded the contract for the fireproofing of the eleven-story building to be built at Seventeenth and Sanson streets for the Theodore Presser Company, music publishers. The contract for the hollow tile fireproof columns, covers and wall frames in the new Ritz-Carlton hotel, being built at the southeast corner of Broad and Walnut streets, has been awarded to the National Fireproofing Company.

Mr. E. G. Schaffer, assistant to the president of the American Brick Manufacturing Company, No. 238 Land Title building, says their company has had one of the biggest years since their organization. They have been awarded the contract to furnish their "dry-pressed face brick" for the new dwelling houses being built by the John McGraw Company. The contract calls for 120,000 brick. The contract for 150,000 brick for the Storch and Scheid operations in South Philadelphia has also been awarded to the American Company, and in addition they are figuring on the brick work for the new DuPont hotel at Wilmington, Delaware.

Mr. W. Godey Ellis, a director of the American Brick Manufacturing Company, is at present at Frankfort-on-Main, Germany, and expects to return to this side about the middle of November. Mr. Ellis was a guest of the Savoy hotel in London at the time of the disastrous fire several months ago and lost the greater part of his personal effects.

S. B. Dobbs, No. 303 Bailey building, who furnished the inside brickwork for the new Curtis Publishing Company's building at Sixth and Walnut streets, reports an exceptionally busy year, and at the present time is furnishing the brickwork for several large contracts, among them being the new

Government buildings at the League Island Navy Yard. They also have several paving contracts, one in Asbury Park, N. Y., calling for 500,000 bricks, and at Trenton, N. J., calling for 250,000 brick, and at Egg Harbor, N. J., calling for 200,000 brick. They have just completed their contract on the Curtis building, which called for 2,500,000 brick. They are looking forward to a big year in 1912, both in the building and paving brick.

Mr. Horace Trumbauer, one of the foremost architects of the country, in a communication recently sent to Chairman William T. Tilden, of the Property Committee of the Board of Education of Philadelphia, declared that the board did well in specifying brick instead of granite as the material for the new high school building now being erected at Forty-eighth and Walnut streets. In discussing this matter Mr. Trumbauer gives two reasons for this statement:

First: That a brick building with a limited use of limestone, is as good a building as if it were built of granite, and in one very important consideration it is distinctly better, for it is an accepted fact that no building stone will stand as well under fire and water as do brick and terra cotta.

Second: The use of brick and limestone in the building of several of the recently constructed school buildings, he says, is a source of gratification to him, and he does not hesitate to say that these materials appeal to him as the most desirable ones to use.

This matter was referred to Mr. Trumbauer for an opinion after a very spirited contest concerning the material of which the West Philadelphia high school shall be built. Mr. Tilden, in the face of much opposition, decided to use brick with limestone and terra cotta trimmings instead of granite with limestone trimmings, and to back up his stand in the matter wrote Mr. Trumbauer for his professional opinion.

Chambers Brothers Company, Fifty-second and Media streets, have secured the contract to furnish the machinery for three plants of the General Refractories Company. Two of the plants are located in Kentucky and one in western Pennsylvania.

A. QUAKER.

Philadelphia, Pa., October 5, 1911.

A SLOGAN WITH A MEANING.

In their ads. on pages 366 and 367, of this issue, the Chisholm, Boyd & White Co., of Chicago, is the terse announcement that Boyd presses are "Built up to a Standard—Not down to a Price." This is a slogan with a meaning, as users of machinery made by the C., B. & W. Co. will testify. The manager of the company, Harry J. Flood, is one of the pioneers in the manufacture of dry press brick machinery. Having first served an apprenticeship in the brickmaking business, he knows from practical experience the chief needs of the trade, and has labored diligently and intelligently to meet these requirements in the manufacture of high-class machines. A handsome catalogue of Boyd presses, dry pans, clay feeders, conveyors, screens, etc., etc., will be sent on request to any Clay-Worker reader.

The Book of Smiles.

Always highly entertaining, the Book of Smiles, issued to the trade by the Standard Dry Kiln Company, of Indianapolis, Ind., comes to us this month with more wise sayings and more amusing jokes than ever before. To start with, on the front cover page is printed these statements, "Blessed is the man who hasn't time to tell us his troubles," and "If you want your wife to believe everything you tell her—don't marry a widow." These two are only starters; then, too, you know, the booklet contains several articles on the Standard Dryer, which has made an enviable record in the clayworking world. Write the Standard Dry Kiln Company for a copy.



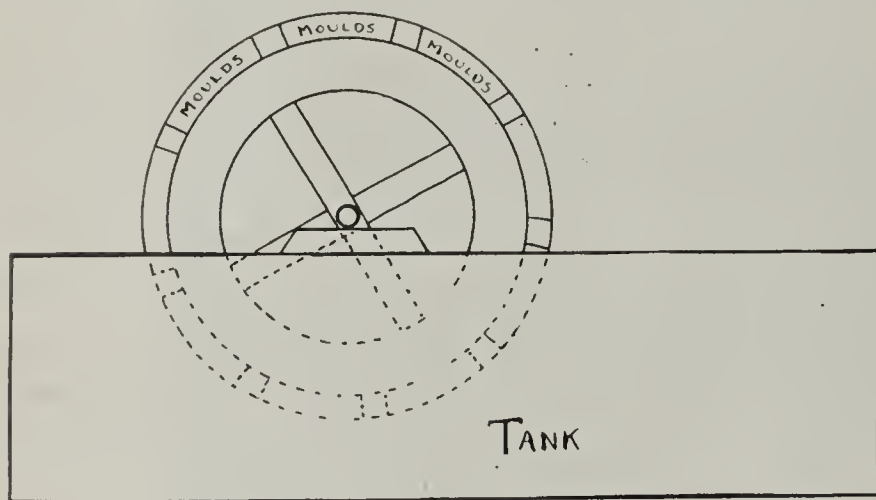
THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A "Home-Made" Mold Washer.

EDITOR CLAY-WORKER:

Enclosed you will find a rough drawing of a mold washer which I made last year, and I can tell you it makes a dirty, disagreeable job, clean and easy. I thought if you could publish a drawing of it in your paper it would help some others. I will give you a description of how I made mine as well as I am able to.

I took an inch-and-a-half pipe for an axle and bored holes through it and fastened a small rod to the cross-pieces with staples. The cross-pieces and the rim are made 2 x 6. The places to hold the molds are made of one-fourth of an inch round iron and fastened to the rim with screws. A few turns



End View of Mold Washer

will wash dry molds and if clay happens to stick in corners a sharpened piece of wood soon cleans them out and a few more turns of the machine does the trick. The whole thing can be made by a handy man and will cost only a few dollars.

Hoping that my explanation is sufficient, I remain,

Yours truly,

W. T. ALBEE,

Foreman Red Deer Brick Co.

Texas Clay Deposits.

EDITOR CLAY-WORKER:

Since I have subscribed for THE CLAY-WORKER, I find it a much better paper than I first expected, especially for describing new fields and new discoveries and new ways. This part of Texas has one of the most wonderful clay and mineral fields in the world. It is all in a small field of only several thousand acres and two railroads run right through it, and none of it has been developed yet, except in the way of extensive tests by the government and others, most of which, I am sure, would be quite interesting to some of your readers.

The next report of the Government Geological Survey, which is now being printed, will give a map and description of some of the valuable things (mostly clays) of this wonderful field of deposits, such as the greatest deposits of pure white china clays and kaolins, millions of tons of the finest brick and tile clays and the largest and finest deposits of the best fuller's earth in the world, right under the railroad track, 47 feet thick, with only 2½ feet of

strippings, and an abundance of the finest lignite for fuel, just under the fine clays. There is room and material for several bonanzas for clay producers and workers.

Besides the clays we have several large deposits of pure white feldspar and pumice and other white sands.

There is no lime in the clay belt, but six miles south-east is a peculiar streak of alabaster (pure white) 3 to 20 feet thick, one-fourth mile wide and over 20 miles long, which should be the greatest thing in the world for paint and white cement makers.

There are many other minerals and fine stones, including the Texas diamonds, in this field in paying quantities. Either myself or Dr. Alexander Deussen, the United States geologist, whose office is at present in the State University at Austin, Texas, will gladly give you or your readers any further information you may wish on any of the above minerals and deposits.

Yours very truly,

J. C. MELCHER,

C. and M. E.

Some Mistakes of the Brick Business.

EDITOR CLAY-WORKER:

It has been said that all that is required to make a good brickmaker was a strong back and a weak head. This I think is a gross slander on the profession, though it is true that from some of the mistakes made in the business, we are some times inclined to believe it.

The great trouble seems to be we find engaged in the business too many men with ability but not sufficient capital who are trying to rise from the position of employe to that of employer, and while having ability and experience do not possess enough money to carry on the business successfully, and those with money but without knowledge or experience in the business and are not willing to pay for what they lack. A combination of the two is hard to find.

The man without money is ambitious and anxious to get a start, and in consequence of not having sufficient capital to get what he wants, he takes what he can get, something he probably would not consider were he better fixed financially; it is not his best judgment, but it is his only chance under the circumstances. He gets his little bit of money in the business but it is not enough; he struggles along and is lucky if he gets more than wages for his time and investment. Then on the other hand we have the man with money but without ability or experience in that line, but an abundance of conceit and who thinks he knows it all.

If he consults anyone it is probably some one about as well informed as himself. He thinks he has the business down fine and will show some of the plodding old brickmakers how to make brick. He is so satisfied with his knowledge of the business that he does not consult a practical man at the beginning when he needs him most, but goes ahead, selects the place, buys his machinery, and lays out his plant before he has any idea that he needs assistance.

His selection of location, material, machinery, etc., may have been a grand mistake. About this time he begins to look around for some one who can make the brick and conduct a successful business, but many times it is too late. A mistake has been made in the choice of location, material, laying out of plant, etc., but he has money and is willing to lose some of it rather than admit he was wrong.

It seems to be the opinion of too many that as brick is made of mud that any one can make brick, and that it does not require experience, or even ordinary intelligence, when in fact there is hardly any business that requires as much judgment. The mariner has his compass with which to guide his craft to points of destination, the astronomer his instrument and glasses to take his observations, the mechanic his plumb, square, level, etc., to guide him in his work, while the brickmaker has to rely almost entirely on judgment.

ALBERT A. WENZEL.

Written for THE CLAY-WORKER.

FROM THE ILLINOIS CLAY FIELD.



LAYWORKERS at the Illinois State Fair were barely represented, from a numerical standpoint, but from an angle of quality exhibited and business done, the field was very well covered. One of the busiest and most popular places on the grounds was the exhibit of the White Hall Sewer Pipe

Company, of White Hall, which came on the spur of the moment and was forced to accept headquarters in the dairy building. This firm featured its grout vitrified block silo, which was described in a recent issue of THE CLAY-WORKER. This firm could not show its silo. It was lucky to get away from the factory with a few blocks with which to explain the construction to the eager Illinois farmers. A series of storms, wind, and rain the latter part of September and the early part of October have been putting silos in Illinois to a thorough test. The result was that the farmers are seeking to replace stave and cement storage houses and so swept down upon the White Hall plant and completely cleaned it up. Before next year it is hoped to erect a permanent vitrified block silo for the regular stand on the Illinois fair grounds. This not only will show the stable construction of silos but will house the office and the sales force. This year it was necessary to confine the display to a few of the blocks, a method of their reinforcement, samples of the different sizes of drain tile and sewer pipe manufactured by the White Hall Drain Tile Company, which is closely connected with the sewer pipe concern. A portfolio of remarkably good photographs, showing the big plants and some of their operating methods seemed surprisingly interesting to the average individual. The busy sales force, headed by H. C. Morrow, president, was composed of C. Lowenstein and O. W. Strang, of White Hall. W. L. Halbert represented the White Hall Drain Tile Company.

W. I. Crowell, manager of the St. Louis Clay Products Company, Third National Bank Building, St. Louis, also was in this booth and was working all the time. His firm is pushing the Grout silo as well as other articles manufactured by White Hall people.

The Imperishable Silo Company, of Huntington, Ind., did not get their permanent silo up on the ground until the fair was partly under way, as rains had made working impossible. As a result the workmen were almost handicapped by inquirers after silos. The questions relating to construction were, of course, carefully answered, but a number were forced to await the arrival of the salesmen for prices and other details. The thirty-two-foot silo is a big advertisement for the Brazil, Ind., products and the expense was justified by the business transactions.

John P. McCabe, 1128 West Edwards street, Springfield, Ill., had an interesting exhibit of tile, mantels and fireplaces.

It is probable that H. C. Morrow, of the White Hall Sewer Pipe Company, and his associates at White Hall will form a separate company with a capital stock of \$40,000 for the manufacture of silo blocks. The sewer pipe and the newly erected drain tile factory have not the capacity to handle this branch of the business, and it is announced that plans will develop rapidly.

The Mt. Carmel Commercial Club has begun an investigation of the shale banks on the Reel farm, near that city, with a view to securing a paving brick plant.

The National Drain Tile Company, of Terre Haute, Ind., was awarded the contract to furnish the tile for the Union Drainage District No. 1 in two townships in Champaign county.

W. J. Pech, proprietor of the Buckeye pottery at Macomb, has returned from a six-months' trip abroad.

The Streator Clay Manufacturing Company, of Streator,

had an exhibit of drain tile from two-inch to thirty-six-inch at the LaSalle county fair at Ottawa. Fred Wendel was in charge of the booth, which was constructed entirely of tile.

Roy N. Milligan, of Lawrenceville, has invented a vitrified shale and asphalt waterproof grave vault which he declares can be placed on the market at \$35. Letters patent have been asked. Undertakers have been very well pleased with the first model.

Arthur Lambert, of Albion, for six years with the Albion Vitrified Brick Company, will be plant manager of the new factory of the Illinois Drain Tile Company at Albion. The old plant of the Edwards Vitrified Brick and Sewer Pipe Company has been rebuilt and a steam dryer installed. J. C. Carlyle has been made president and general manager; George C. Zeigler, of Carmi, vice-president, and Samuel Ziegler, cashier of the Albion Bank, secretary and treasurer.

NOTED BRICK CASTLE.

A TELEGRAM from London announces that Lord Cromwell's noted brick castle, built in 1433, will be removed to the United States by Editor Hearst. The old brick castle is in excellent preservation. It will be taken down, the bricks carefully packed, and the historic pile rebuilt in the United States. Though the brick in this castle were made in the most crude way back in 1433, they are in perfect condition, which leads American architects to insist that the excellent brick made nowadays are practically proof against time and will last forever. An effort will be made to get some of the Cromwell brick to exhibit at the Clay Products Exposition, to be held in Chicago next March, in comparison with brick of today.

Tattershall castle has been brought prominently to public notice because of the attempts which have been made to save the famous mantelpieces contained in it from being taken out of the country. Maj. Sir Francis Trippel offered to provide the necessary funds, but several of the mantelpieces which had already been taken out of the building were so badly broken that the council of the national trust refused the proffered assistance.

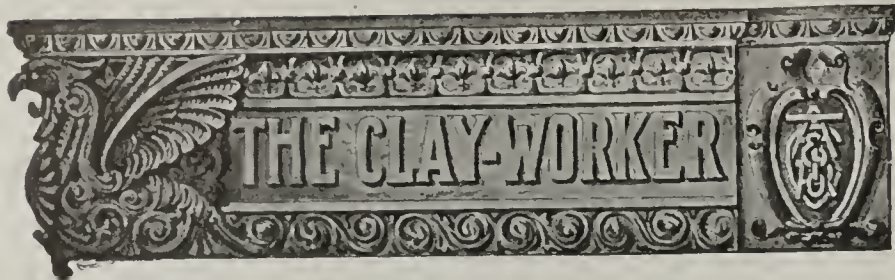
Tattershall castle was erected by Lord Cromwell, Lord Treasurer to King Henry VI., about the year 1433, and has been described as probably the finest specimen of mediaeval brickwork in the United Kingdom. The four fireplaces in the castle are remarkable for their beauty and heraldic interests, and give practically a history of the owners and builders of the castle from the earliest times. It is understood these fireplaces were carefully studied by Pugin when he designed the interior decorations of the new Houses of Parliament in London.

BRICKMAKER ADDRESSES GOOD ROADS CONGRESS.

Mr. Fawcett Plumb, of Streator, Ill., addressed the Good Roads Congress in Chicago last week. Mr. Plumb presented a well-thought-out plan for the employment of convict labor in making paving brick. He gave figures as to cost and showed how the roads of the entire state could be paved with brick by the use of convict labor, to the great benefit of the convicts themselves. Governor Shafroth, of Colorado, addressing the same congress stated that they are now actually employing convicts in road making, without guards, with great success. Only two have attempted to escape and of these one returned voluntarily.

POTTERY WORKER HOLDS RECORD FOR CONTINUOUS WORK.

James O'Hanlon, of East Liverpool, O., holds an unusual record for a pottery worker. He has been employed by the Standard Pottery Co., continuously for 23 years. During that time he has worked at the same bench, never changing even for a day. He is also the oldest employe of the company in point of continuous service.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LVI. OCTOBER, 1911. No. 4.

CURRENT COMMENT.

Some people simply won't take a lesson from anything but experience, even in street paving.

Some people say by their actions that they believe the roadway of the hereafter is paved with "gold brick."

Just a little bit of iron in the water of a steam boiler has a pretty big effect. It cuts some figure in brick clay, too.

Wealth is one of the essentials, but it is public spirit and pride that really prod things up and "make the mare go" in the upbuilding of a city.

From the evidence at investigations it may be inferred that senators may not buy their seats, but it costs lots of money to get their togas.

The fewer brick you have on hand when cold weather comes the better—provided, of course, you have made and sold your share for the season.

Puzzling problems may be a stimulant for genius, but to the man on the job with both hands full a few simple solutions are the most welcome things.

When the man with a good municipal idea feels like railing at the public for its lack of enthusiastic interest, he should remember it is not all stupidity. Some of it is the memory of stings in the past from ideas that were not good.

Some of the former advocates of cement products are now admitting that no building material can be longer sustained in popularity by false and extravagant claims, which it is not able to back up. This is just a polite way of admitting

that too much was claimed for concrete and the reaction has taken place.

After all there is nothing illogical about using old second-hand brick for face work to get unique and quaint effects, so long as we prize highly the antique in furniture and go abroad and pay big prices for it.

Some of our western states are breaking past records in coal production and incidentally they are gradually, but steadily, developing their clay products resources and furnishing material for better home building and better street paving.

Did you exhibit and demonstrate clay products at your state and county fairs? If you did not maybe you missed something. Also maybe after you take a hand in that big Chicago show you will not only be more enthusiastic over exhibiting, but you will have more specific ideas to work with next year.

When it comes to winter time and people are building new chimneys and flues is a good time to push fire clay flue linings. They not only improve the drawing qualities of the flue, but they also add to the safety against fires. So much so, in fact, that in some of the cities the building ordinances require linings in all flues.

A recently published statistical record of the progress of the United States during 111 years shows that the population is now 31.54 per square mile and the per capita debt was the lowest on record in 1911 with the exception of the years 1907 and 1908. As it is today every man, woman and child owes \$10.83 on the public debt. This is not so bad when we consider there was a time when every individual owed \$76.98.

OBJECTIONS TO OILED ROADS.

Complaints against oiled roads on the score of slipperiness are growing more and more common. It applies both to oiled surfaces and also to macadam and bitumen combinations. In Duluth, vigorous objection is being raised to treated macadam roads on the steep slopes of that city. Property owners make the selection of the material that they prefer, choosing on the score of low cost, without regard to the suitability of the medium. Brick paving blocks, properly laid, are free from all the objections raised to the oil roads—of being slippery to teams and to automobiles. They are durable and substantial and are the ideal pavement for use on sharp grades. Hence it is presumed that brick pavements will become popular in Duluth.

UNDER THE BLACK FLAG.

In the July CLAY-WORKER there appeared under the above caption, a brief editorial (nineteen lines, to be exact) calling attention to a bit of piracy by our Chicago contemporary. Now, after a lapse of three months, they awaken to a sense of their offense and try to justify their action by a labored two-page effusion, which has little or no bearing on the real question at issue; which is their failure to give proper credit to the associations for whom the papers were prepared. That is all there is to our criticism. The papers in question were prepared at the request of, and presented to, the associations, and this fact was known by our contemporary. Therein lies the offense, and the justification of our criticism. The printing of the author's name under the title of the paper does not in the least mitigate the offense; on the contrary, it adds to it, for the more conspicuous the author, the greater the degree of piracy. No amount of befogging, no matter how long drawn out, can obscure these

facts. Surely our contemporary does not hold the clay-workers of the land so cheaply as to think them incapable of comprehending so simple a proposition, and be so easily misled by their verbal gymnastics. There lies on our desk the recently issued volume of transactions of the American Ceramic Society. Does our contemporary dare use any of the valuable treatise in same without credit to the society? We await reply. We can very well afford to ignore the personal abuse indulged in by our contemporary for the simple reason that it is wholly uncalled for and undeserved. It is hard to divine the purpose of our contemporary in attempting to connect the secretary of the N. B. M. A. officially with this controversy, except on the theory that it is merely a part of the befogging process. It must be apparent to every disinterested reader that our contemporary has strayed from the path of truth and decency, in a futile attempt to avoid a just criticism. Its course may again be properly characterized as "most disreputable."

"NO TIME TO READ."

Sometimes when you go into a man's office and see a whole lot of trade papers on top of his desk with the wrappers still on them and unread it may be a sign that the papers themselves are dull and uninteresting, but more often it is a sign that the man is afflicted with that ailment known as "No Time to Read."

He persuades himself and makes the excuse that he hasn't time to read through them carefully and yet he perhaps finds plenty of time to keep in close touch with the sporting news and events of the day and many other things of lesser importance.

The man that imagines that he hasn't time to read is really afflicted with a species of ailment that he ought to shake off. There is no man but that has time to read not only the solid matter, but also the advertising of the papers representing the industry in which he is engaged. It is simply a matter of forming the habit and keeping at it, and the forming of this habit is one of the first essentials to keeping up with the times and being forehanded in the business.

Being afflicted with that ailment of "No Time to Read" leads eventually to more or less sleeping on the job and falling behind the times in new ideas and appliances that make for progress in the industrial world.

So, if you are forming the habit, shake it off while it is in the incipient stages. Don't let it become chronic or acute, for there is really no such thing as "No Time to Read." Every man can find the time if he will just keep awake his desire to read and keep informed. Also, nearly every man reads enough. The trouble is that he does not always direct his reading toward the papers which cover the industry in which he is engaged. Make up your mind that you are going to read. Read first in the direction of your occupation and then enough general news and literature to keep well informed and broad gauged. And if you follow this persistently you will profit thereby more than you think possible to begin with.

AIDS TO BRICKLAYING.

Brick manufacturers, as a rule, lend generous aid to trade schools in order to encourage young men to learn useful trades, and especially to learn the trade of bricklaying, so that indirectly it may help extend the use of brick and make it practical for those desiring brick work done to get someone qualified to do it.

There is perhaps hope in the minds of some that the training of more men will, to a certain extent, ease the cost of bricklaying and in this way encourage a still larger use of brick. To this same end brick manufacturers might well give attention to the encouragement and development

of ideas of a mechanical nature that will assist in bricklaying and contribute something to reducing the cost of putting brick in the wall.

It is not only the brick mason that costs money. Not only is he about the highest paid skilled laborer working on structural work, but there is a lot of incidental cost surrounding him. As a rule the hod carriers cost more money than carpenters, though hod carrying is not skilled work. So do those who mix mortar and prepare it for the building cost money, and then there is the expense of scaffolding, which sometimes amounts to nearly as much as the expense of doing the actual work of bricklaying.

The question is, what can be done to reduce the burden of cost for some of these? Just what can be done remains to be seen, but it looks like there is a chance here to develop machinery and mechanical appliances just as the trade has developed them in the work of digging clay and making up and burning brick. It should be practical to develop machines for contractors for mortar mixing and already there is some progress being made with inexpensive hoisting machines to carry the brick and mortar up on buildings, and there should be more of these. The brick machinery people might well turn some attention to developing special machines to assist in this work. Machines that the contractor and builder can afford to build, and they will not only relieve the burden of cost, but will also be something of a safeguard against any scarcity of labor and difficulty about getting enough help to push building work forward.

There is room to not only develop mortar-making machinery and hoisting machinery, but also develop some special mechanism or appliance that will facilitate scaffolding and reduce both the time and expense required in rigging temporary scaffolds for masons to work on. It is not an easy thing, neither can it be done all at once. If it were so it would have been done long ago. However, the problem as a whole is no more difficult than many other problems the clayworker has already solved, and if enough attention is concentrated on it some good progress can be made in the course of time that will reduce the cost of laying brick in the wall and thus encourage a more extensive use of clay products.

TRADE LITERATURE.

VOLUME XIII of the Transactions of the American Ceramic Society has but recently been mailed the members, and is, as usual, a voluminous compilation consisting of excellent papers and discussions along ceramic lines. Both technical and practical papers appear in this year's transactions, which will be read with much interest by the ceramists of the land.

MODERN BRICKMAKING, by Alfred B. Searle, is a 441-page, well-printed and illustrated book, published by the D. Van Nostrand Company, and sold for \$5.00 net. It contains fifteen well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss. There are very few clayworkers that would not be interested in this work.

THE SAWYER BELTING COMPANY, Cleveland, Ohio, has favored us with an exceptionally attractive lithograph covered catalogue, pocket size, which contains in tabule size a lot of valuable information about Sawyer belting that belt users generally will find useful. One feature mentioned of special interest is Sawyer Belt Dressing, which is made specially for use on canvas belting and is guaranteed to keep belts soft and pliable, acts as a simple and inexpensive preservative, gives belts better traction, prevents slipping and consequent wear, and allows belts to run slack. For further

particulars in regard to Sawyer belts, see their ad on page 448 of this issue, or better, write them for their literature.

STANDARD TESTS OF PAVING BRICK is the latest pamphlet issued by the Ceramic Supply and Construction Company, of Columbus, Ohio. The booklet contains much of interest to its readers, beginning with an historical sketch of the testing of paving brick, then setting forth the specifications for making the standard rattler test, concluding with an illustration of their standard rattler, which is made strictly in accordance with the revised specifications adopted by the National Paving Brick Manufacturers' Association.

THE LAKEWOOD LINE is the title of an attractive circular mailed to the trade recently by the Ohio Ceramic Engineering Company, of Cleveland, Ohio. The leaflet is printed very tastefully, in three colors, orange, green and black, and shows to advantage illustrations of their products, known to many brickmakers as the line "Built to Last." If you are thinking of buying cars, turntables, buckets, hoists, gates or anything in the transportation line, write the Ohio Ceramic Engineering Company for their latest literature.

POTTER'S CRAFT, by Prof. Chas. F. Binns, director of the New York State School of Ceramics, is an excellent book for those who are engaged in pottery making. It contains chapters on "The Present Need," "Art Versus Beauty," and "Pottery and Porcelain." The author goes into every detail in the preparation of the clay, mold making, building by hand, the potter's wheel, turning, casting, glazing, decorating, etc. The volume is finely illustrated, and, being the outcome of an experience extending over a period of thirty-six years, is a practical guide for the studio and workshop. (D. Van Nostrand Company. Price, \$2.00 net.)

POWER EQUIPMENT PAR EXCELLENCE.

"He who runs may read" the ad of the Frost Manufacturing Company, Galesburg, Ill., if he will turn to page 477 of this issue. The ad is brief and to the point. He who reads may run with profit if his power and clay crushing equipment is of the Frost type. Interesting literature can be had for the asking.

BRICK MACHINERY WANTED IN SOUTH AMERICA.

The Bureau of Manufactures, Washington, D. C., is in receipt of a communication from a business concern in a South American city requesting to be put in touch with American manufacturers of brick machinery, especially firms manufacturing equipment for small plants. Catalogues in Spanish are preferred, and if possible they should be illustrated. Prices should be quoted f. o. b. New York, and time for delivery, terms of payment, etc., should be stated. Copy of the letter will be sent to interested firms upon request.

THE UNREGENERATE.

I must confess that, tho' I've read
The Bible thru and thru
And tried to do and be the things
It says to be and do—
To love my neighbor as myself,
Be humble, kind and meek,
To parry wrath with answer soft
And turn the other cheek—
Yes, tho' I've tried my very best
To do whatever 's right,
I always find myself a measly
Second in the fight.
I still hate lots of folks; but say,
The ones I hate the worst
Are those who said what I'd have said
If they'd not said it first.

—Ellis O. Jones.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 455.]

FOR SALE, WANTED, ETC.

FOR SALE.

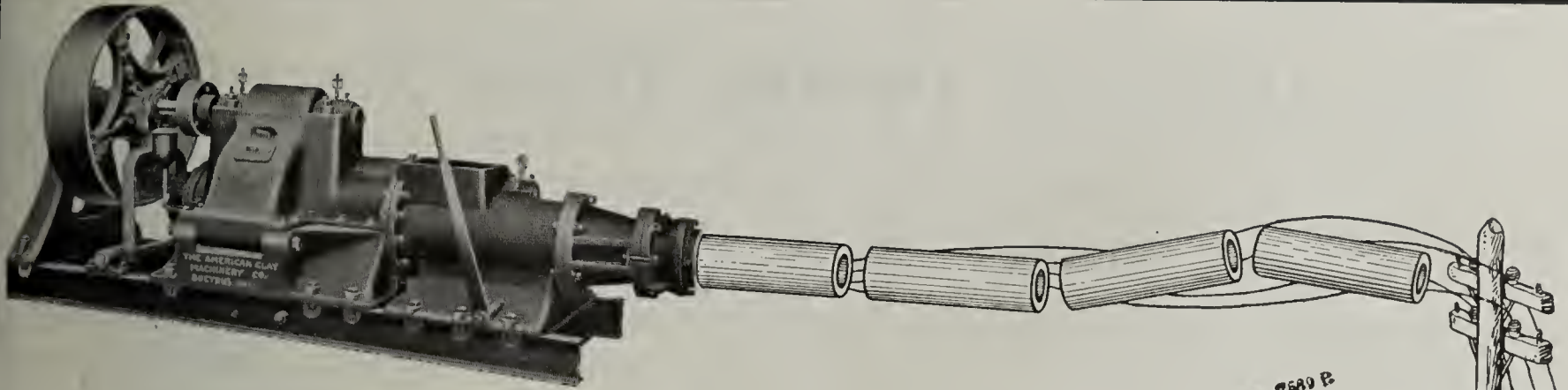
The only dry press brick plant on Puget Sound. Best facilities in the State. Ten acres clay bank, 5 to 100 feet high; 16-year lease.
BOX 8—GIG,
8 2 cm Care Clay-Worker.

FOR SALE OR LEASE.

A fully equipped Brick Plant at Rochester, Pa., on the Pennsylvania Lines West, capacity 20,000 per day, with A1 fire clay and shale on property suitable for making face or paving brick. Write
MILLER BRICK CO.,
530 Fernando St.,
9 1 dm Pittsburgh, Pa.

For Sale, Wanted, Etc., Ads Continued on pages 442, 443 and 444.

"A Quality Above All Others in Clayworking Machinery."



Form 2500 B

DAY LETTER

THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED
CABLE SERVICE TO ALL THE WORLD

This Company TRANSMITS and DELIVERS messages only on conditions limiting its liability, which have been assented to by the sender of the following Day Letter. Errors can be guarded against only by repeating a message back to the sending station for comparison, and the Company will not hold itself liable for errors or delays in transmission or delivery of Unrepeated Day Letters, sent at reduced rates, beyond a sum equal to ten times the amount paid for transmission; nor in any case beyond the sum of Fifty Dollars, at which, unless otherwise stated below, this message has been valued by the sender thereof nor in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission.

This is an UNREPEATED DAY LETTER, and is delivered by request of the sender under the conditions named above.

THEO. N. VAIL, PRESIDENT

BELVIDERE BROOKS, GENERAL MANAGER

Woodland, Illinois.
August 1, 1911.

RECEIVED AT Buc.
c 57 tw 23 blue

American Clay Machinery Co.,
Bucyrus, Ohio.

Your new No. 218 Auger Tile Machine with force feed is an unqualified success. We operated today on five inch tile at a capacity of forty thousand per ten hours with machine running one forty. Machine surpasses anything we have seen of the kind and we have seen them all. Congratulations on your complete success.

The Woodland Clay Co.,
By: John W. Anderson Jr.
Manager.



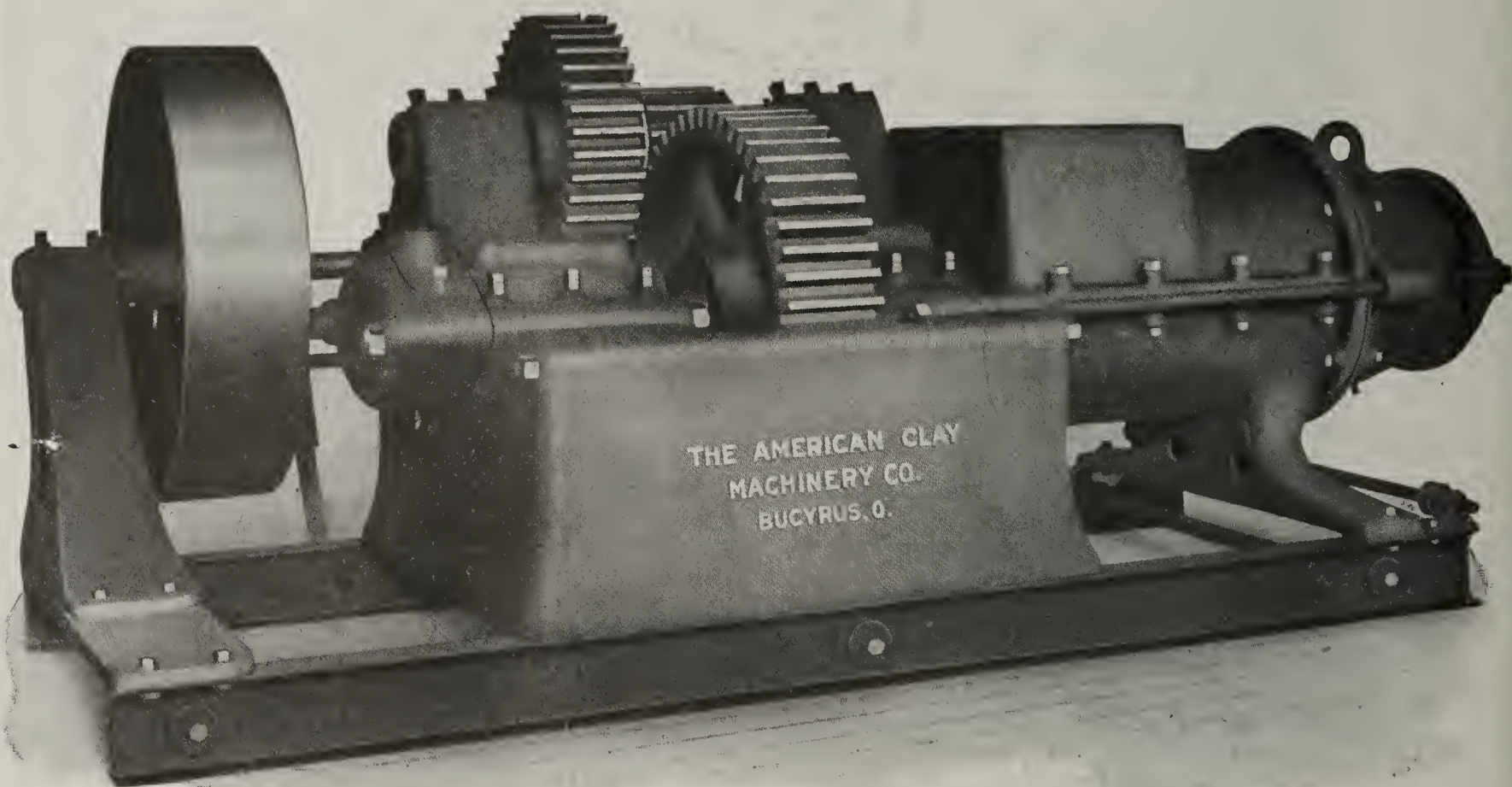
Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

The Greatest Paving Brick Machine

The greatest Paving Brick Plants in the country—the plants where capacity and quality go hand in hand, and where the most up-to-date machinery and methods are installed to raise the clay trade to its highest plane of quality—in such plants the No. 65 Auger Machine here shown is doing its part toward elevating and enriching the business. In all cases where the No. 65 machine has been installed they attain the highest record of capacity ever known in these plants, and without sacrificing the quality. Here, then, is a machine that has made good and will make good again wherever it is installed. Where machines of less capacity are desired we have them



The No. 65 Auger Brick Machine.

embodying the same high grade of excellent construction which makes them able to run up to and beyond their rated output. No matter what machinery or appliance you may want, and no matter for what process or product you may want it so long as it is used in the clay trade, we can supply it.

The No. 65 Auger Brick Machine is designed for the manufacturer of Paving Brick and other clay products. The construction of the machine is high class throughout, the material used is of the best quality, and the workmanship of the highest standard. The machine is built with a high factor of safety. Full description on request.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

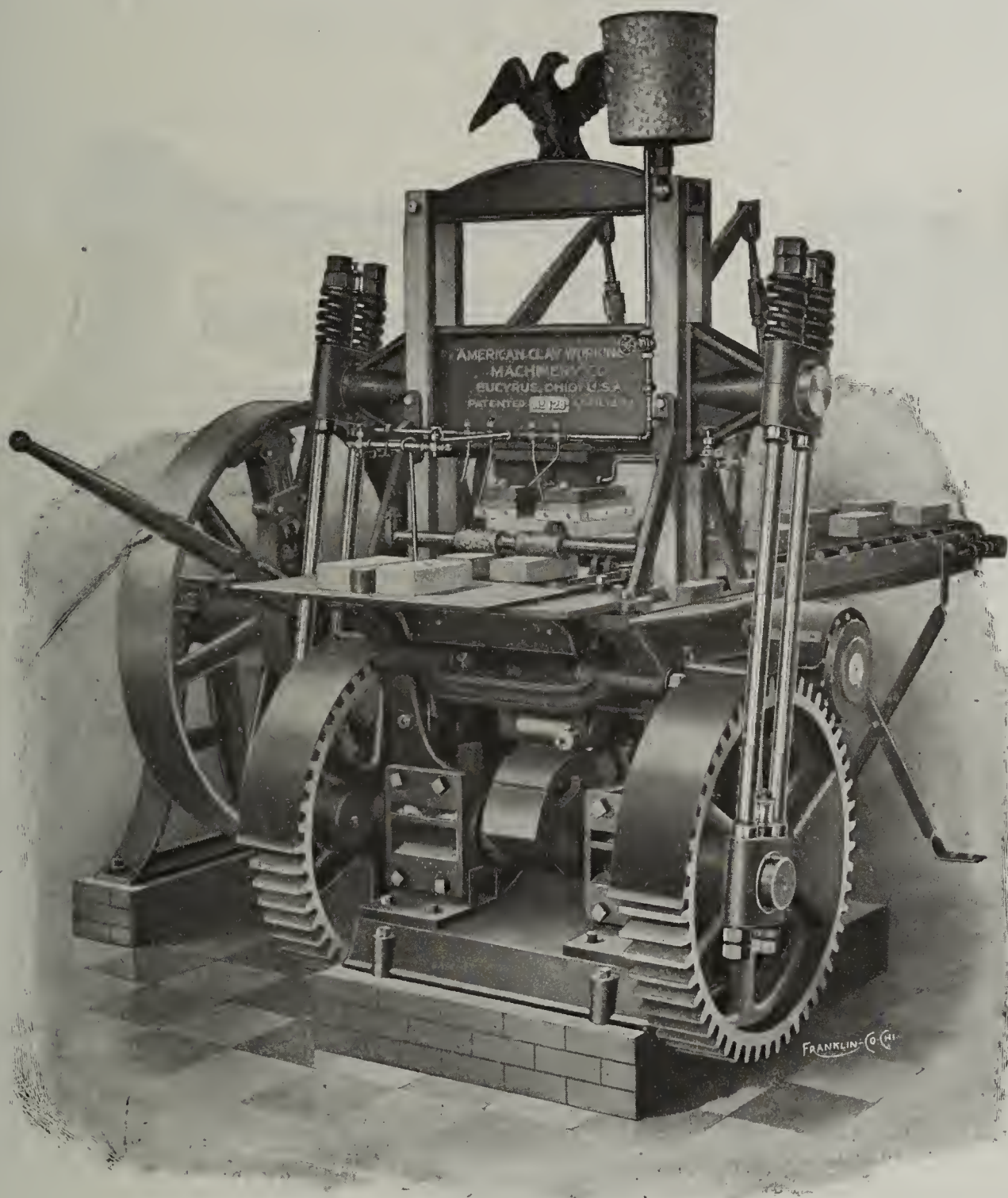
Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

PAVING BRICK PRESS

The paved street cause is often injured by inferior brick. If every Paving Brick were up to the quality that could be attained by the use of an Eagle Repress, brick streets would be more popular than they are today. The life of the brick street is in the quality of its construction and the quality of the material. We cannot answer for the proper building of the street, but we can answer for the proper pressing of any street paver.

There is no press built which will do the quantity and quality of work that has been turned out by the Eagle Repress. It leads because of the principle of its construction,



the quality of material and workmanship. Any paving brick manufacturer can save money as well as make it by using this best-of-all Represses.

Full particulars for the asking. We manufacture every machine and appliance used to make clay products by all processes.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

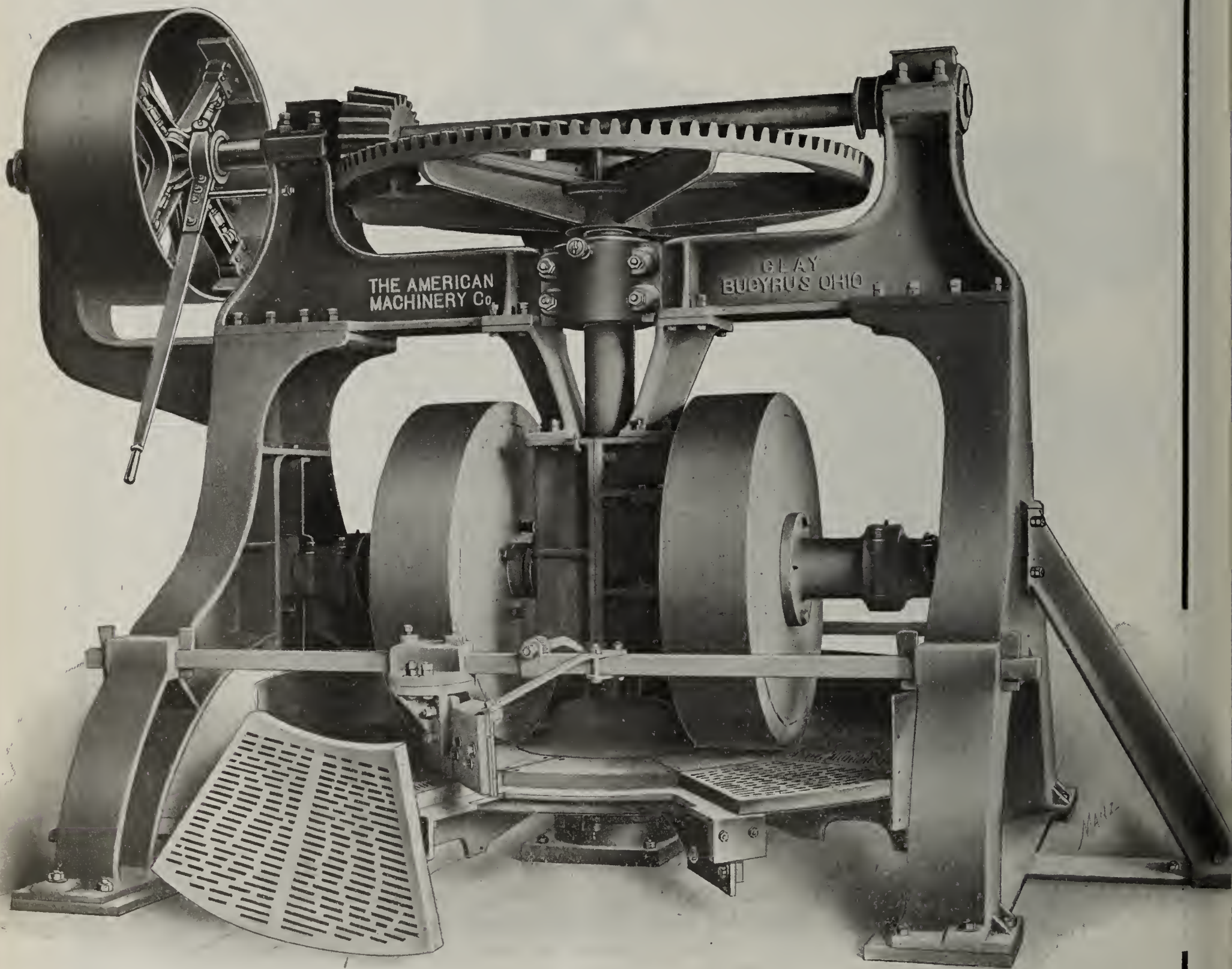
"A Quality Above All Others in Clayworking Machinery."

BUY CAPACITY AND QUALITY

When you buy a pan to make paving brick you are most interested in the capacity and the ability of the pan to stand up under that capacity.

A pan which will grind 200 tons of clay a day and grind it to a satisfactory fineness without delays for break-ages is worth much more to you than a pan which will grind from twenty-five to fifty per cent. less material and maintain even that speed at the cost of frequent repairs. The one pan may be cheaper at first, but in the long run it is far more expensive. Our pans are most carefully built to insure a uniform, never-lagging capacity. They are built to make them exempt from repair bills and will perform up to and beyond their rated capacity without frequent annoying and expensive delays. There are features in our pan which are interesting to know about because they make up that quality characteristic of the American Clay Machinery Company pans. We will be glad to tell you all about them on request. We build several dozen styles and sizes and can exactly meet your requirements. There are no better pans built anywhere than ours, and few, if any, as good.

Our line includes every machine and appliance needed by the Clayworker.

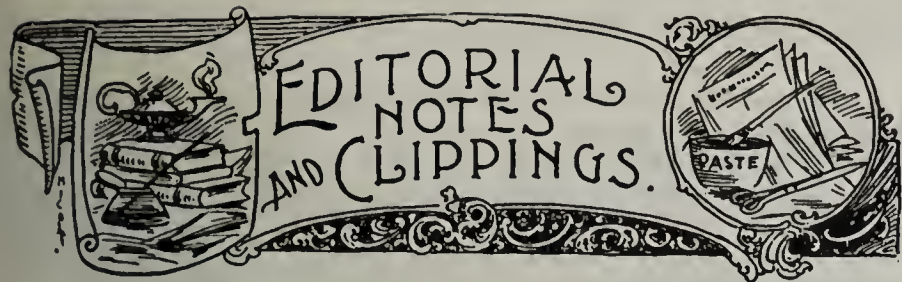


The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.



George D. Fackt, of St. Louis, is interested in the establishment of a terra cotta factory at Denver, Colo.

The Midland Terra Cotta Co., of Chicago, Ill., has certified to an increase of capital stock from \$150,000 to \$200,000.

L. C. Wick, of Butler, Pa., is preparing to erect a factory for the purpose of developing fire clay deposits on his farm near that town.

Fire destroyed the plant of the Ohio Pottery Co., at Zanesville, Ohio, early in the morning of September 24th. The loss is estimated at \$75,000.

The Mahoning Brick Co., of Youngstown, Ohio, has been incorporated with \$15,000 capital stock. S. D. Pearson, C. E. Yacoll and others are interested.

Mr. Martin contemplates enlarging his tile factory at Montpelier, Ind. The work will be begun this winter so as to have the plant ready for operation early in the spring.

C. S. Estes, superintendent of the Ridgway Brick Works, at Ridgway, Pa., has resigned his position with that company and will return to Boston, where he will reside permanently.

The Ashtabula Shale Brick Co., Ashtabula, Ohio, has been recently incorporated with \$150,000 capital stock. N. C. Ralph, John J. Koski, Chas. V. Beckman and others are interested.

The General Refractories Co., of Pittsburg, Pa., is enlarging its plant at West Decatur, Pa., known as the W. H. Wynn works. When completed the plant will have a capacity of 70,000 brick per day.

The Youngsville Brick & Tile Co. has recently been incorporated by G. W. Foster, of Lewis Run, and C. E. Foster, of Bradford, Pa. The output will be sold to the Lake Shore Material Supply Co., of Dunkirk, N. Y.

The plant of the Winnebago Drain Tile Co., at Winnebago City, Minn., will be enlarged and improved during the fall. New machinery will be installed for the manufacture of brick and hollow building block in addition to drain tile.

The Clearfield Clayworking Co., of Clearfield, Pa., reports a very busy season. During the month of August they shipped a larger number of brick than in any other one month since they started in business twenty-two years ago.

The Westchester Unit Brick Co., of Tuckahoe, N. Y., has been incorporated with \$45,000 capital stock. R. C. Lee, H. B. Weiss, P. J. Weinberger, of New York City, are interested. They will manufacture building and paving brick and drain tile.

The tile factory of Platt Brothers, at Van Meter, Iowa, was completely destroyed by fire September 29th. The origin of the fire is unknown. Some insurance was carried on the plant, but at the best it will be a very heavy loss. The plant will be rebuilt.

The Grand Rapids Brick Co., whose plant is located near Grand Rapids, Mich., will install additional machinery for the purpose of increasing their capacity. This company has recently added to its capacity by the purchase of the plant of the New Brick Co., at Grand Rapids, Mich.

The Mexico Brick & Fire Clay Co., of Mexico, Mo., recently booked an order for one million brick to be used in the construction of a large steel plant at Duluth, Minn. Another order for 125,000 brick was recently shipped to Omaha, Neb., and 100,000 to Winnipeg, Canada. A. P. Green, owner and superintendent of the plant, started a year ago with eight kilns and expects to add still another in the near future.

The name of the Webster City Brick and Tile Company, of Webster City, Iowa, has been changed to Acme Brick & Tile Co., and plans are now under way for the rebuilding of the factory which will practically amount to a new plant. Construction work will be begun within a very short time and pushed to completion as rapidly as possible. The new plant will be fire-proof throughout and modern machinery and appliances will be installed in every department. They

will manufacture vitrified sewer pipe as well as drain tile, building brick and paving brick.

R. G. Goodin and Taylor Estes will establish a plant at Lebanon, Ky., for the manufacture of brick and drain tile.

The plant of the Busse Brick Co., at Covington, Ky., was slightly damaged by fire recently that started from an over-heated kiln.

Ross Rue, of Alliance, Ohio, will be manager of the new paving brick plant which is being erected by the Summit Brick Co., of Summitville, Ohio.

The brick plant of Dunn and Dolan, at Green Ridge, N. J., was damaged to the extent of \$1,500 by fire recently. The loss is entirely covered by insurance.

The W. C. Terrell Brick Co. is installing new machinery at their plant at Greenville, Ala., in order to enable them to get out enough brick to meet their demands.

The Fairmount Brick Co., Eugene, Ore., lost 60,000 brick in the heavy rains in September. They now have a 180,000 kiln in process of burning and will finish it in a few days.

The Bluff City Brick & Tile Co., of Bluff City, Tenn., has filed application for a charter. P. J. Lunati, J. J. Bassi, C. J. Cassaretta, H. S. Douglass and B. E. Moses are interested.

The plant of the Bowlus Brick & Tile Co., at Bowlus, Minn., is being remodeled. The plant is now turning out 40,000 bricks a day and always find a ready sale for their product.

Sidney Francis recently purchased the controlling interest in the Fitchburg, Mass., Brick Co. This is a growing concern which is capitalized at \$30,000, and turns out about 5,000,000 brick a year.

The Port Credit Brick Co., of Toronto, Canada, is installing additional brickmaking machinery and electrical apparatus which will enable them to manufacture brick on a much larger scale.

A new concern recently incorporated in Michigan is that of the Algona Brick & Tile Co., of Sault Ste. Marie. The company has been incorporated at \$100,000 and the incorporators are Fred Denman, D. Jannison and others.

The What Cheer Clay Products Co. has been incorporated with \$500,000 capital stock and the work on an immense pottery and sewer pipe plant at What Cheer, Iowa, will be started at once. E. C. Nelson will have charge of the erection of the plant.

The plant of the Castle Rock (Colo.) Brick & Tile plant was ready for operation October 1st. In starting, the plant will have a capacity of 50,000 brick a day, but later on it is expected to double the capacity. C. L. Kirk, of Denver, is president and M. J. Casey is secretary and treasurer of the company.

The plant of the Boyne City Brick Co., at Boyne City, has been closed down for the season and before the yard is operated again it will be entirely overhauled and remodeled and the capacity increased to close to 100,000 brick a day. The work will include the building of new kilns and driers so that in the future the plant will run the entire year.

Frank B. Allen, of Toronto, Canada, has purchased the plant of the Washington Terra Cotta Brick Company, at Terra Cotta, D. C., which has been in the hands of a receiver for some time. The price paid was \$30,000. While the plans of the new company have not been definitely announced, it is expected that the plant will be remodeled and operations started at an early date.

James D. Dwyer, of Cornwall, N. Y., and P. J. Greaney, of New Windsor, N. Y., have purchased the Hedges brick yard at Cornwall, N. Y. The plant will be entirely remodeled during the winter months and in the spring will be ready for operation with a capacity of 100,000 brick per day. The yard includes about forty acres of fine clay land. Mr. Greaney will have charge of the manufacturing end of the business, while Mr. Dwyer will have charge of the marketing of the product.

At a recent meeting of the stockholders of the Corry Brick Tile Co., at Corry, Pa., it was voted to increase the capital stock of the company from \$100,000 to \$200,000, for the purpose of enlarging and improving the plant. Geo. Dunham is president; A. J. Hazeltine, secretary and treasurer, and D. Warren De Rosay, general manager. This company recently booked contracts for paving brick which will insure plenty of work for months to come. One order was for 8,000,000

(Continued on page 434.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

Corry block to be used by the state of New York on the highway between Buffalo and Rochester.

Hawesville, Ky., is to have a brick plant in which St. Louis clay products manufacturers are interested.

The New Britain Brick Co., of New Britain, Conn., has filed a petition in bankruptcy. The liabilities are stated at \$56,768.

The brick plant of the Remney and Sons, at Headley street and Delaware river, Philadelphia, Pa., was damaged to the extent of \$3,000 by fire last month.

Work has been started on the new plant of the Springfield (Ill.) Drain Tile Co., recently incorporated. Fifteen acres of good clay land has been recently obtained for the site of the plant.

The plant of the Volant Brick Co., at New Castle, Pa., was completely destroyed by fire the latter part of September, entailing a loss of \$35,000, which is partly covered by insurance.

The Syracuse Unit Brick Co., of Syracuse, N. Y., has been incorporated by W. P. Hart and J. D. Meehan, of Syracuse, and C. F. Lane, of Detroit, Mich., who have certified to \$240,000 capital stock.

The work of rebuilding the plant of the Universal Sanitary Pottery at New Castle, Pa., is still under way. The president of the company, C. J. Kirk, is giving the work his personal supervision.

The town of Taylor, Texas, wants a brick plant and has been negotiating with the Cleveland Vitrified Brick Co., of Humboldt, Kans., for the purpose of inducing them to move their plant to Taylor.

Chas. Bruns, a former employe of the North Iowa Brick and Tile Co., of Mason City, Iowa, was recently given a verdict against the company for \$9,000 for damages sustained in an injury while working for the plant a year ago.

George Palmer of Wrenshall, an employe of the Enterprise Brick Co., at Carlton, Minn., had his leg so badly crushed in the machinery while at work at the plant, that it had to be amputated and death followed in a very short time.

Johnson & Johnson, brick manufacturers of Raleigh, N. C., will install a steam dryer at their plant the coming winter. This will enable them to increase their daily output from 50,000 to 60,000 brick per day and the plant will be operated continuously throughout the year.

Notwithstanding the fact that the capacity of the United Brick Co., of Conneaut, Ohio, was doubled the first of the year, the company will increase the kiln capacity of the plant this winter by building additional kilns. H. H. Smith, general manager of the company, is given the credit for the success of the plant.

The stockholders of the Illinois Drain Tile Co., of Albion, Ill., recently held a meeting and formed a permanent organization, electing J. C. Carlyle, of Albion, president and general manager of the concern; Geo. C. Zeigler, of Carmi, vice president, and Sam A. Ziegler secretary and treasurer. The concern is capitalized at \$200,000. A steam dryer will be installed during the winter.

Ely Madalitz has brought suit against the Standard Brick Co., of Milwaukee, Wis., for \$50,000 for injuries sustained when he was knocked from a car a year ago, falling under the wheels and having his right leg cut off at the knee and his left leg and hip injured. The car was being used to transport the clay from the company's bank to its plant. Mr. Madalitz alleges it was overloaded.

M. J. Houlihan of Providence, R. I., has been appointed receiver for the New England Steam Brick Co., of Barrington, R. I., following the filing of a petition in bankruptcy by three local creditors. The petition is involuntary in form, but in substance is voluntary, the company having admitted its willingness to be adjudged bankrupt. The company has an output of about 60,000,000 brick a day.

The Red River Valley Brick corporation shut down their plant at Grand Forks, N. D., for the year October 1, and the first of next month will send their crew to the woods to lay in the annual supply of wood. The company owns its own timber land near Bagley. The company built a brick silo on the State fair grounds this fall and this will be filled and allowed to remain over until next summer, when, at fair time, it will be opened. The silo was constructed by the company

for demonstration purposes and to show the success of the brick silo.

The Central Brick Co., of Barnegat, N. J., is a new concern recently incorporated with \$150,000 capital stock, by Samuel G. Davis, John T. Lovett, Jr., and John H. Crook.

Wehinger Bros. of Ottawa, Ohio, who own and operate three other plants, have under consideration, the establishment of a plant at Mansfield to develop the extensive deposits of that territory. The product to be turned out will consist of building brick, sewer pipe and paving block.

The Manufacturing Equipment Company, Dayton, Ohio, announce that they have arranged with Mr. George H. Smith, of Kansas City, Mo., to represent them as travelling salesman in that territory. Mr. Smith formerly represented the C. W. Raymond Company and is well and favorably known to the brick men in Missouri and the adjoining states.

An addition to the T. B. Townsend Brick and Construction Company's plant at Zanesville, O., to cost between \$25,000 and \$50,000 is to be built this winter so as to be ready for operation early in the spring. This addition is made necessary by the increasing business and additional equipment will be installed that will increase the capacity of the plant about 50 per cent. R. C. Burton, a member of the firm, will have charge of the work.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

MANY plants throughout the six states are closed for the season, though business is not essentially different from what it has been for some time. Prices range around \$5.00, which manufacturers agree is insufficient to make a profit, but they do not quite know how to proceed to obtain more profitable results. Suppose, for example, they could advance their price a dollar a thousand. That would make the difference between profit and the inadequate returns they receive now. But how are they going to advance this price? They have no organization. Each manufacturer is out for himself, seeking what he may obtain. There is no unity of action, no united feeling. It is substantially each man for himself and plenty of difficulty for the one who gets in last.

The question which is being debated by manufacturers all over New England is the remedy for these discouraging conditions. There is but one. They all admit that, but they are not all agreed upon the best method of working out this remedy. They will tell you or anybody else who talks with them that organization is the only thing that will change present conditions, but when pressed for a reason why they do not organize they are less assertive in their talk. Therefore, it is quite likely to be sometime before the proposed and much desired organization is effected. It will come in time, but there is no prospect of it coming immediately.

The demand for common brick in New England has not been essentially different from what was predicted at the beginning of the season. Well informed individuals were quite certain that it would reach fairly liberal proportions. But it has done more than that. In truth, when the fall orders are filled some of the yards which closed early will be without supplies. There is some misgivings among dealers and others interested in these early shut downs and the relatively small quantities of brick remaining on the yards. It looks much like a shortage which will have its influence upon construction during the early spring before new stock is ready for delivery. The question they ask most frequently is where will the stock come from to fill early orders? And each repeats the question without satisfactory answer.

It is a notable fact that with the exception of some parts of the Northwest, business is more active in New England than it is in any other part of the country at present. More mills and factories are increasing their size and more plants are running full time than is true of any other portion of the country. Many experienced observers believe that this only presages what is to come and that the next season will be one of the most prosperous that portion of the country has ever known.

It requires no long argument to prove to brick men that their salvation lies in organizing so as to control prices and then hold them up to a profitable level. It is useless to make brick at a loss, or only for cost. Where does pay for your own labor and interest on your money come from? It won't take long to impair your capital if you do that. And once begun it is difficult to overcome it. HIRAM.

"Mr. Clayworker—This is YOUR SHOW"



Go Where the Buyers Are

The man who has some brick to sell,
And tells his story down a well,
Will never reap the golden dollars
Of he who joins the show and hollers.

The Clay Products Exposition will be the opportunity of recent years to find buyers for your product. Architects, Contractors and Builders from all parts of the United States are taking the liveliest interest in the Exposition. They all want to see what the Clay Products people have to offer, and they will arrive in the Coliseum in March to be shown. These are the people most manufacturers would like to see and talk to, and the Exposition will afford the opportunity. It becomes important that displays of clay products which are creditable to the trade are shown in an attractive way. You should see that your best selling samples are there, and that they are backed by your best selling talk. A weakness anywhere along the line would be an unfortunate mistake. This is your opportunity to get business, Mr. Clayworker, so get busy. If you think you already have a pretty fair business you can either improve its volume or quality at the Exposition, and you can also prevent some other manufacturer getting a part of it away from you.

You Cannot Afford to Stay Out—This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in a suitable exhibit space for the inspection of

100,000 PAIRS OF EYES.

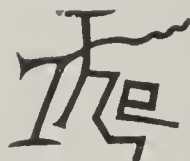
Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

INTERNATIONAL CLAY PRODUCTS EXPOSITION CO.

815 Chamber of Commerce Bldg., CHICAGO

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



LAST SIX WEEKS have been marked by heavy and almost constant rains, so that there should be a much better call for drain tile during the remainder of the fall and in the spring. The demand for drain tile this season has been a disappointment, and many tile and brick plants found themselves overstocked and unable to market their product early in the season. Farmers were not interested because the dry year had done away with the necessity for draining low places. But the past two months have been excessive in rainfall, and the low places which are not drained will be filling up and be a standing demand upon the farmer for tile with which to drain off the surplus water.

The brick season has not been what was expected, and short season runs have been the rule for this year, with reduced production and a large amount to be carried over the winter. Now that rains are coming heavily after a long drought tiling will be needed more than ever, for the dry period shows what could be realized with tiling.

A most important gathering for November 8 has been called by Governor Eberhart, of Minnesota. It is to be a public meeting for considering the subject of fire prevention and is to be held at the Hotel Saint Paul in St. Paul. The day is also to be observed in the public schools, to the same end. The governor's proclamation states the great loss from fire, amounting to \$2.71 per capita for the entire country, against a maximum in old world countries of only fifty cents. The proclamation estimates that the loss to the country in fifteen years has been \$2,000,000,000 and 20,000 lives. The Minnesota share of the fire waste of the country is higher than the average, for there have been several very bad years in the State. Hence the gathering will have a concrete problem of actual loss and waste to consider. Of, course, it is inevitable that in considering such a subject, the most natural thought will be, why not build of fireproof material, and thereby reduce the chance of loss, even against carelessness, which is accountable for so much of the loss by fire? The very fact of the necessity of calling such a gathering speaks for itself of the fact that fireproof construction is one logical answer to the problem, and one which will go the greatest way toward solving it. And when fireproof construction is sought, brick and clay products are the final answer. Other products may be fire-resisting under certain conditions, but brick and clay wares have had their test and their ability to resist fire is known. The brick manufacturers have a good opportunity to utilize this congress in their advertising matter, and it comes at a time when there is more opportunity to read and digest it than usual.

The Minnesota Society of Fine Arts has selected five prominent architects of the country to submit sketch plans in competition, under the rules of the American Institute of Architects, for the new museum building. The structure is to be a model of its kind and is to cost about \$250,000. The following well-known leaders in architecture have been selected: Carrere & Hastings, of New York City; McKim, Mead & White, New York; Shepley, Rutan & Coolidge, Boston; Pell & Corbett, New York; Walter R. McCornack, of Boston, who will collaborate with Hewitt & Brown, of Minneapolis. Professor Warren P. Laird, of Philadelphia, is adviser to the building committee.

A Chicago heating firm is to be penalized for an innocent violation of the Minnesota law limiting work on State buildings to eight-hour days. The law provides that the clause should be included in the contract, but it was not done. The firm complied with the law immediately upon having attention called to the violation, but the attorney-general rules that the law must be enforced.

One of the finest show-places of brick and clay materials to be found anywhere is that of the Hydraulic Press Brick Company, in Minneapolis. An entire room has been fitted out with panels of different brick made by the company,

showing the varied and beautiful effects which are possible with the different faces of brick.

A. C. Ochs, of Springfield, Minn., one of the most prominent brick manufacturers of the State, is completing a handsome residence for himself at Springfield. It is of brick and tile construction throughout, and is constructed for a man who is an authority on good work in clay and brick.

The Red River Valley Brick Corporation, of Grand Forks, N. D., erected a brick silo on the state fair grounds during the summer. The silo has just been filled and the ensilage stored in the building is to be left untouched until the state fair of next July, when it will be taken out and shown to visitors as an example of how a clay silo will preserve feed.

A course in trade training is being instituted in St. Paul, under the auspices of the St. Paul Builders' Exchange and the St. Paul Institute, with the board of school inspectors. The course is to include a course in masonry, though the details have not been wholly completed. It is well appreciated that there is no trade on which training of a practical nature is more needed than in brick masonry. The market for brick would be materially larger if it were not for the high cost of labor in laying the brick and the difficulty which may be encountered because of the scarcity of skilled masons.

The Minnesota Farmers' Brick and Tile Company, of Austin, Minn., has filed formal complaint with the State Railroad and Warehouse Commission of Minnesota, alleging a discrimination in freight rates on its goods from Austin to all points in the state. The company claims that discrimination is practiced in favor of Mason City, Iowa, and asks for an adjustment of rates to remove the alleged discrimination.

The troubles of the Fairmount Drain Tile and Brick Company, at Fairmount, Minn., still continue. Several stockholders have now brought suit against the company to recover the amounts of their stock subscriptions, on the ground that the subscriptions were obtained on fraudulent representations. The alleged fraudulent representations consist in representing that the company was provided with a suitable clay for carrying on its work, when it has since been shown that the clay at the plant was wholly unsuited for the use. The committee of the stockholders has been searching for suitable clays in different localities adjacent to Fairmount, and has taken options on a number, where the tests of the clay were favorably reported.

Harold Johnson, of Minneapolis, of the firm of Johnson, Jackson & Corning Co., recently made a trip to North Dakota in his automobile. He found the roads no better than they ought to be, to put it mildly, and is more inclined to regard traveling by rail as attractive.

The Minneapolis Y. M. C. A. has just instituted a course in trade training, covering a number of trades. The work of estimating plans and plan-reading is included. The educational secretary is also seriously considering taking up a course in bricklaying if it seems possible to develop sufficient interest to justify the move.

The Minneapolis Builders' Exchange is arranging to institute a labor bureau, where workmen will be registered for employment, and will be placed at work in answer to application from members. It is found that the ability of the unions to place men at work accounts for a good portion of the membership in these organizations, and if other means are provided, it will lessen the chance of a serious and disastrous tie-up through unreasonable demands.

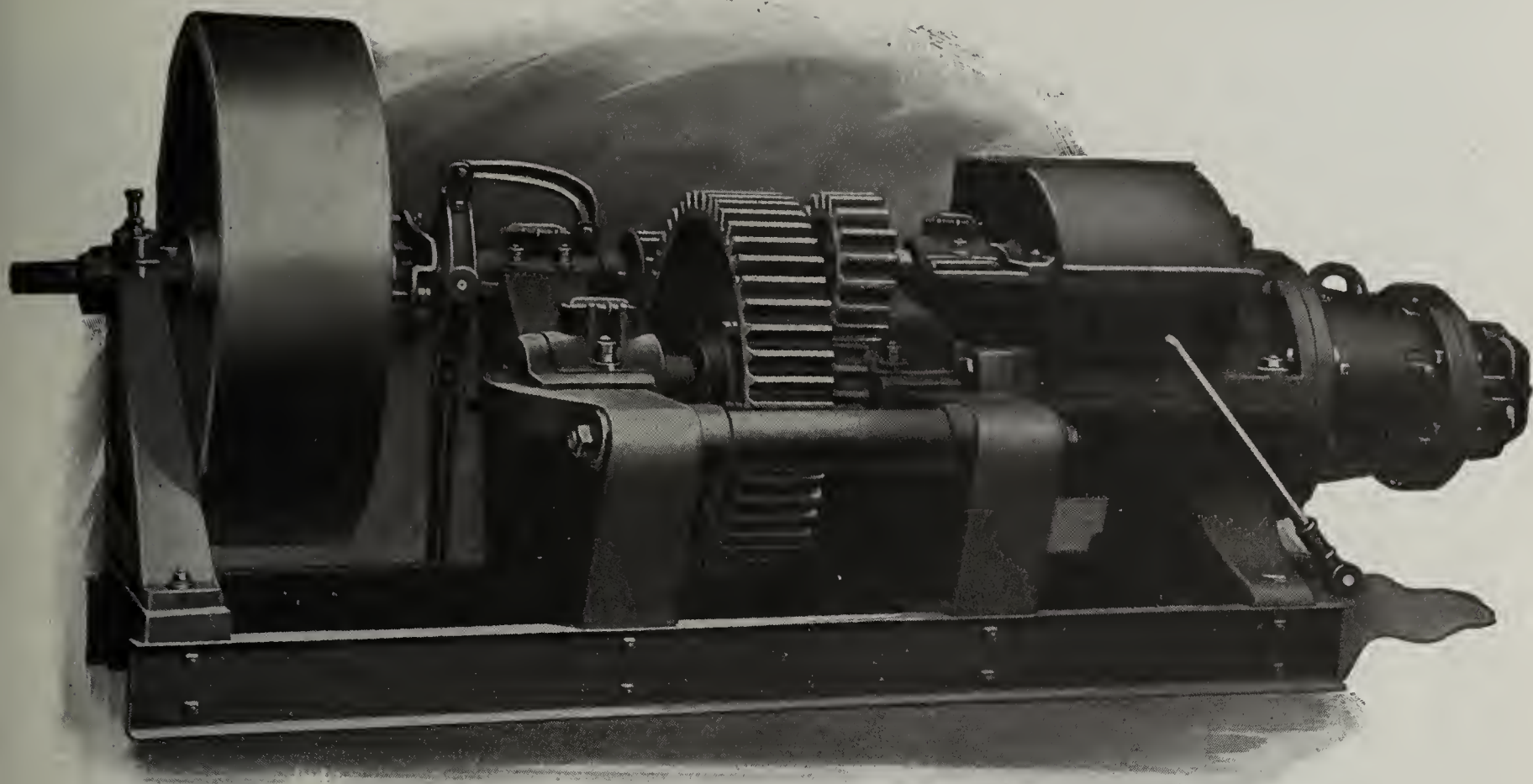
The Red River Valley Brick Corporation, of Grand Forks, N. D., sold about 3,000,000 brick during the past season to go to Canadian points.

A large brick plant is being completed at Pengilly, Minn., on the Mesaba Iron Range in northern Minnesota. A dry kiln has been erected, 300 x 100 feet in size, and a large amount of machinery has been ordered.

Building permit totals for September in St. Paul showed a nice gain over the previous year, having \$845,931 against \$664,768.

Minneapolis building permit totals have held up remarkably well this year, the total for nine months being \$11,956,705. The same period of 1910 had \$11,826,320. The year will undoubtedly show a larger figure than that of 1910, which was a very good showing itself.

T. WIN.



Model "G A" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 472-475.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

COMMERCIAL and industrial conditions in all the cities of the Pacific Northwest are declared to be in healthy condition. The building activities are somewhat quiet in Seattle and Tacoma, but the cities in British Columbia, Victoria and Vancouver and the cities in Oregon are rather active. The total building permits taken out in Seattle ran close to the half-million mark, with prospects of a good increase for the month of October. The building permits for Vancouver for the month of September will reach a high point, and will compare well with the records so far made this year. The city of Portland issued 737 permits with a total valuation of \$1,437,020.

The manufacturers of Washington, and naturally the clay-workers also, have been watching the Industrial Insurance Commission very closely. They had some hopes that the law creating this commission would be declared unconstitutional, but the decision handed down last week by the Supreme Court sustaining the constitutionality of the workmen's compensation bill, creating this commission, has taken away all hopes. The law goes into effect October 1, and abolishes the right of action in the courts for personal injuries and states plainly that every person injured, no matter how, is to be compensated. There will be no fight over the question of fellow-servant, assumption of risk, contributory negligence and the like. If the employe is hurt, and his injuries serious, he will get pay for his injuries. If he leaves a family or other relatives dependent upon him, and he is killed, they will recover damages. These damages can either be paid in a lump sum, or collected in the form of a pension. The state settles all the questions and when an injury is sustained there will be no legal fights, and very few delays.

In order to encourage small manufacturers, the Tacoma Commercial Club, in connection with the Chamber of Commerce, has launched several projects for the interest of manufacturers. The greatest project is called "Industrial Hatchery," consisting in the construction and equipment of a large building which shall be known as "Tacoma Industrial Hatchery," the purpose being to afford suitable housing, adequate power and other manufacturing facilities for small industrial plants, wanting to locate in Tacoma. The organization takes the stand that big plants do not often move bodily to new locations, but small plants will move quicker if the location does not suit and to foster these infant enterprises is the main object.

The Citizens' Club of Chehalis has received samples of the products made from local clays. They are good samples of fancy moulded brick, hollow tile, drain tile and vitrified brick. The club has an offer from an eastern clayworking firm, which will invest \$75,000 in a brick plant in Chehalis, providing these samples turned out all right, and the results have been awaited with interest. The club has now taken the matter up further with the interested parties.

The Little Falls Fire Clay Company, of Tacoma, operating a sewer pipe plant at Sopenah, and a paving brick plant at Bayne, both in Washington, went into the hands of a receiver this month. W. S. Dimmick, who was recently appointed manager of the company, was made receiver. It is the intention of the receiver to straighten out the financial difficulties and put the company on a good footing again by reorganization. The sewer pipe plant will remain in full operation, while the paving brick plant has been closed down, until some more experiments can be made with the shale clay.

Another clay plant which went into the hands of a receiver is the Beaverton Clay Manufacturing Company, of Portland, with a new plant at Beaverton, Oregon. Randles & Kenzie, the oldest brickmakers of Portland, are largely interested in this plant. Mr. J. M. Ambrose, who was formerly manager of the Diamond Brick Company, has been appointed as receiver. The liabilities run about \$75,000.

The Bayview Brick and Tile Company, of Bayview, has been organized by C. B. Mayhugh and H. B. Elliot. The plant will be located close to excellent clay beds for the making of brick and tile.

The Far West Clay Company, of Tacoma, shipped re-

cently 400 tons of partition tile for a new ice and cold storage plant to Prince Rupert. The tile were loaded on a barge at the Milwaukee dock and towed to Prince Rupert. This company has made some excellent samples of the Dennison interlocking tile, and has secured some good orders for immediate delivery.

SIWASH.

Written for THE CLAY-WORKER.

DETROIT BUILDING AND BRICK NEWS.



DETROIT has had one of the most successful seasons in its history and up to the present time the volume of business as shown by the records is close to that for the entire year of 1910, and from present indications this year will far surpass the previous one. From records in the department of buildings the building permits have averaged each month over \$1,500,000 so far this season. Conditions in general have been very favorable, not only in the supply of the different building materials, but labor was plentiful enough to meet all needs, and Detroit has annexed several large buildings that add scenery to the sky-line and prominence to the city.

In the records are shown some of the larger structures which are completed or are in course of construction, and which, complying with the new building code of the city of Detroit, are not wanting in any respect, as the designers have spared neither means nor genius to make these buildings of the most artistic architectural designs, modern and fireproof and having all the up-to-date conveniences and appliances adapted to the different uses of such structures. The more prominent in the downtown section are the ten-story office building for the Detroit Free Press; five-story granite bank building for the Peninsular Savings Bank; nine-story department store addition to the J. L. Hudson store, making it the largest of its kind in the city; the eight-story department store for Goldberg Brothers, located a short distance from the central part, opening up a new aspect for this class of business, and which shows the expansion of the down-town business district; three new theatre buildings of a large capacity; large retail market building which is to take the place of present buildings on Cadillac Square; while several large mercantile buildings, ranging from three to eight stories are within a short distance of the business district. Many other large buildings have undergone the placing of new store fronts, which has given them the appearance of new buildings.

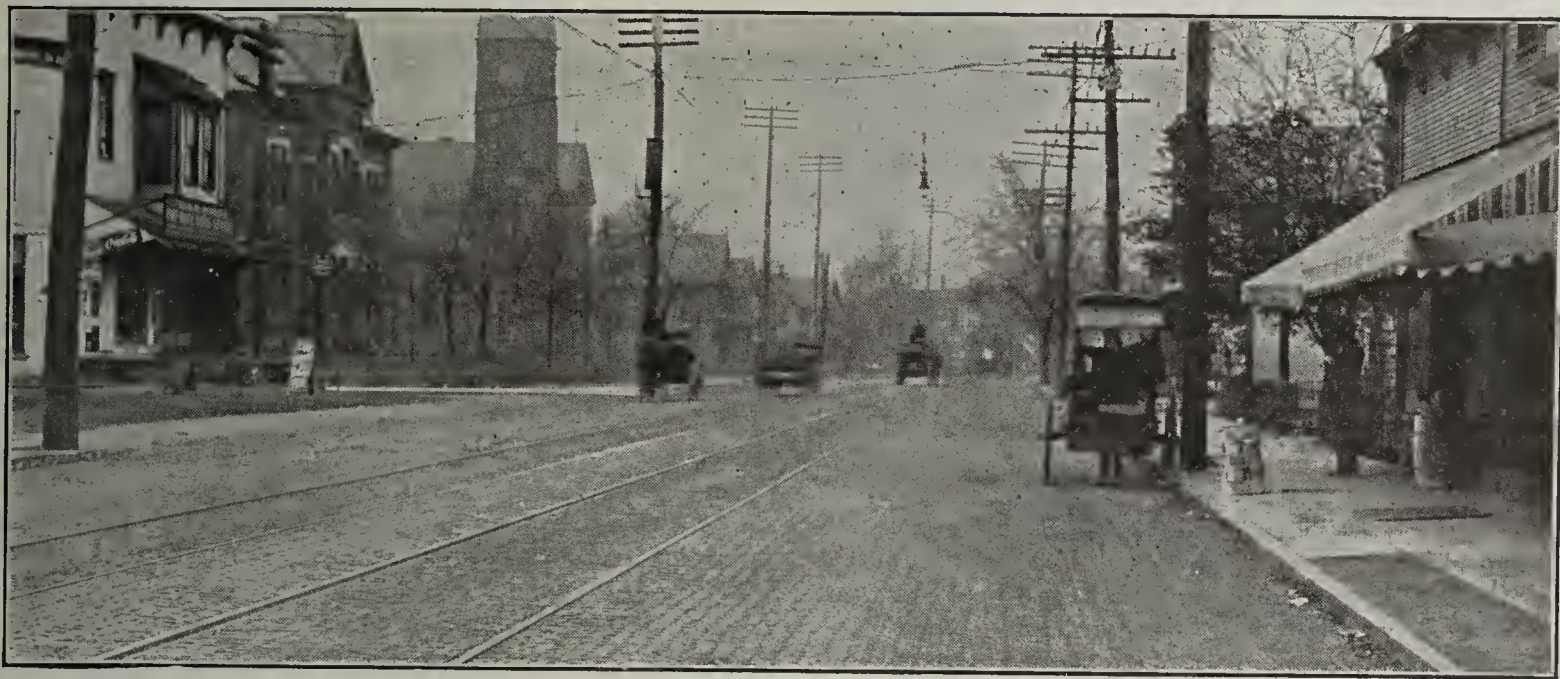
In the outlying district of the city, many large factory buildings have been completed or are in course of construction and these are likewise modern to the minute, and nothing has been overlooked for the convenience of their employes; some of the larger being the new plant of the Continental Motor Company; factory building for Anderson Carriage Company; a large building for the Ford Motor Company; large addition to the Cadillac Motor Car Company; new buildings for the Hupp Motor Car Company and the Hereshoff Motor Car Company; new building for the American Motor Car Company, and new buildings for the Packard Motor Car Company. The city of Detroit itself has been a predominating factor, adding to its municipal buildings a large new pumping station, two new high schools and six other large school buildings.

At this time the writer takes occasion to give a brief review of the brick situation in Detroit. It has about twenty common brick manufacturers and a main feature of these plants is that they are located within a short distance of one another, and this city has the distinction of having some of the best-equipped common brick plants in the country, which produce a high class of clay brick. The larger firms are the Geo. H. Clippert & Brother Brick Company, John S. Hagerty, and the Lonyo Brick Company, which produce about one-half of the entire supply. The output of the combined plants amounts to about 235,000,000 common brick per annum, nine-tenths of which are used in the buildings of Detroit. Their facilities are good, all having railroad sidings, and all the roads leading into the city are being macadamized by the Good Roads Commission.

WOLVERINE.



Barrett's PAVING PITCH



Main Street, Near Thornton Street, Akron, Ohio, Filled With Barrett's Paving Pitch in 1891.

PAVING PITCH IN AKRON

The best evidence in favor of pitch as a filler for brick pavements comes from the towns that have had the longest experience with it. Akron, Ohio, for example, has over 65 miles of paved streets; over 52 miles of these are brick, 90 per cent of which are filled with Pitch Filler.

The first brick pavements laid in Akron were put down in 1890 with Pitch Filler. After twenty years, they are in good condition today and not a cent has been spent for repairs. The Pitch Filler has proven satisfactory on every kind of foundation—crushed slag, crushed stone, gravel or cement concrete. The Pitch has been used on streets of 1 per cent to 9 per cent grades; it has kept the foundations dry and firm and has been in every way satisfactory.

During the year 1910 two million pounds of Paving Pitch were used in this city, and the 1911 plans call for a large additional quantity.

Akron's experience with fillers has not been confined to pitch alone so that the very large excess of pitch filler used over all other kinds has not been because of ignorance or lack of experience with other fillers.

Pitch Filler is also used in Akron by private concerns, particularly the Street Railway Company, because it can be used in hot or cold weather without delaying traffic or blocking the street.

Pitch Filler is the right filler for brick. History has proven it everywhere. The best Pitch Filler is Barrett's Paving Pitch.

Booklets on request.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburgh	Minneapolis	Kansas City	New Orleans	Seattle	London, England	

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS FROM NORTHWESTERN OHIO.



FAIRLY NORMAL condition prevails in the brick business of this section. Local plants have a good volume of orders on hand and indications point to considerable business between now and the coming of cold weather. Outside trade is dropping off a little, especially the Michigan demand, which for a time kept local concerns busy. In Toledo there is still considerable activity on the part of builders, and it now looks as if there may be some demand most all winter. Many new jobs are being figured at the present time, and a number of large commercial structures, which will furnish a market for many building brick, are being planned for immediate construction. The first nine months of the year show an increase of \$608,374 over the figures for the same period last year, according to the records at the office of the Toledo city building inspector. Up to October 1, permits were issued for new buildings aggregating an estimated valuation of \$3,131,996, as compared with \$2,523,622 during the corresponding period of 1910. "You would be safe in adding forty per cent to these figures," said Building Inspector McMahon, "for the first estimate is generally low." Most of the brick plants of this section are being operated at, or near, capacity, and the supply of building brick is not abnormally large, especially in view of the prospect for future business. Competition, however, has been unusually keen, and as a result the market is a trifle unsettled, quotations for good building brick ranging from \$6 to \$7 per thousand.

Outside trade of paving brick has been fairly good, according to those connected with the paving block industry here. In the city of Toledo there has been a disposition on the part of some of the officials to substitute other materials for paving, even though brick has been requested by abutting property owners. For instance, property owners on a portion of Detroit avenue, which is now being paved, almost without exception wrote personal letters, and personally appealed for brick paving, but Director Cowell, who has last say on the subject, ignored all appeals and declared for other material. Much indignation was aroused by the action, which, it is said, has been duplicated in other sections of Toledo. A good demand has come from the surrounding smaller cities, however, and a fair summer is reported from a business standpoint. Prices continue about as they have been, and there is a ready market for all that are being turned out at the plants. The same is true of sewer pipe and drain tile. Farmers have generally been good customers, and the large amount of road improvements which have been carried on have resulted in an active market all summer, and there is still a good volume of business just ahead. Other clayworking industries are again increasing their output in response to a growing demand, and prices are holding firm all along the line. On the whole, conditions are apparently normal, despite some financial depression which has told more emphatically on some other lines of trade, and the future holds considerable that proves ground for encouragement.

The Carbon Coal and Supply Company, of Toledo, has been incorporated by G. F. Wilson, George C. Penney, William Urschel, Claude W. Smith and J. J. Urschel. The concern has been engaged in the builders' supply business in Toledo for the past five years.

The Second National Bank, of Toledo, will be in the market for a large number of building brick in the immediate future. At a meeting of the board of directors this week it was determined to erect a twenty-story building at the corner of Madison avenue and Summit street, and a committee consisting of N. H. Swayne, Charles Russel and Edward Ford was chosen to investigate plans. The structure will tower over all other Toledo buildings.

A gang of negro toughs at Defiance recently threatened to take possession of the home of H. G. Monen, proprietor of the Defiance tile mill. A colored man applied for food

and shelter at the home and when refused, vowed he would return with his gang and "drink white blood." The sheriff responded to a hurry call, and the negroes made their escape from the city by leaping on a freight train which was pulling out of the B. & O. yards near the tile mill.

The Enamel Vitrified Brick Company, of Toledo, has been reorganized and its capital stock increased from \$200,000 to \$500,000. The concern is preparing plans and specifications for a large plant for the manufacture of a new process brick. The buildings will be 126 feet by 64 feet, and eight kilns will be provided. It will have a capacity of 40,000 brick. The concern will also erect nineteen other plants in various sections of the country with capacity of from 40,000 to 120,000 brick. Of the new issue of bonds, but \$40,000 will be floated among outsiders. With each share of common stock will go one share of preferred, seven per cent cumulative stock, redeemable at any time after three years at 105. William Urschel is president of the company; George C. Penney, vice-president; E. E. Smith, secretary, and J. J. Urschel, treasurer and manager. It is expected that the new Toledo plant will be in operation soon after the first of the year.

Several Toledo brick concerns were represented at the recent trade-extension tour which was pulled-off under the auspices of the Toledo Commerce Club. The trip was made in a special car furnished by the Lake Shore Electric, and a large number of Northwestern Ohio cities were visited. The third and last tour of the season will be made during the third week of October. These trade-extension trips have proven highly beneficial to Toledo concerns by way of introducing Toledo products and pulling business toward the city.

In Common Pleas Court at Toledo, Judge Brough directed a verdict of \$126 in favor of the Dime Savings Bank, against the Ellis Brick Company. The brick concern stopped payment on a check drawn on the National Bank of Commerce, but failed to notify the plaintiff bank which paid it.

Lawrence Burkhart, proprietor of a brick yard near Western avenue, Toledo, was recently the victim of a daylight highway robbery, one of the boldest ever perpetrated in this section of the country. While alone in his office in the middle of the afternoon, two masked men entered and, covering him with revolvers, threatened to kill him if he made an outcry. They then beat him over the head with an iron brake-shoe until he was almost unconscious and robbed him of \$50, all the money he had. The robbers then rifled the safe and ransacked the drawers without finding anything of value. At the time a score or more of men were within easy calling distance, and three teamsters employed by Burkhart were working not more than fifty feet away. Three deep cuts in his head were afterwards closed up by surgeons. The robbers succeeded in escaping. It is thought that they were after the money with which Burkhart met his payroll earlier in the day. Burkhart's place of business has been robbed five times within the last few years.

The little town of Perrysburg, Ohio, has established a precedent in the method of handling obstacles such as street railways which, by their dilatory tactics, impede the progress of public improvement. The Maumee Valley Railway and Light Company, owners of a street railway occupying a portion of a street in that city where paving was being provided for, failed to pay attention to the notice of the city to remove its tracks. As a result a big steam roller was backed gently but firmly to an offending piece of track, a chain hitched over the rails and the entire business removed from the street in less than two hours. The work of paving then progressed without further interruption.

One of the nicest paving contracts awarded in the State of Ohio this year will soon be let at Ravenna. The work consists of paving with brick seven and eighty-four-hundredths miles in Ravenna, Rootstown and Randolph township. It is estimated that it will cost about \$102,000.

The city of Toledo will avail itself of the provisions of the new law giving to the building departments the power to order dangerous structures to be torn down. Within the past few weeks orders have been issued for the razing of about two hundred unsafe buildings in the city. T. O. D.

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DRYING

THE BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for: A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to a minimum.

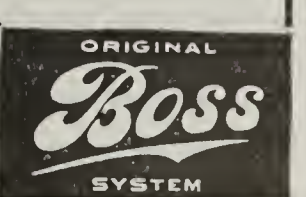
Further particulars can be had for the asking.





JOHN C. BOSS COMPANY

Write for Catalog. Elkhart, Indiana.



Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED, ETC.

WANTED.

To buy a brick plant having shale or fire clay, raw material and round down-draft kilns. Give complete description. Address **LOCK BOX 743,**
4 tf d **Uhrichsville, Ohio.**

WANTED—The undersigned desires communication with parties looking for a good location for brick plant. Address **BUSINESS MEN'S ASSOCIATION,**
9 3 cm **Jackson, Ohio.**

MONEY FOR SMALL PLANTS.

Experienced clay man with capital is willing to invest in small plants needing financial assistance to expand. Address **BOX 10—F. W.,**
10 1 d **Care Clay-Worker.**

WANTED—Position as manager of fire brick plant, experienced in fire clay, silica building brick. Employed, but desire change. Reference.

BOX 9—FIRE BRICK,
9 1 c **Care Clay-worker.**

WANTED—Thoroughly experienced man to take charge of manufacturing part of fireproofing and drain tile factory, experienced with shale material. Apply, stating experience and references and salary expected.

LYTH TILE CO.,
10 1 d **Buffalo, N. Y.**

WANTED—Ceramic graduate seeks position as assistant manager in structural material business. Filled responsible posts for six years in manufacturing and in designing and constructing plants. Age thirty. Address

BOX 10—E. P. O.,
10 1 c **Care Clay-Worker.**

WANTED

a clay pulverizer. Must be in good condition. Give name of manufacturer, state capacity of machine, how long in use, and quote lowest spot cash price. Address

BOX 10—K,
10 tf d **Care Clay-Worker.**

FOR SALE

FOR SALE—Soft mud brick and tile machine, Freese make. Have stopped manufacturing brick and tile. Cheap.

S. J. CLARK,
9 1 cm **Wauseon, Ohio.**

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. Address

BOX 10—BOSTON,
10 1 d **Care Clay-Worker.**

FOR SALE.

Second-hand four-mold Boyd press in good condition. Reason for selling, have quit making dry press brick. Address

BOX 9—M. J. L.,
9 2 cm **Care Clay-Worker.**

FOR SALE.

Modern twelve-kiln face-brick plant, shale and fire clay material, reaching Columbus, Cleveland and Chicago markets. Fifteen thousand dollars will handle this deal, balance terms.

Address **BOX 10—DEU.**
10 1 d **Care Clay-Worker.**

AN OPPORTUNITY TO LEASE OR PURCHASE.

Plant for lease, suitable for manufacture of pottery, sanitary ware, faience or any ceramic specialty. Has good buildings and kilns, is located in the clay center of New Jersey, with plenty of skilled labor available; is convenient for raw materials and has excellent shipping facilities. To right party who presents a favorable proposition, together with satisfactory references and experience, owner might furnish necessary capital. To a capable faience expert this presents a favorable opportunity to get into the business with good backing. Address

J. A. G. ROOT,
1242 Pacific Street, Brooklyn, N. Y.
8 3 cm

FOR SALE

Six piano wire screens used only a short time. In good shape, cheap. Address

BOX 10—IRON,
10 3 c **Care Clay-Worker.**

FOR SALE.

One 60 h. p. Boiler. One 45 h. p. Engine. One 3 roll Griffin Mill, grinds hardest rock to any mesh wanted; condition absolutely guaranteed. Will sell cheap to quick buyer. Further information upon application.

HANCOCK SHALE BRICK CO.
10 1 d **Hancock Md**

BRICKMAKERS—ATTENTION!

I have for sale a brick plant in county-seat town on railroad division. Brick sell for from \$8.00 to \$10.00 per thousand at plant. Will take brick at \$3 00 for payment. Reason for selling, want to contract brick work and can't take care of both. Address

E. E. SENIFF,
10 1 cm **Leesville, La.**

\$15,000 Issue of 7%

Five Year Bonds on \$50,000 Sand-Lime Brick Plant in thriving northern New York town for sale at par. Purchaser will receive 50 per cent. of Common Stock as bonus and may have position as treasurer. Modern plant, expert management, good transportation, wide market, large profits.

Meade C. Dobson
149 Broadway, New York City

For Sale New Automatic Cutter NEVER USED.

One new Automatic Side-Cut Horizontal Cutter made by the American Clay Machinery Company, Style "F." Not suitable for cutting our Wire-Cut-Lug Blocks.

Will sell cheap for spot cash.

Dunn Wire-Cut-Lug Brick Co.
Conneaut, Ohio.

Classified Advertisements.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,

FRANK P. CLEVELAND,
965 Adams Express Bldg.

10 tf d Chicago, Ill.

WESTERN AND PACIFIC COAST
CLAYWORKERS ATTENTION

Clayworks engineering. Plans for common, face and paving brick, sewer pipe and pottery plants; for dryers; for up draft, down draft, continuous and other kilns. Clay deposits examined and tested. Machinery installed and operations supervised. Clayworkers, appliances, such as Engelhard pyrometers, Bristol recorders, draft gauges, watchman's clocks and others.

GEIJSBEEK ENGINEERING COMPANY,
Blake-McFall Bldg. Portland, Oregon.

REBUILT ENGINES AND BOILERS.
ENGINES—CORLISS: 18x42 Lane & Bodley; 18x36 Ohio heavy duty, 16x42 Allis; 12x30 Lane & Bodley.

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ENGINES—THROTTLING: 18x24 Atlas, 14x18 Sinker-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x13 Lane & Bodley; 8x10 Erie, 6x8 Industrial.

BOILERS—STATIONARY: 72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x12, etc.

BOILERS—FIRE BOX: 100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h.p., etc.

BOILERS—VERTICAL: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 h.p., etc.

HEATERS—All sizes, open and closed.

PUMPS: All sizes, single and duplex.

ELECTRICAL: 30 k.w. generator, direct connected to 8x10 Skinner engine; 20 k.w. generator, direct connected to 8x10 Economic engine; 18 k.w. belted generator.

MISCELLANEOUS: Saw mills, lathe mills, edgers, cutoff saws, re-saws, blowers, exhaust fans, tanks, etc.

Write for list. Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS AND JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St. Cincinnati, Ohio.

See additional ads under Table of Contents.

BRICKYARD ENGINEERING.

GEO. W. HEALD.

(Lately with Illinois Brick Co., Chicago.)

Brick plants designed or remodeled.
216 Fisher Bldg., Chicago, Ill.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.
THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

P. MITTLER,
Robbins, Tenn.

PATENTS

secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

MR. BRICKMAKER

I am prepared to furnish
Blue Prints and Specifications
for One of the Best

Down-Draft Kilns in the World.

This is not a new and untried affair, but one that has been thoroughly tested. Blue prints and specifications sent by express cost you Ten Dollars.

Edward Van Antwerp,
Dent, Minn.

YOU CAN'T FADE 'EM
none like them
Cement, etc. Red, Brown, Purple and Black.
for Brick, Mortar,
MILWAUKEE, WIS.

Ricketson's MINERAL Colors

The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and



RICKETSON MINERAL PAINT WORKS,
MILWAUKEE, WIS.

Used Extensively
by the

U. S. GOV'T



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Brick and tile plant in Iowa for land.
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10 1 l Care Clay-Worker.

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new.

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price. Can be seen at Millville, N. J.
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Having quit the brick business, will
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See additional ads under Table of Contents.

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CHEMICAL COMPANY,
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As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

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Machine=Molded Gears

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"AJAX"
**Fire Brick for
Building Kilns**

GENERAL OFFICE:

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CHICAGO, ILL.

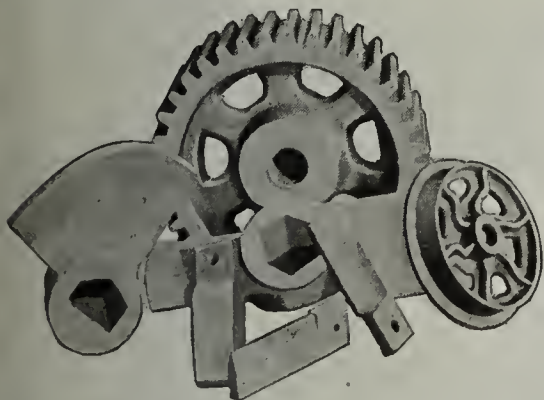
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THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
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Write Us **Evans & Howard Fire Brick Co.**
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Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent
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Let us refer you to other users.

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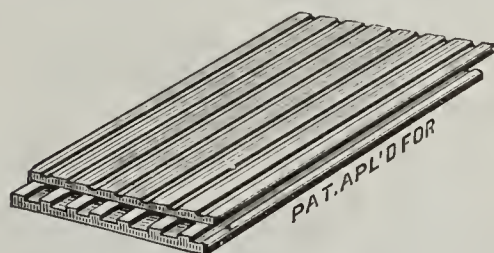
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Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address T. A. RANDALL & CO.,

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Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

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BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

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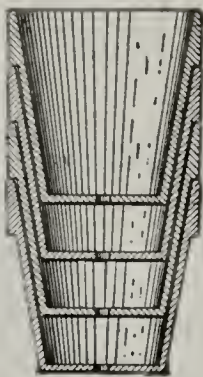
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The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

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Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;

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Something New in Brick Kilns and Brick Dryers

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ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
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County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

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Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

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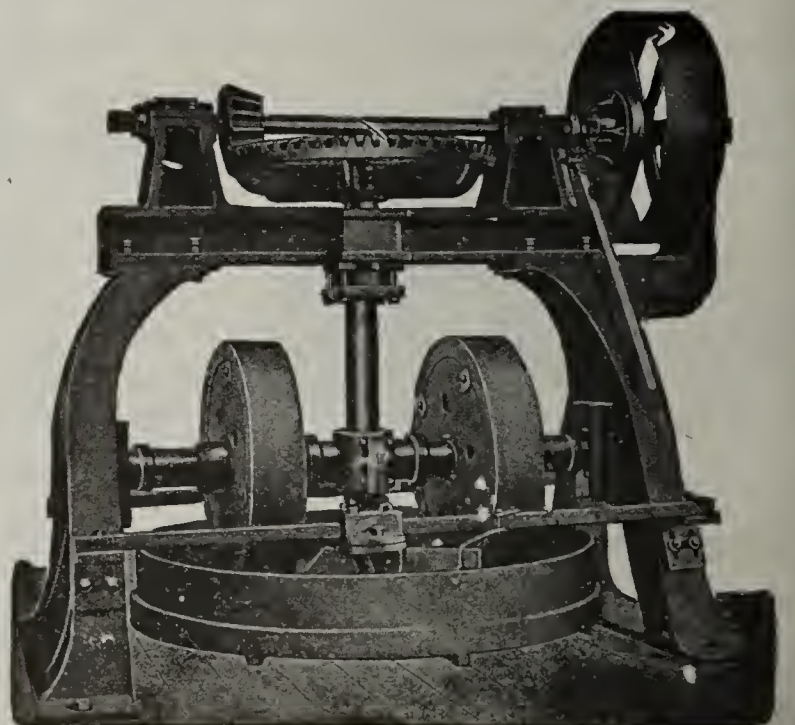
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Builders of
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Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

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BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
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MINERS AND GRINDERS.

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Latest Improved

Down-Draft Kilns

for

Brick and Tile.

Write to

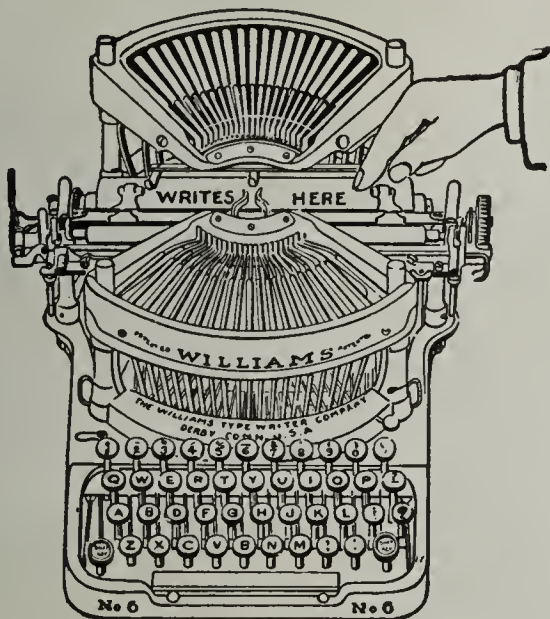
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Saves the beginner time when learning

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

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The Williams is sold under a positive guarantee and on easy terms.

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Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

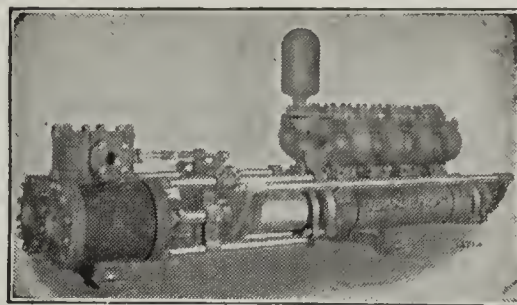
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Old Machines Taken in Trade.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00



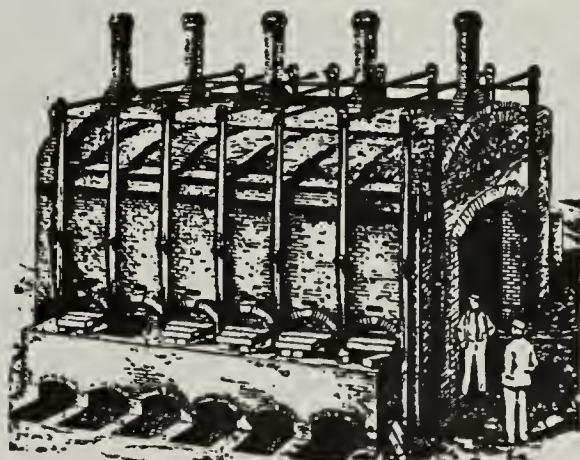
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By Prof. A. V. Bleininger.

This book contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. It is very comprehensive and should be in every clayworker's library.

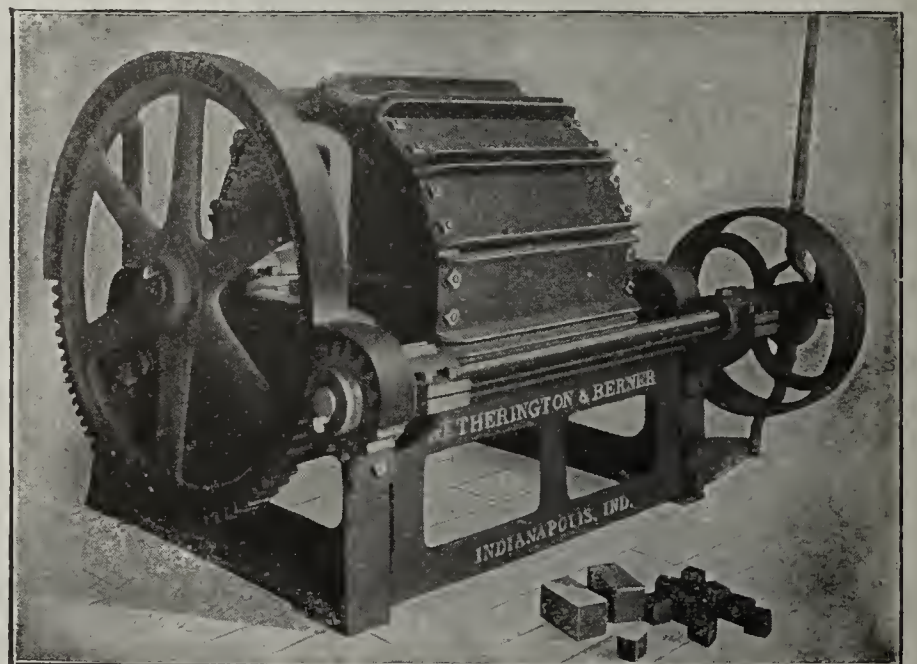
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Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

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Have You Ever Considered the Improvements in Burning Clay Wares

Since

TATE, JONES & CO., Inc., entered the field with a complete system for Oil Burning?

That

They are burning clay goods with oil in coal fields—where coal is cheapest, They are successfully burning clays containing a high percentage of carbon.

They are watersmoking with oil the most delicate pottery and highest grades of face brick.

They are using our complete system designed in detail for the clay industry.

They are adapting the system to any kind of kiln and for any kind of ware. They are burning clay wares with less heat units with oil than formerly with coal—no excess of cold air is admitted into the kiln.

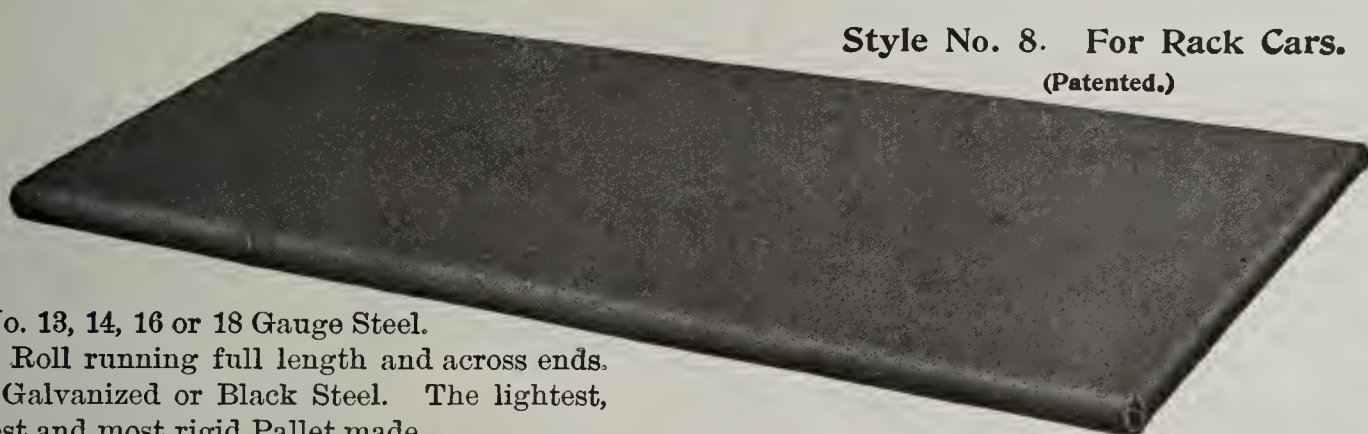
Manufacturers of
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Style No. 8. For Rack Cars.
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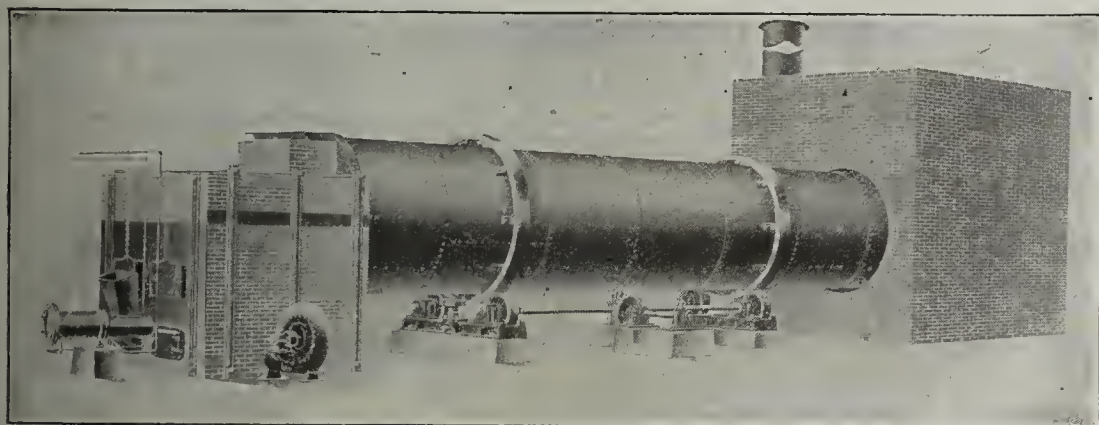


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Automatic Improved DRYERS

Economical, Efficient,
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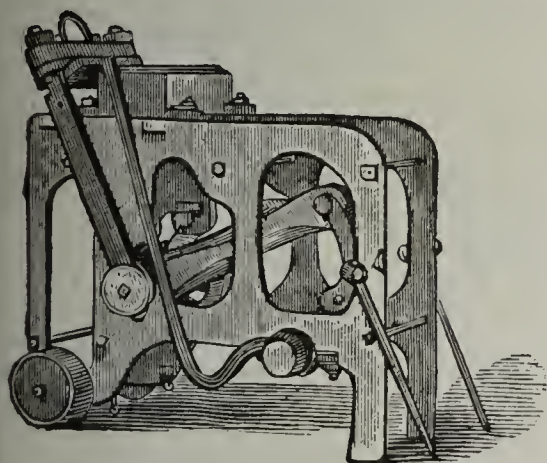
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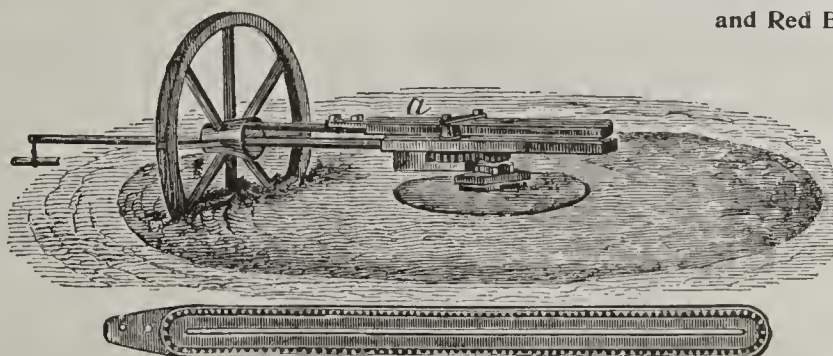
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These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

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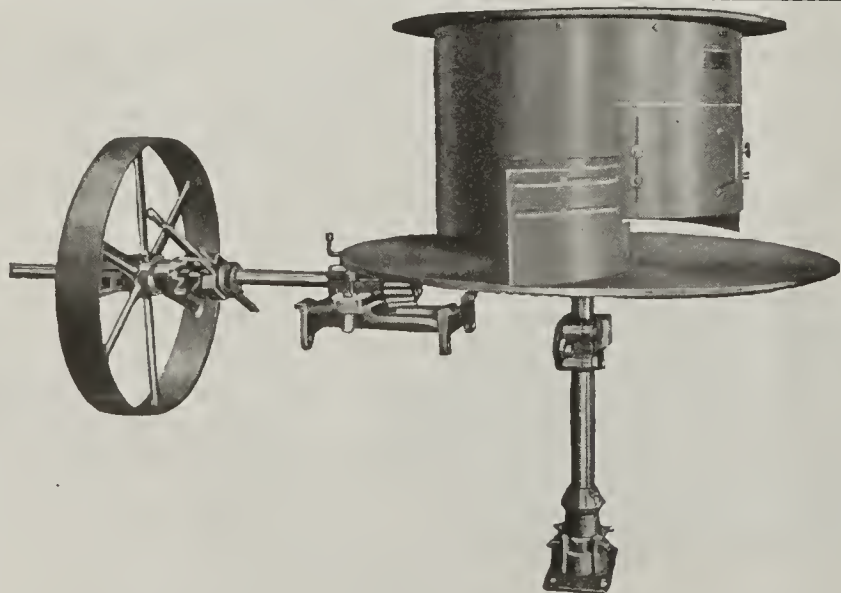
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Ask for our latest Catalog, and write us or wire us for anything you need on any kind of Brick or Tile Plants.

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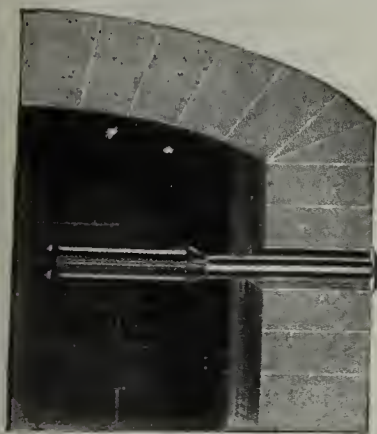
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STITCHED COTTON DUCK BELTING

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This edge of the **Gandy Belt** will hereafter be painted green, in order that our customers may at a glance recognize "The Gandy Belt."

We have adopted for our belting an additional distinctive mark, which consists of a green edge stripe painted upon one edge of the belting.

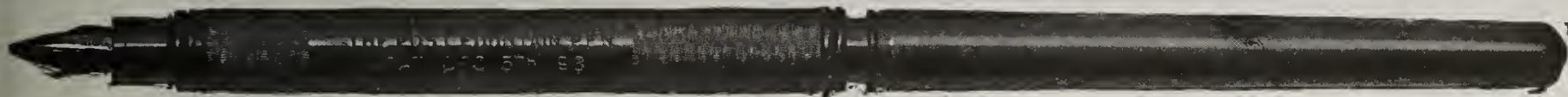
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WITH A
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☐ HAVE YOU ever investigated the possibilities of a MOREHEAD STEAM TRAP INSTALLATION for draining steam lines and feeding boilers?

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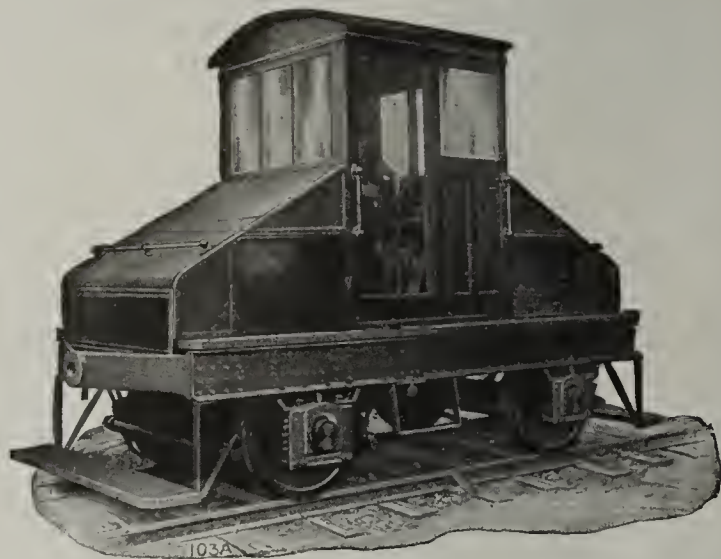
☐ You may have the privilege of proving to your own satisfaction the truth of our claims - at our expense.

☐ Write for trial offer proposition and ask for "Trap Book."

MOREHEAD MFG. CO.
DETROIT, MICHIGAN

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(Gasoline Driven)
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CLAY HAULAGE.



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Milwaukee Locomotives are built for all gauges of track and in sizes from 2½ to 100 tons. They are always ready for instant use, are very efficient and economical to operate. Reduce haulage costs to the minimum, as their operation is much cheaper than animal haulage.

Write for Publication No. C-102.

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CASH

To insure insertion in current issue, copy should be furnished early in the month.

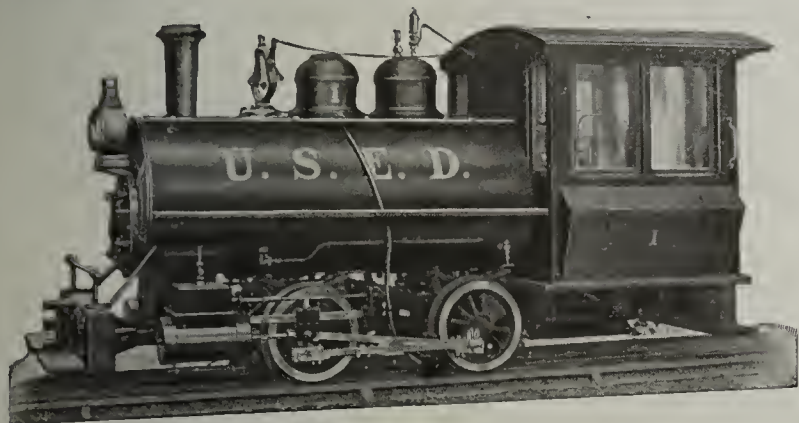
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Reduce cost of transportation
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DAVENPORT INDUSTRIAL LOCOMOTIVE



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

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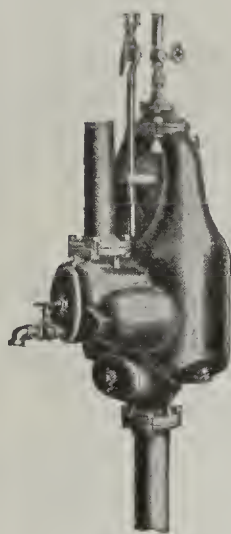
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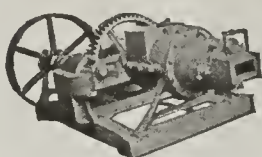
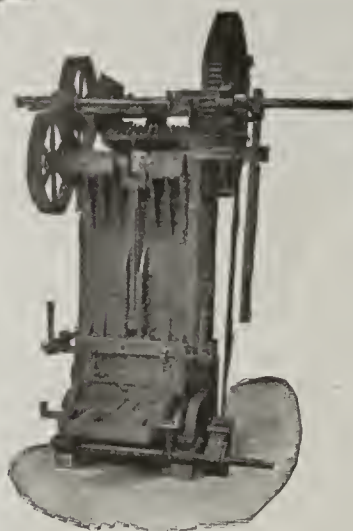
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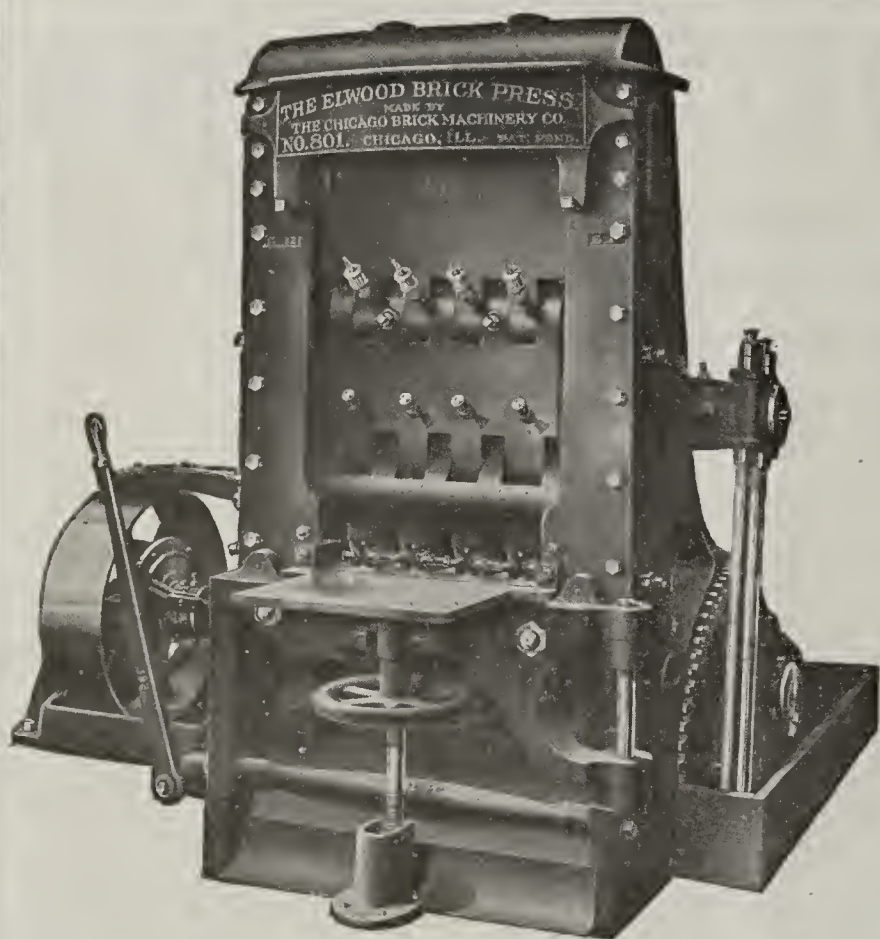
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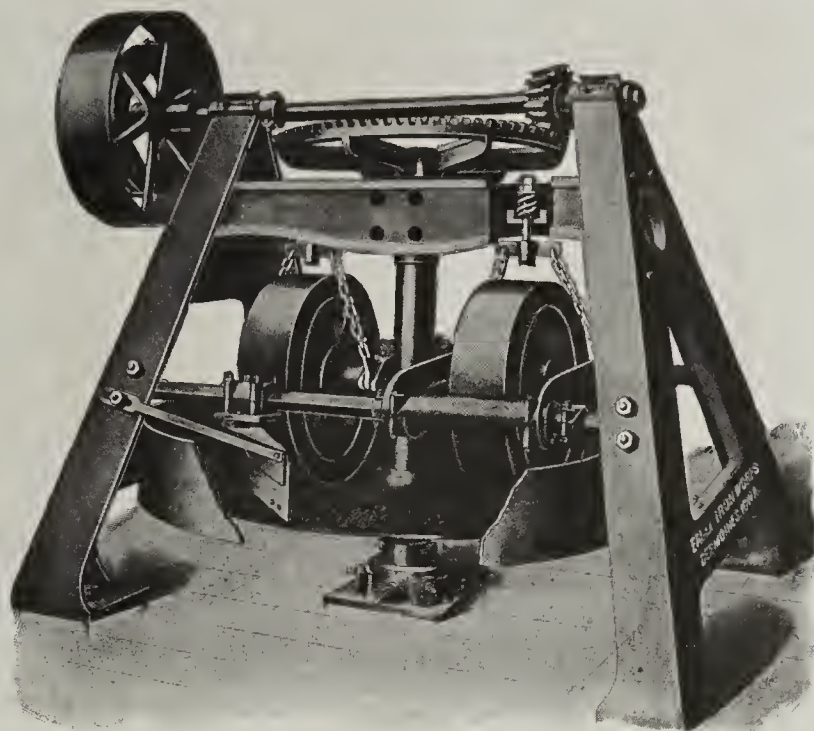
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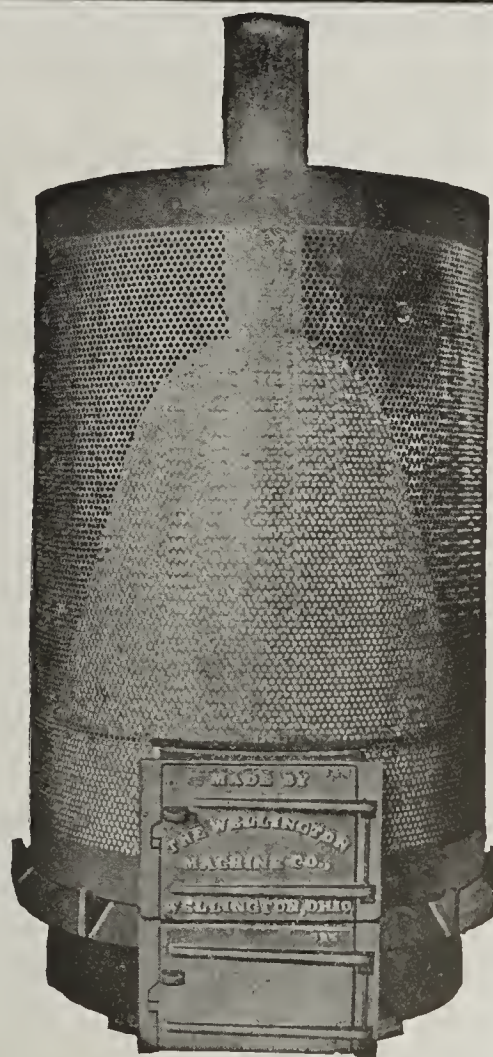


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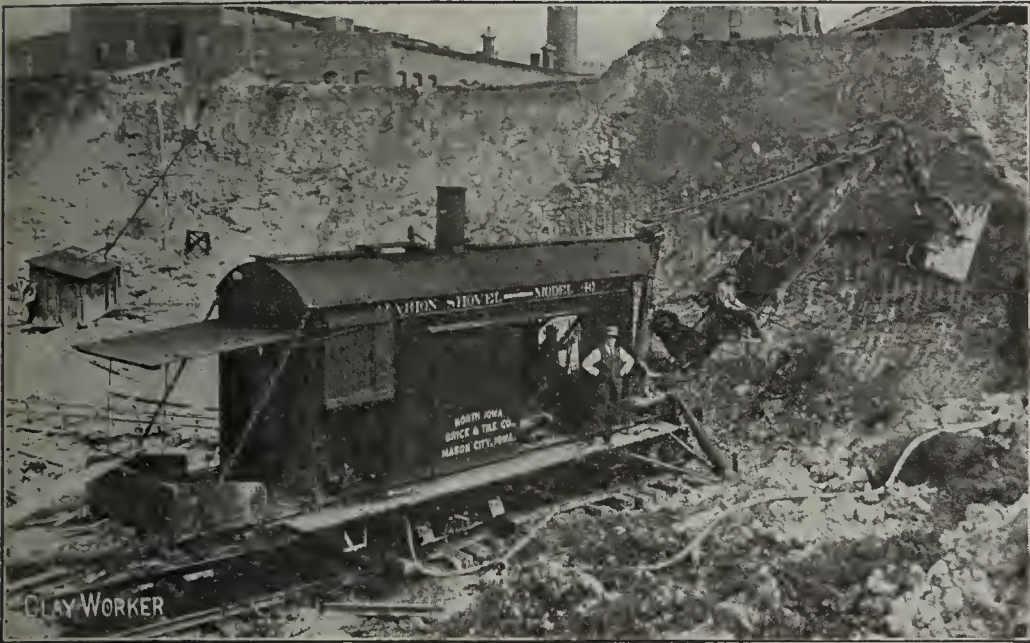
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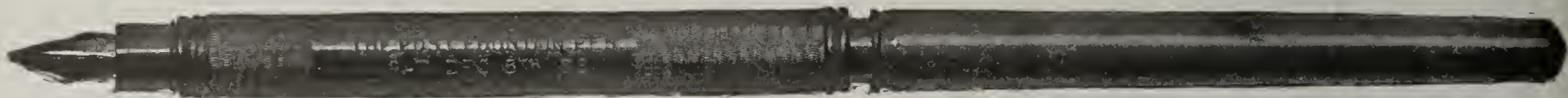
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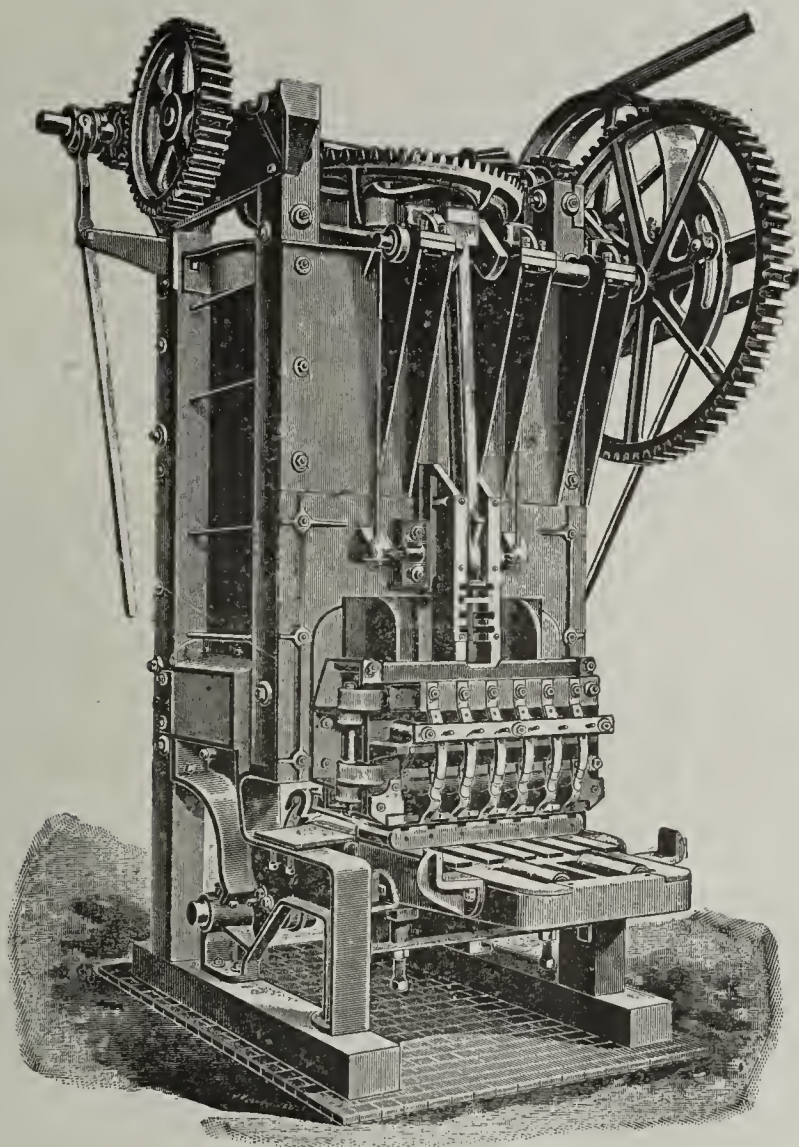
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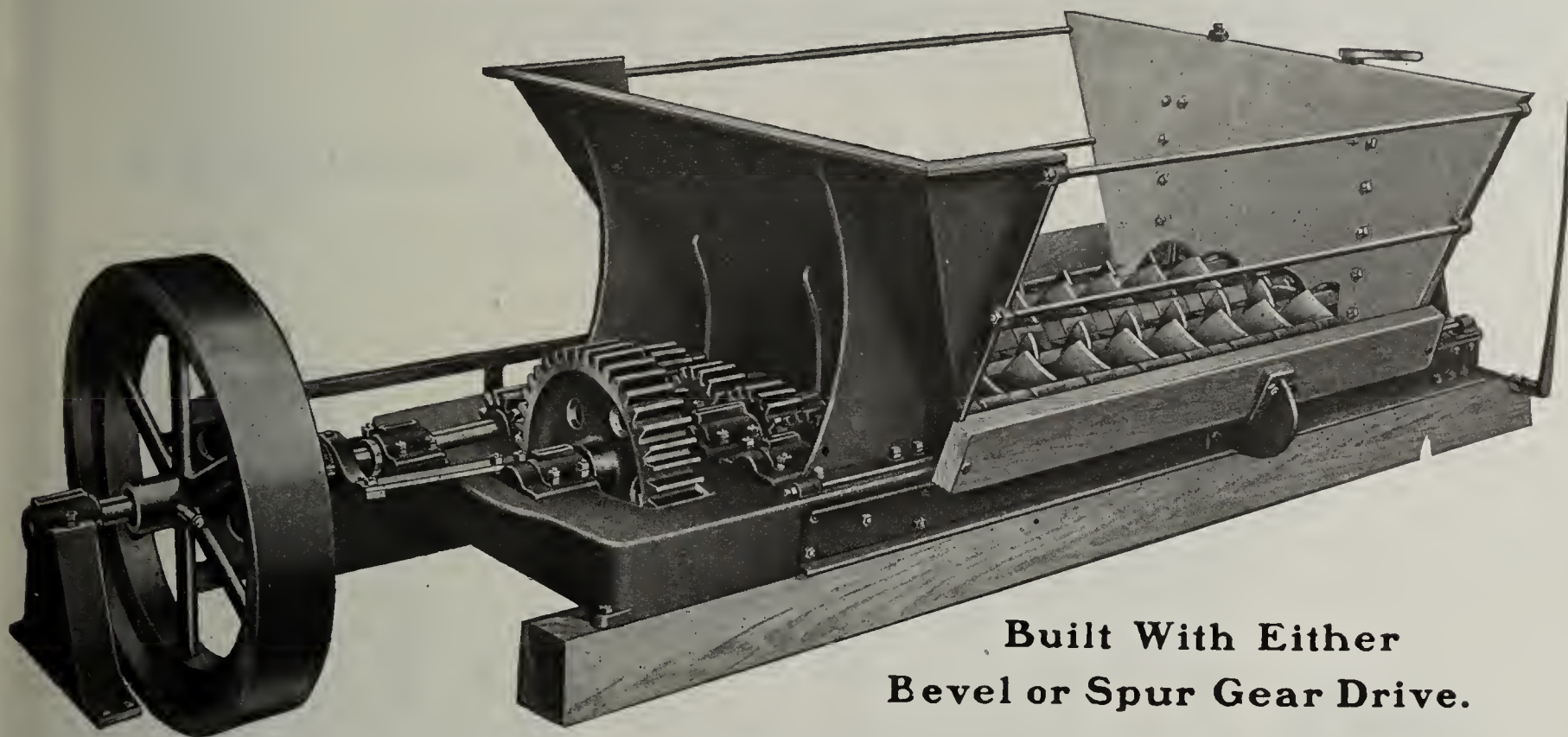
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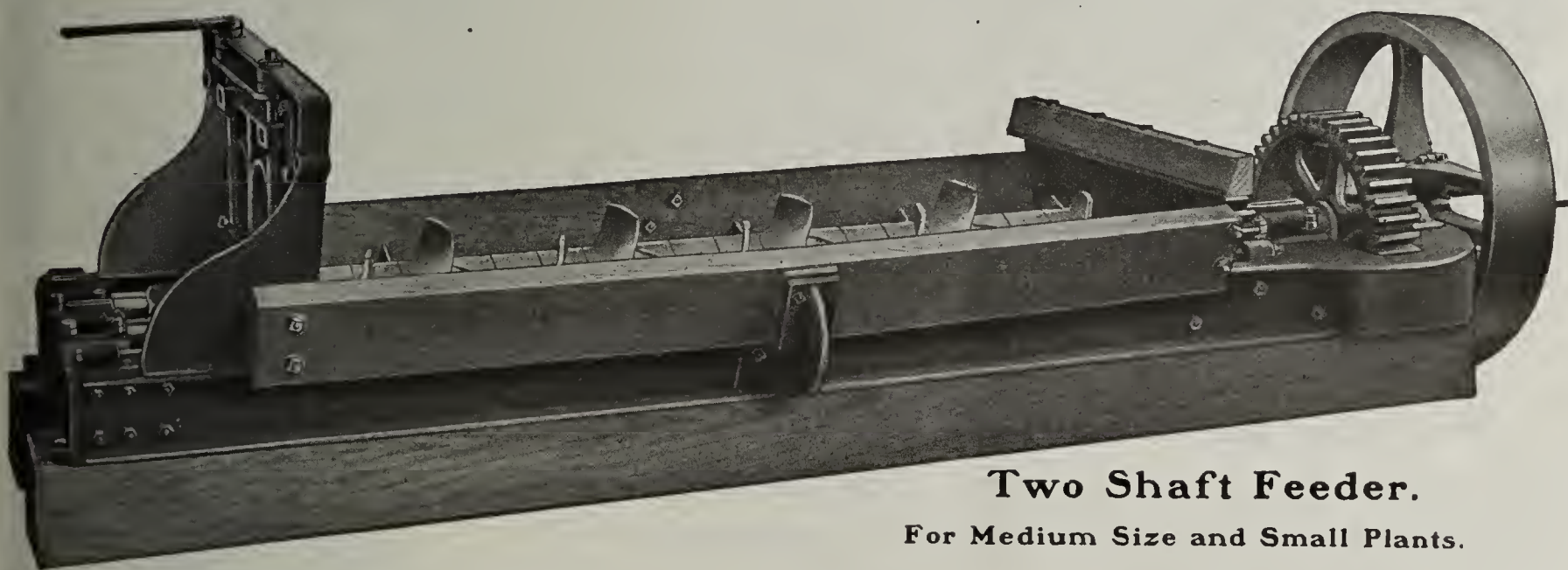


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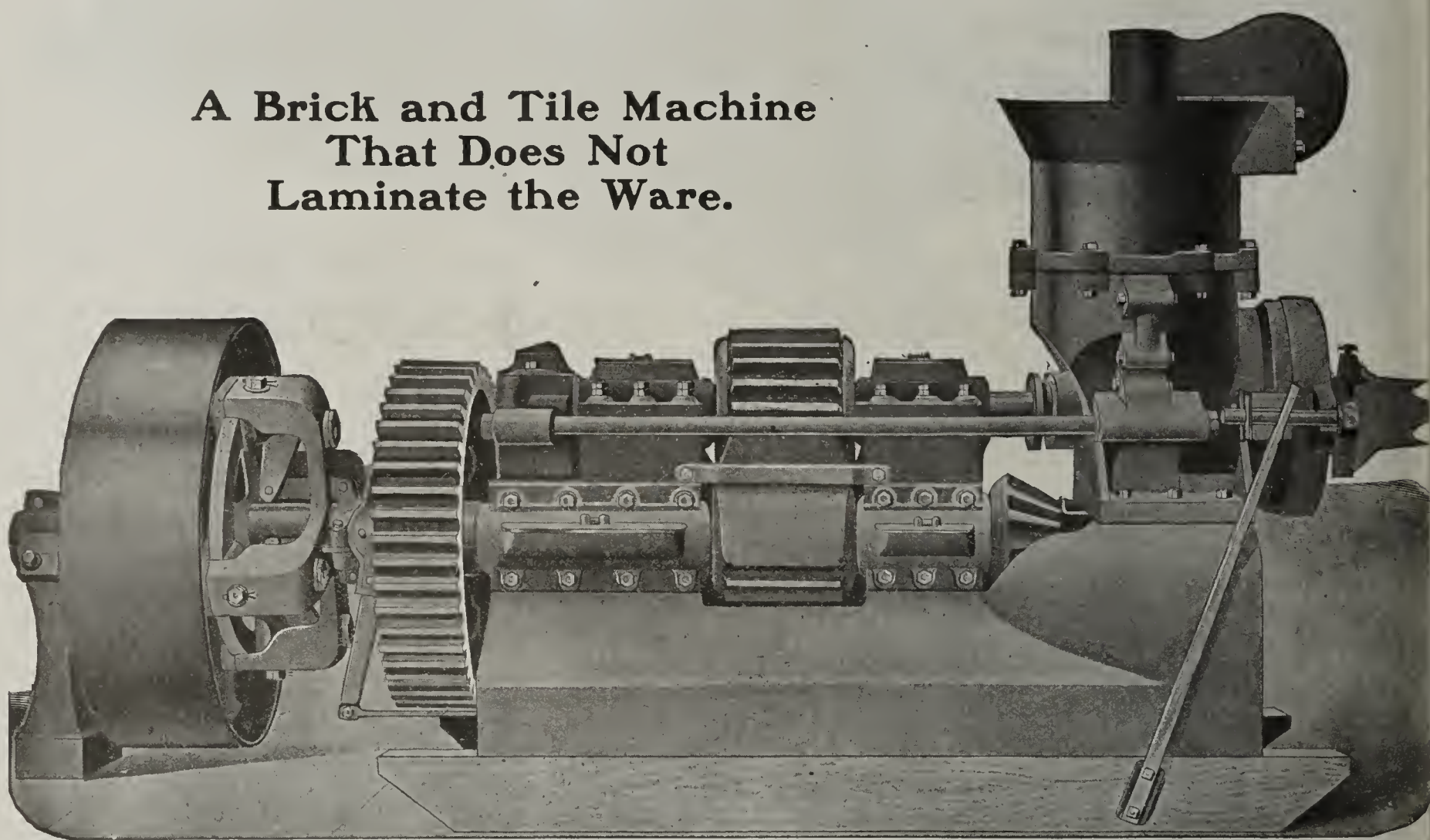
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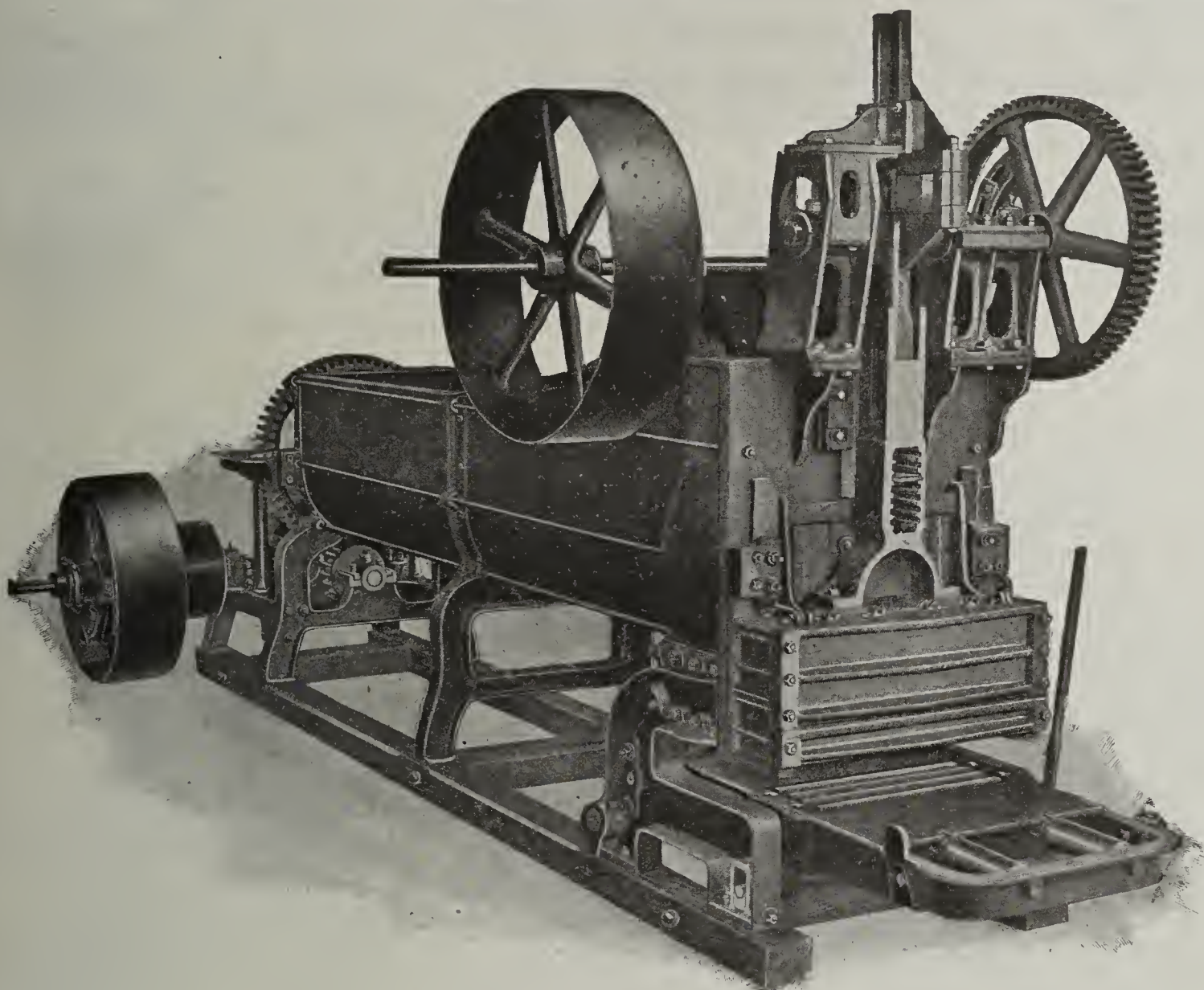
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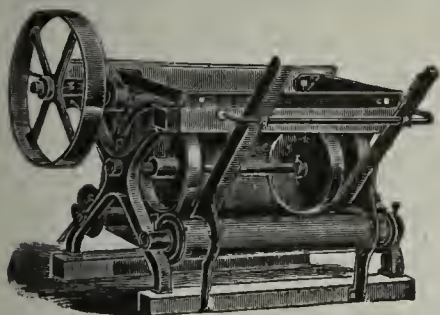
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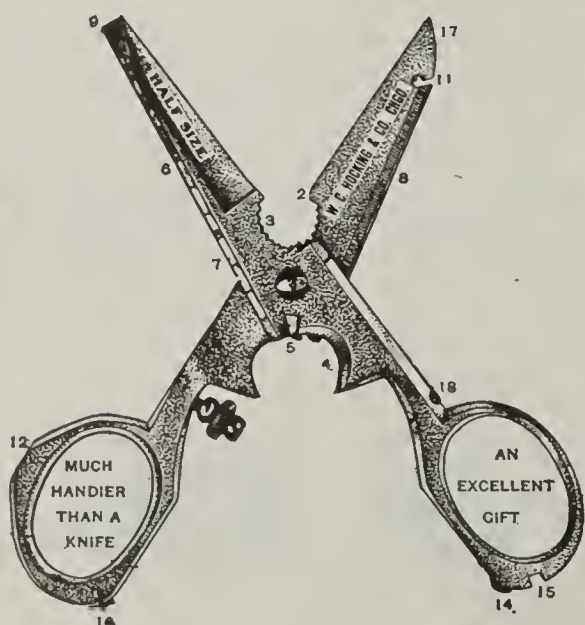
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every **new subscription** to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE C.-W. VEST POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued.

beginning with the.....issue. Enclosed find \$

Name.....

Postoffice.....

Street and Number.....

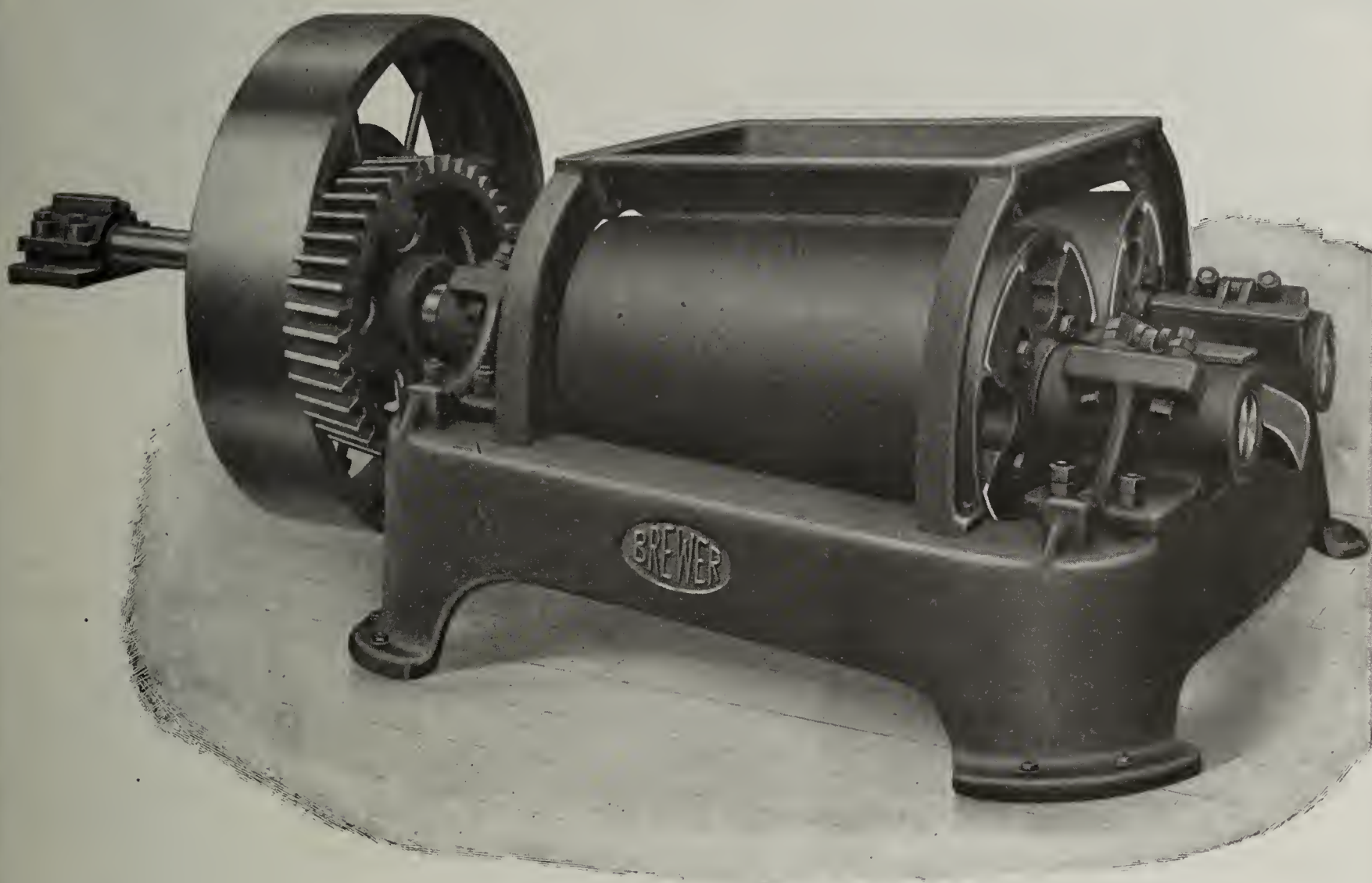
County.....State.....



CLAY CRUSHERS

We make a specialty of Crushers. We build all kinds and sizes—Conical, Straight, and Beaded Roll Crushers, Compound Crushers, Disintegrators and Dry Pans.

We make the rolls with removable shells and we make the shells of a special hard and durable material which, compared on a basis of cost, outwears manganese steel or anything else.

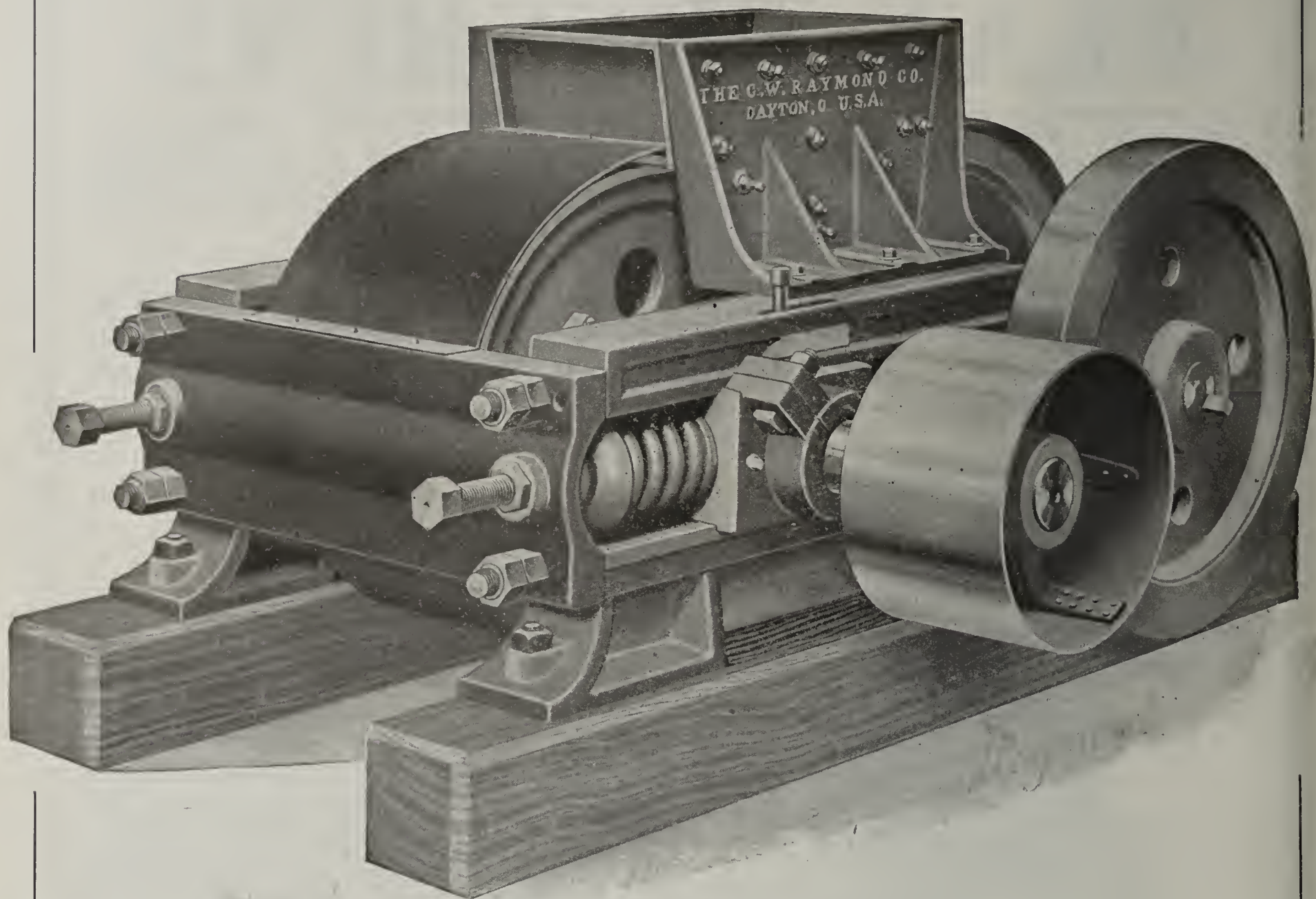


But Crushers are only a small part of our line—we also build
**Brick Machines, Drain Tile Machines, Automatic Cutters,
 Pug Mills, Granulators, Hoists, Conveyors, Etc.** ∴ ∴

GET OUR COMPLETE CATALOG.

H. BREWER & CO.  Tecumseh, Mich.

The Raymond Equal Roll Crusher



A new form of construction in smooth roll crushers, which abounds in intensely practical points.

The fast roll is held rigid in the framework while only the slow speed roll is adjustable, which allows the impact to be taken against a solid frame. This framework is held together by heavy through-going bolts, equalizing the strain on the entire structure.

The adjustable roll is relieved by heavy springs which allow the passage of foreign substances should any happen to get into the material unnoticed.

The bearings are equipped with oil reservoirs holding sufficient lubricant for a considerable time.

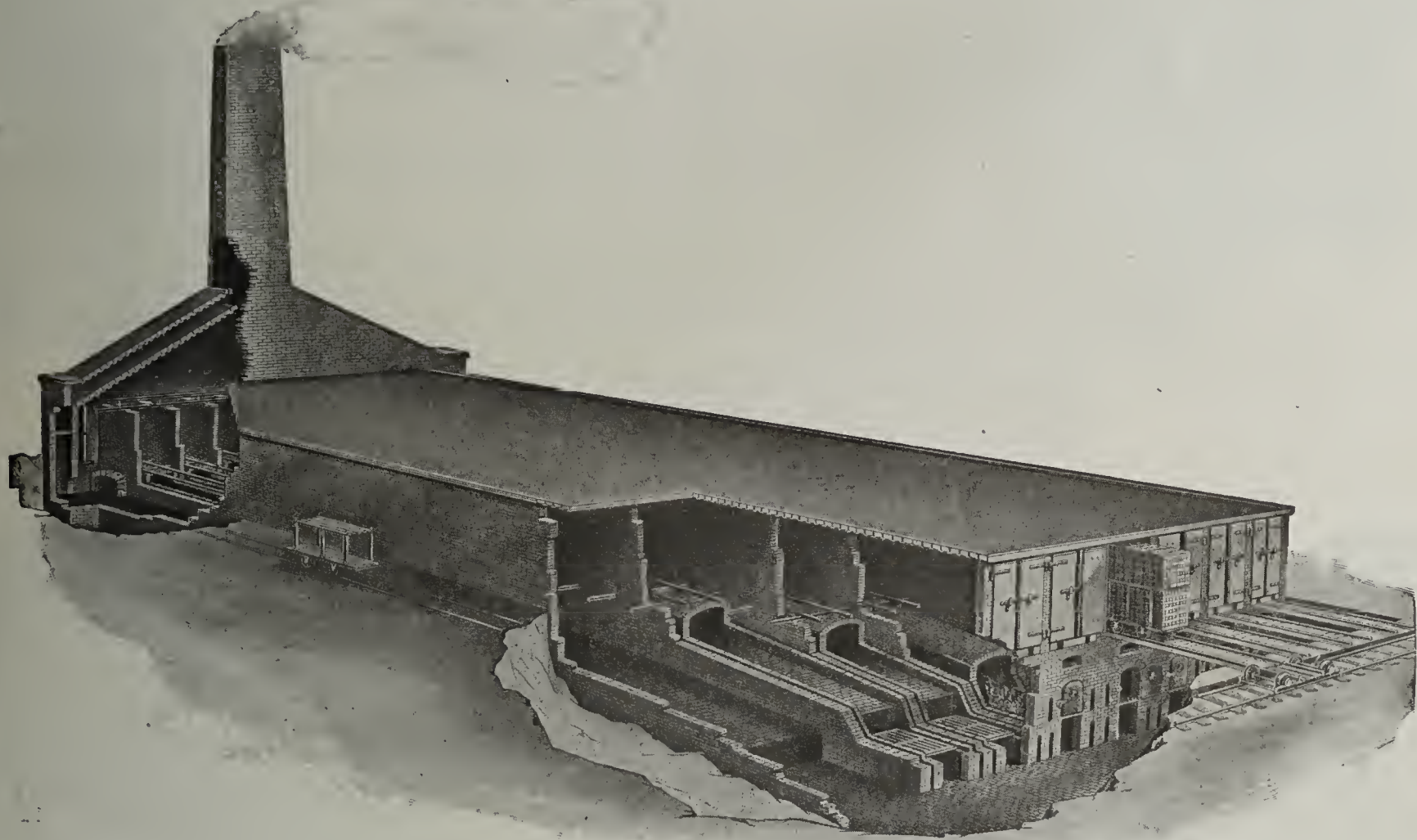
The scraper device is new. Write for Exhibit 2115 which explains in full detail.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The Raymond Radiated Heat Dryer



Are You Having Drying Troubles?

The Raymond Systems of drying clay products have been a boon to the clayworker with drying troubles.

Our Raymond Radiated Heat Dryer is simplicity itself—no fan or engine troubles—temperature and air circulation in each tunnel under absolute and separate control. Ware only in contact with pure air. Cars never in contact with gases or acids. Fuel cost per ton of dried ware less than in any other dryer.

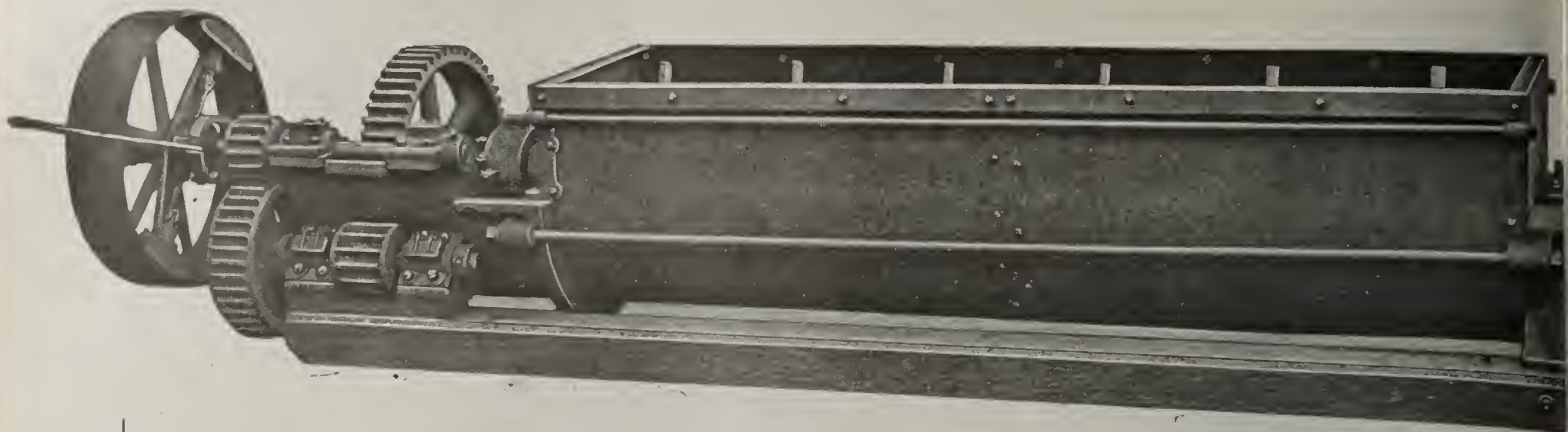
The tenderest clays can be dried without injury, and the same successful results are obtained with every description of clay ware.

Exhibit sheets covering our Drying Systems sent upon request.

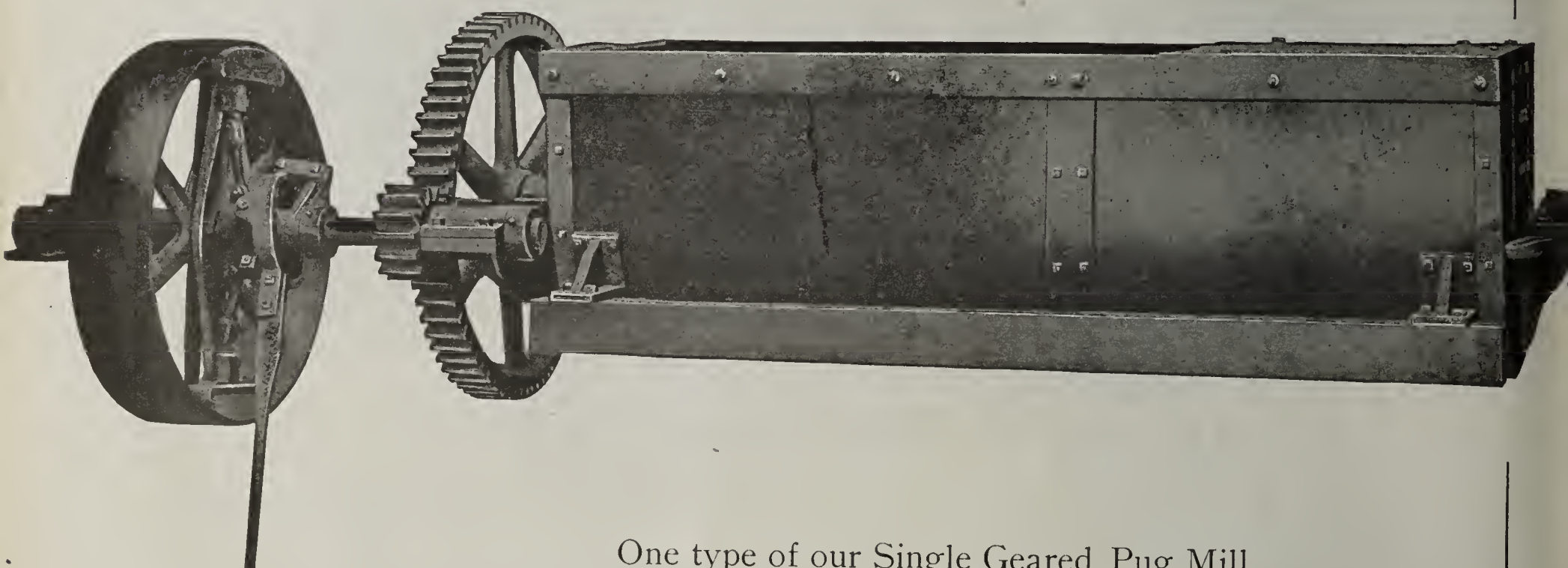
THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.



A type of our heavy duty Compound Geared Granulators, **SIX** of which are working every day in the city of Detroit.

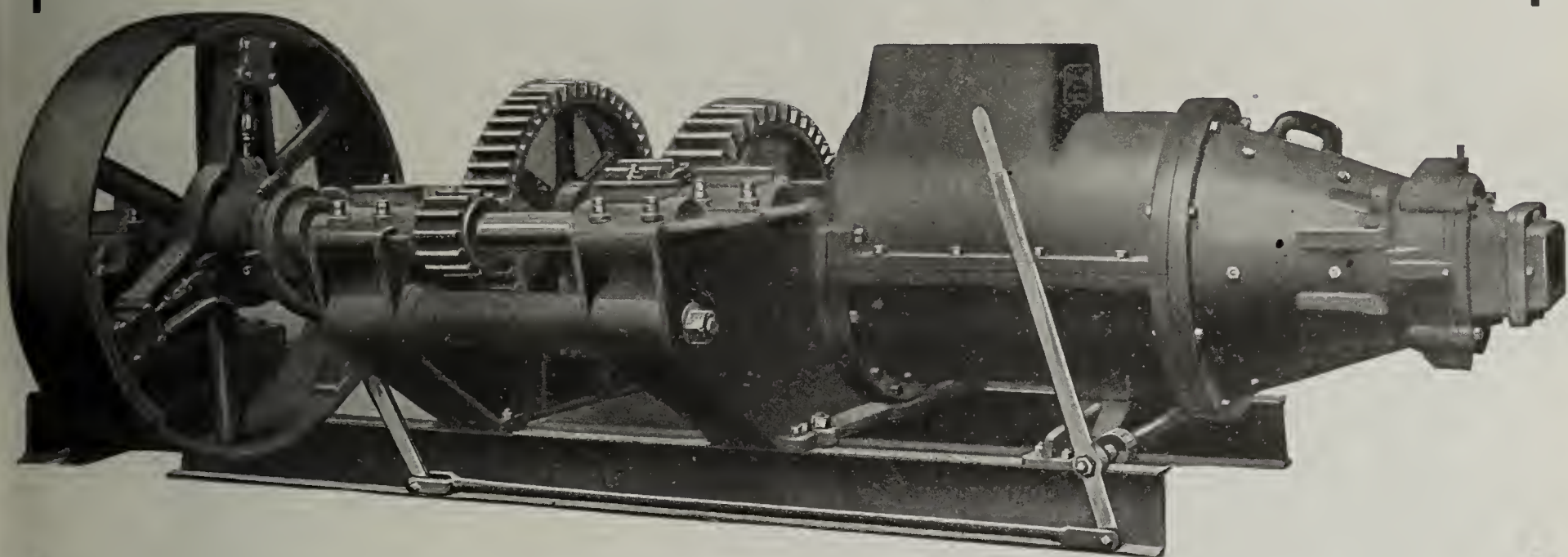


One type of our Single Geared Pug Mill,
capacity up to 20,000 brick per day.

We build Pug Mills in over fifty different sizes and patterns. Full description and blue prints yours for the asking.

The Wellington Machine Co.
Wellington, Ohio

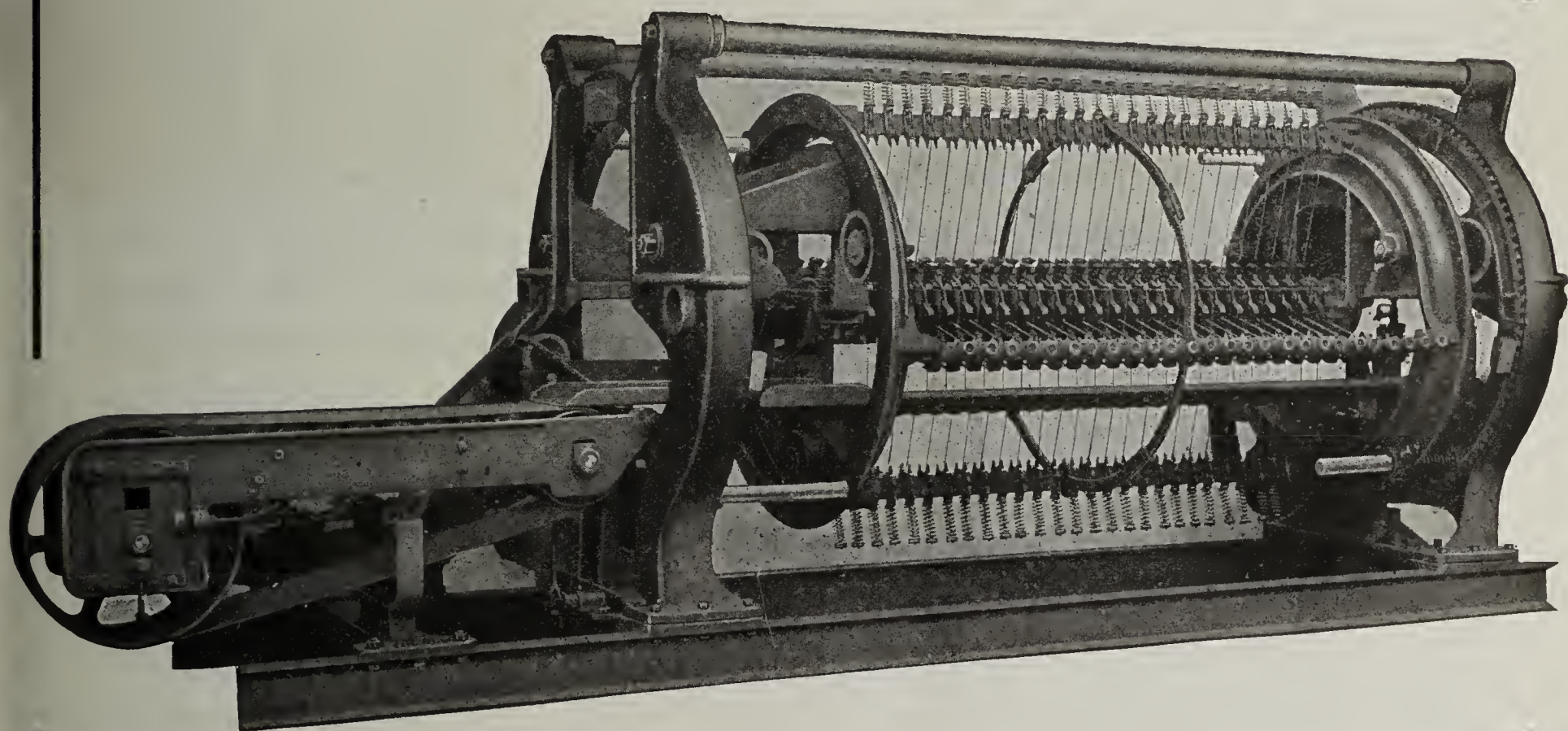
Bonnot Machinery for Satisfactory Service



No. 10 Auger Machine. Capacity 50,000 to 75,000 Brick in 10 Hours.

GET OUR CATALOG.

ASK THOSE WHO USE THEM.



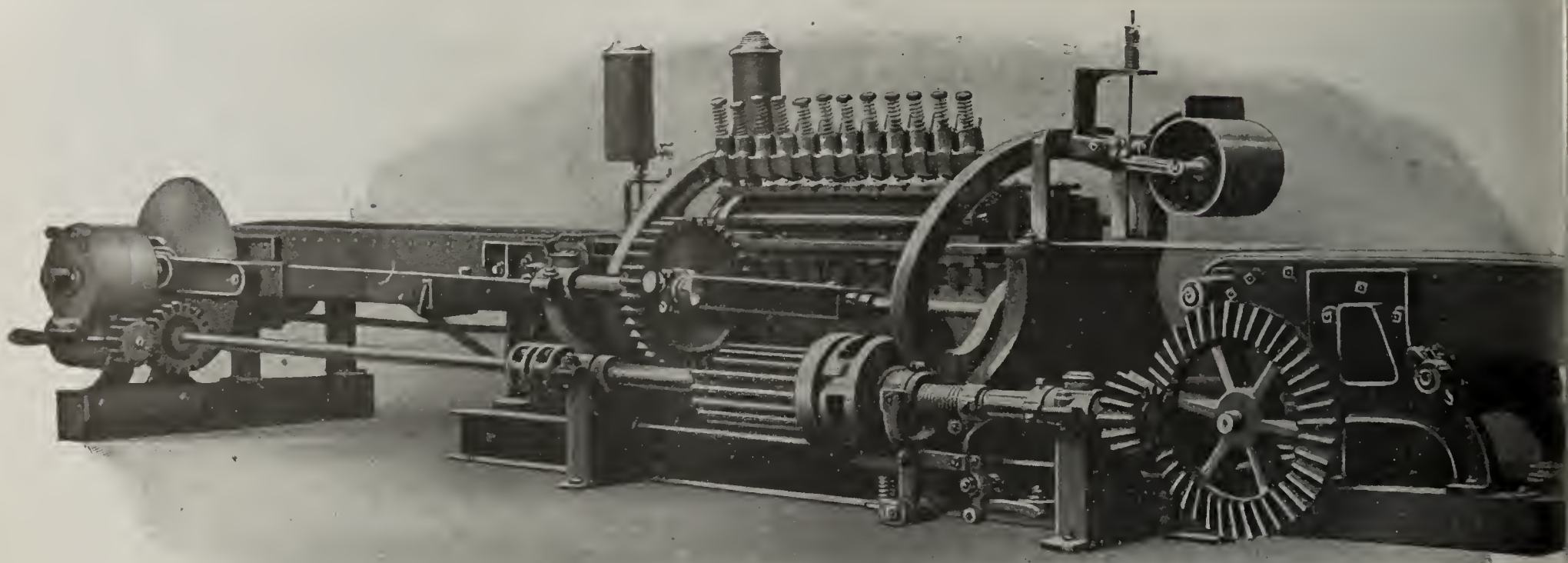
Only Rotary Automatic Cutting Table With Cutting Frame Next to Die of Machine.
Capacity 100,000 Brick in 10 Hours.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

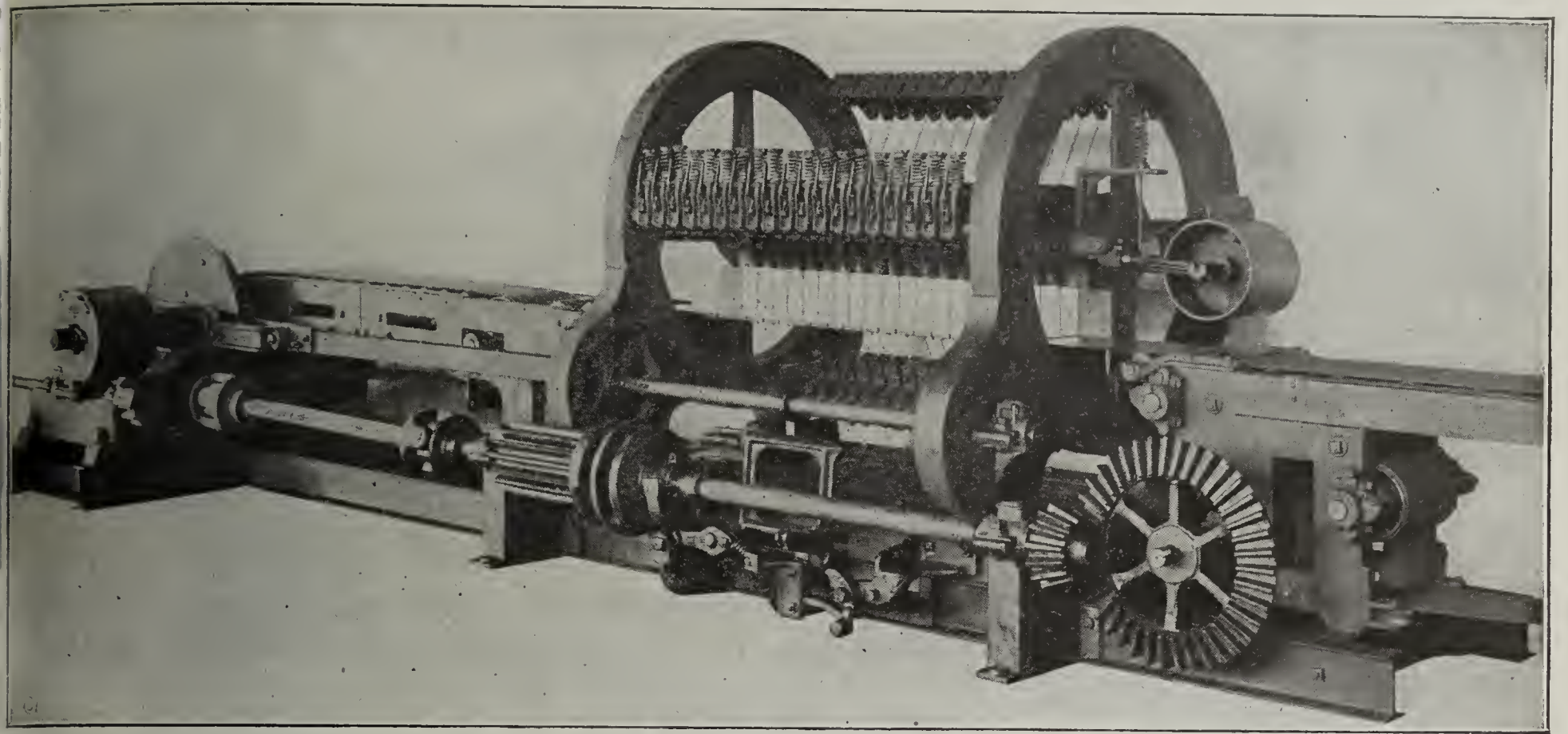
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

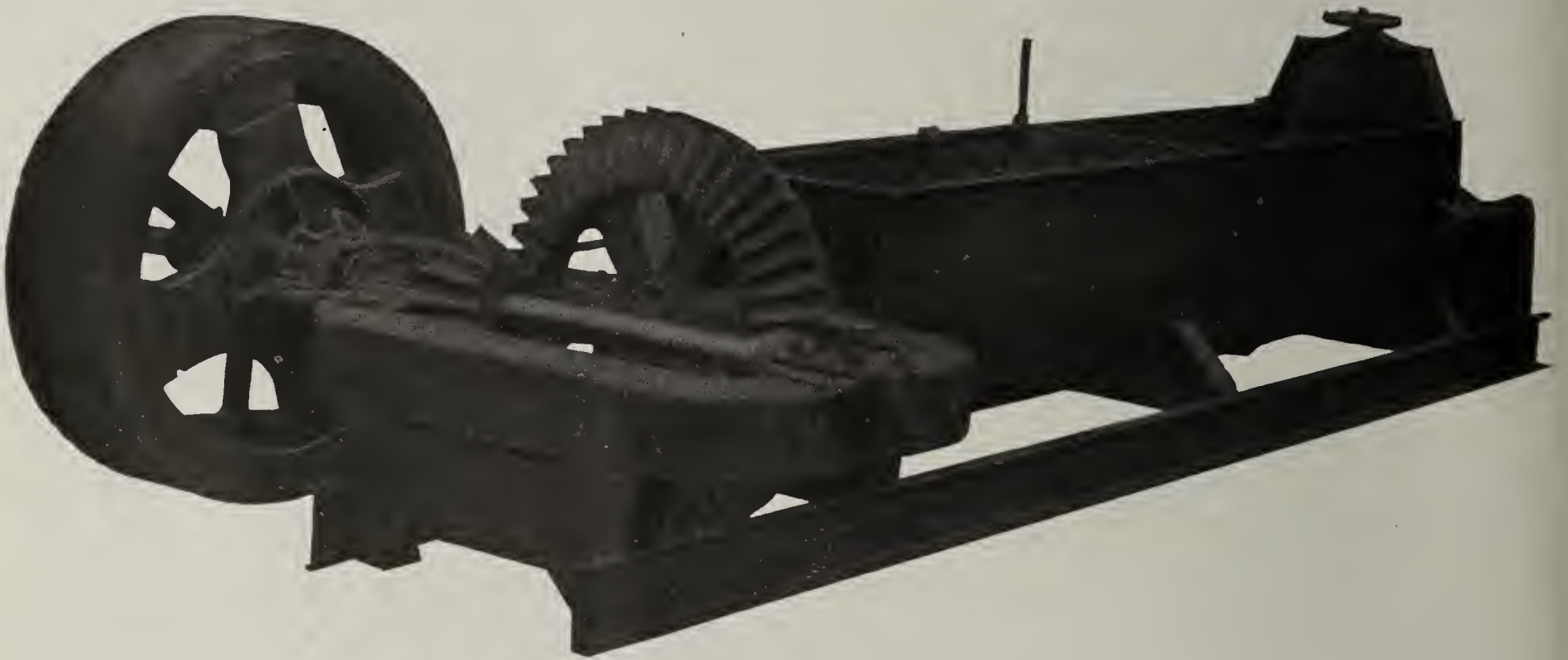
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

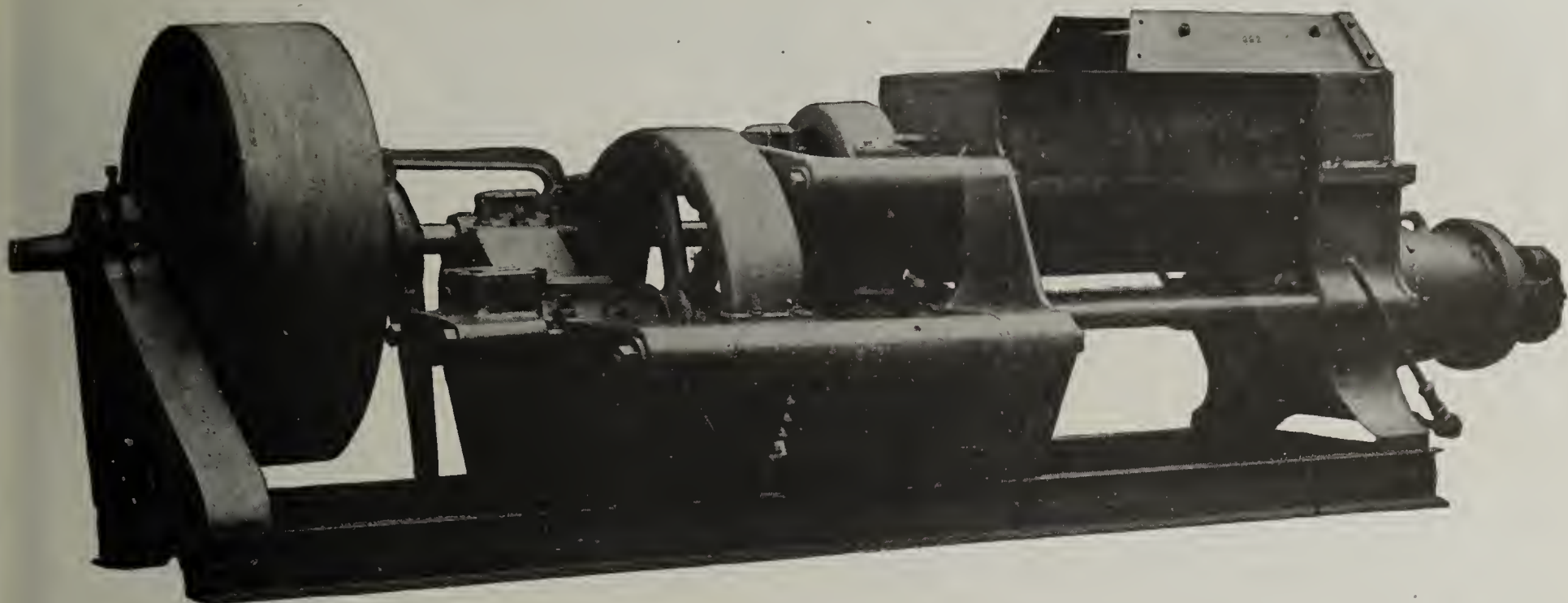


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

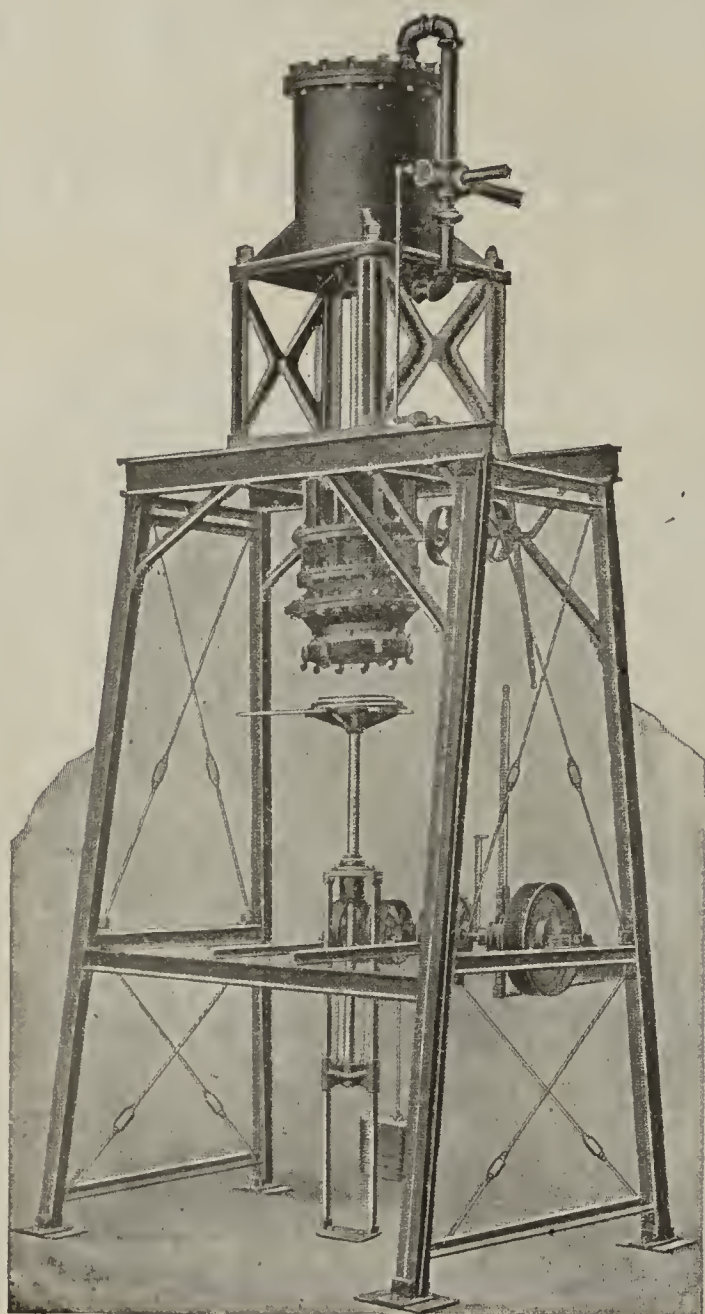
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.

A DRY SEASON FOR DRAIN TILE MEN

Everybody knows this has been rather a bad year in the drain tile business, because of the dry weather, which does not encourage drainage work.

The Big Ditching Contracts Go on, However, and the Orders for Big Tile Continue, Regardless of Temporary Conditions; and the Fellow Who Makes the Big Tile is Making Money These Days.



Therefore if you are equipped already to make the small sizes of tile, it will pay you to get busy at once and put your plant into shape for making the largest sizes. It is not a big matter to do this, and you can make the very best large size tile cheaply and quickly if you are equipped with the

STEVENSON PRESS.

This is generally admitted to be the best steam press for this kind of work in the world. It is the press which is used on all the leading sewer pipe plants for making the best of vitrified sewer pipe; and in many of the leading tile plants in the country. You could make no mistake if you equip yourself with the Stevenson Press; and once equipped you will make more money in the drain tile business than ever before.

Write to us now about it, and let us figure with you, thus taking time by the forelock. It costs you nothing to find out about this anyway, and we are glad to give you the benefit of our experience.

THE STEVENSON CO.
WELLSVILLE, OHIO

For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

Thousands of Horse Power in
Frost Engines and Boilers used in
nearly all parts of the civilized world.

Our Dry and Wet Pans are being
operated in best yards of this and
other countries.

POWER EQUIPMENT
TO MEET THE NEEDS OF ALL USERS.

Write for Special Bulletins and Specifications.

The *Frost* Manufacturing Co.

Works at
GALESBURG, ILL.

CHICAGO OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

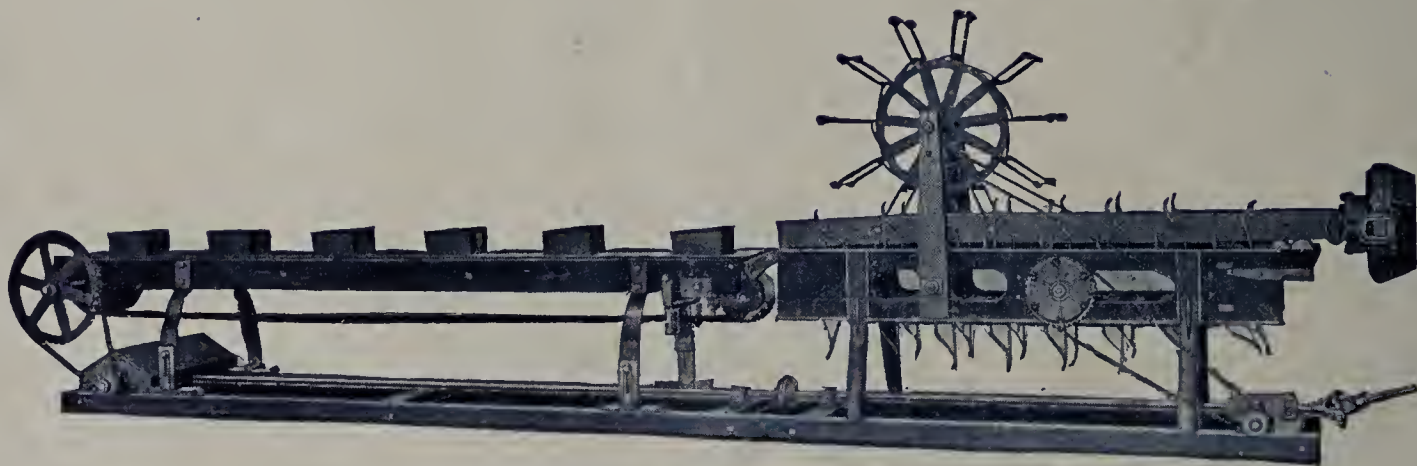
Mention THE CLAY-WORKER.

Two Interesting Pages for Manufacture



The Fate "Premier" Machine. Too well known to need any description. The best Block or Fire Proofing machine made anywhere by anybody.

The standard Bensing Automatic Tile Table, arranged for cutting Hollow Blocks in sizes from $9\frac{1}{2} \times 4\frac{3}{8}$, but it will cut any block not larger than 10×12 inches. Can be built to cut any length from $12\frac{1}{4}$ to 14 inches.

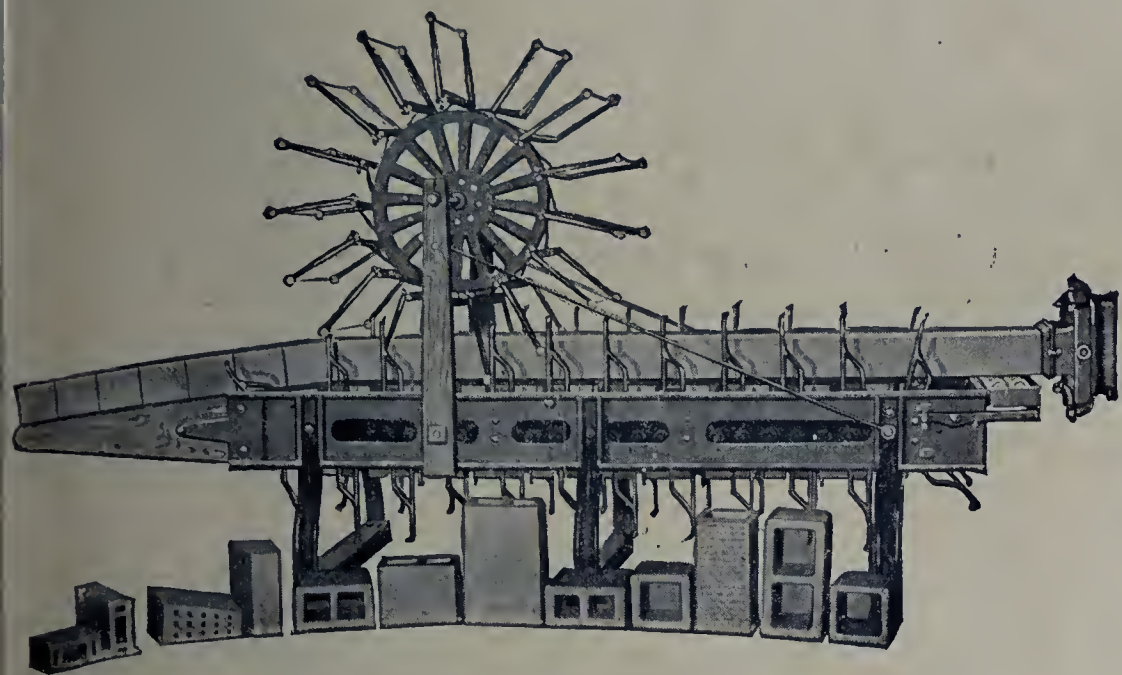


Bensing's End Cut Brick Table, cutting hollow end cut brick. Is equipped with belt delivery and friction device, and is especially adapted for this work.

The J. D. FATE COMPANY

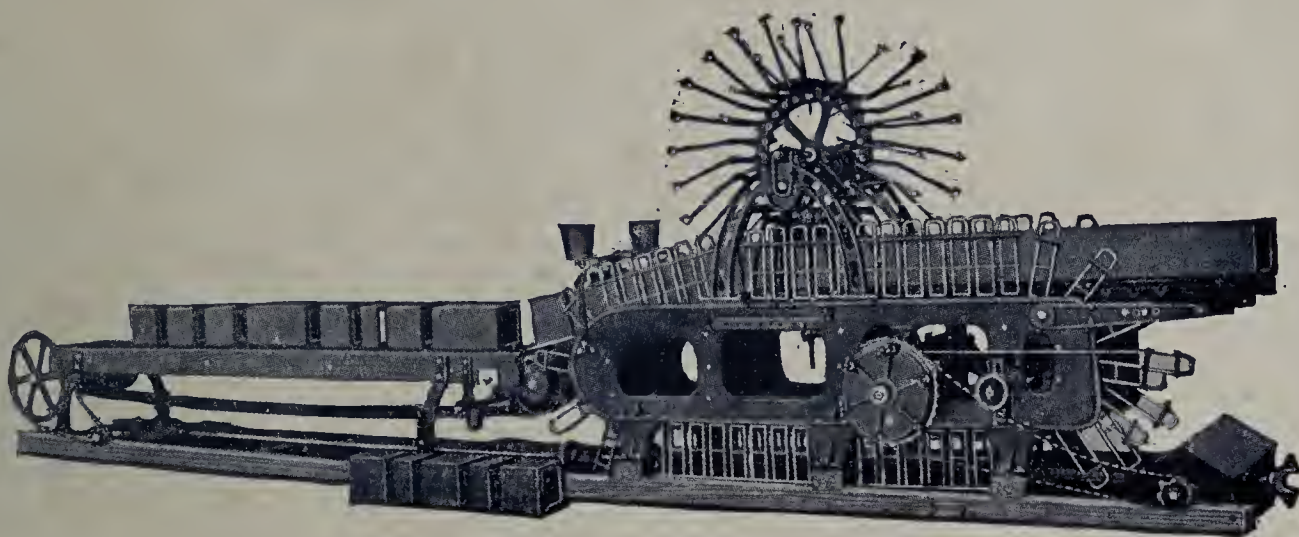
Manufacturers Equipment Co

All Types of Hollow Building Ware.



This is a special Bensing Automatic Table for large Hollow Blocks. It will handle blocks as large as 18 inches wide by 9 inches high. The length of cut can be anything desired, from 9 inches to 18 inches. Fitted with roller rack delivery.

Bensing Automatic Table for cutting Hollow Blocks, Face Blocks or Hollow Fire Proofing. It will handle blocks 11 inches high by 12 inches wide, and will cut in multiples. It has belt delivery.



This Bensing Automatic Table has roller rack delivery and friction driving device. Can be built for any multiple, and will handle blocks 11 inches high by 13 inches wide.

Plymouth, Richland Co., Ohio

Dayton, Ohio, Sales Agents

Isn't This a Fair Proposition?

Let the Screen Pay the Cost, That's the Way We Sell Them.

The Perfect Clay Screen will pay the cost of installing in six months. You pay us as the screen earns the money. We know what the results will be, and therefore are willing to give you our iron-clad guarantee. Why put up with unsatisfactory screening methods when we take all the risk.

The Perfect Clay Screen improves the product, increases capacity, saves labor and fuel. Do not delay, get a Perfect Clay Screen and be happy.

DUNLAP MFG. CO., Bloomington, Ill.

LAKEWOOD

Mr. Clayworker, sit down now and write us what new equipment your plant needs for economical handling of material. If you need some clay dump cars, turntables, dryer cars, portable track, switches or other things, don't delay another day, but write us at once. Have you considered using electricity with electric transfer cars for transportation? Write now for information.



LINE

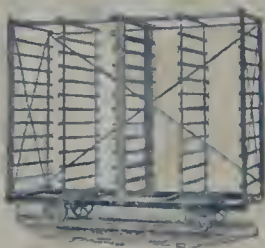
Ohio Ceramic Engineering Co.

CLEVELAND, OHIO.

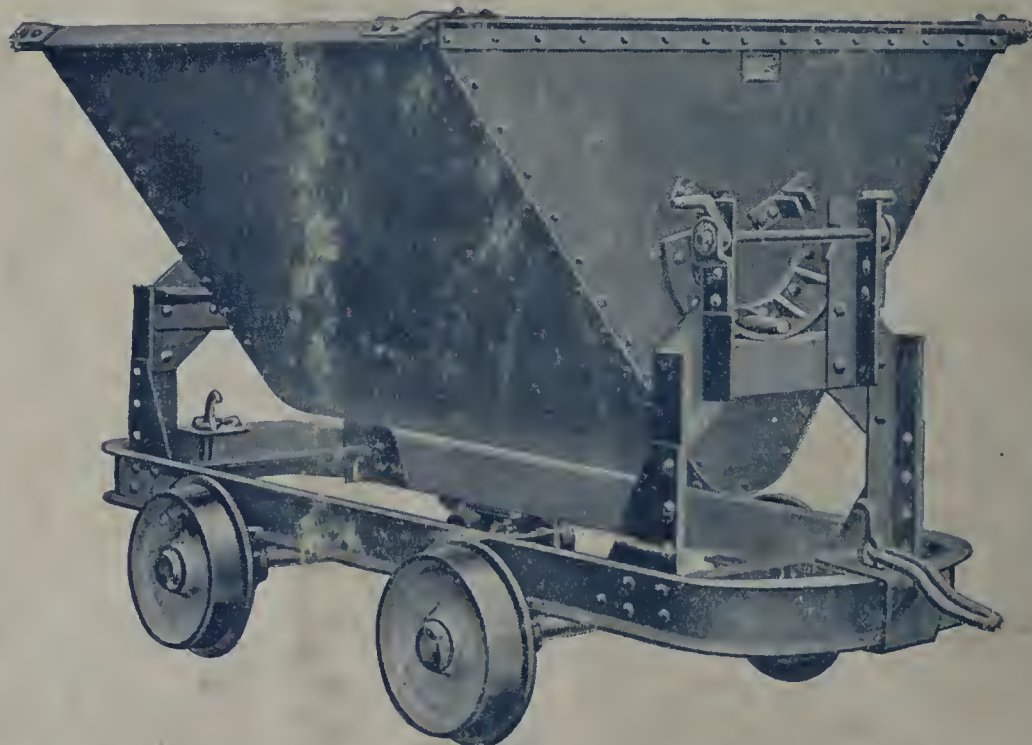
Branches 1015 First National Bank Bldg., Chicago.
1205 Fulton Bldg., Pittsburgh.



All Around Dump Car



Soft Mud Rack Car



241. Two Way Dump Car.



Transfer



Double Deck Dryer Car

27



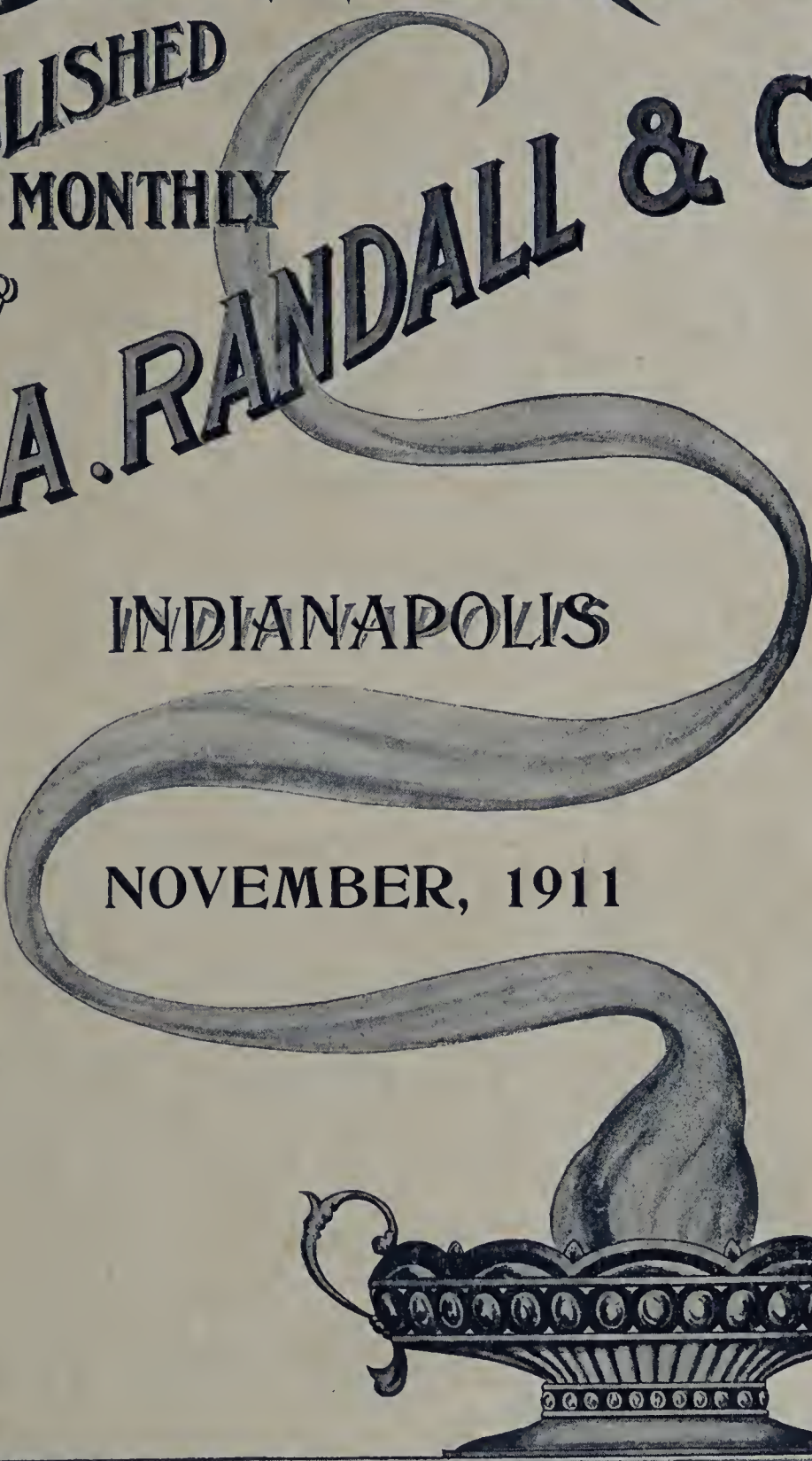
THE CLAY-WORKER

PUBLISHED
MONTHLY
BY

T. A. RANDALL & CO.

INDIANAPOLIS

NOVEMBER, 1911



OFFICIAL
ORGAN
OF THE

NBMA

"Detroit"

RETURN TRAPS

insure against sluggish steam dryers. Automatically return every bit of condensation directly to the boiler.

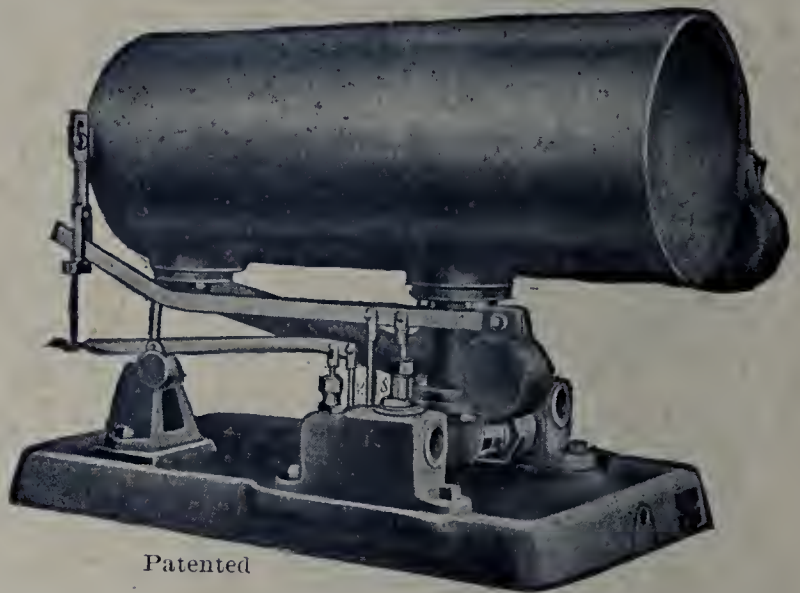
No boiler feed pumps or vacuum system needed where "Detroit" Return Traps are at work. Every tilt means a saving of heat units in the condensation.

Why cool down the condensation to accommodate a pump? Use "Detroit" Return Traps and return direct to the boiler at practically the temperature at which it is condensed.

Heating feed water costs money.

"Detroit" Traps benefit the brickmaker. Pumps help the coal dealer.

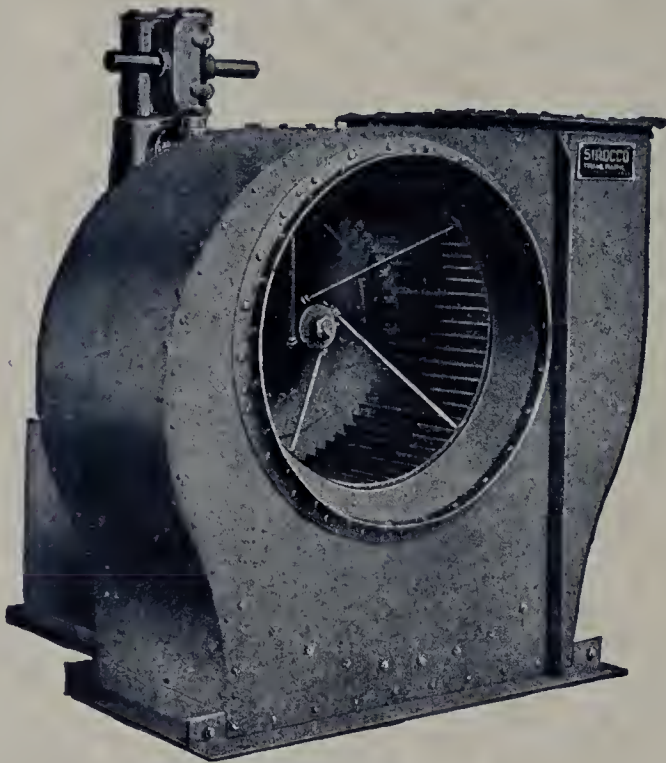
Trap Book No. 266--C.W. goes into detail.
Yours upon request.



"Sirocco"

TRADE MARK

Fans for Waste Heat Dryers and Induced Draft on Brick Kilns.



"Sirocco" Induced Draft Fan.

The advantages of "Sirocco" Fans for brickyard work lie in the great power saving quality and low cost of installation.

The speeds of "Sirocco" Fans are suitable for direct connection to reciprocating engines, turbines or electric motors.

"Sirocco" Fans direct connected to "ABC" Vertical Enclosed Self-Oiling Engines make economical steam driven outfits.

"Sirocco" Bulletin No. 284--C.W. upon request.

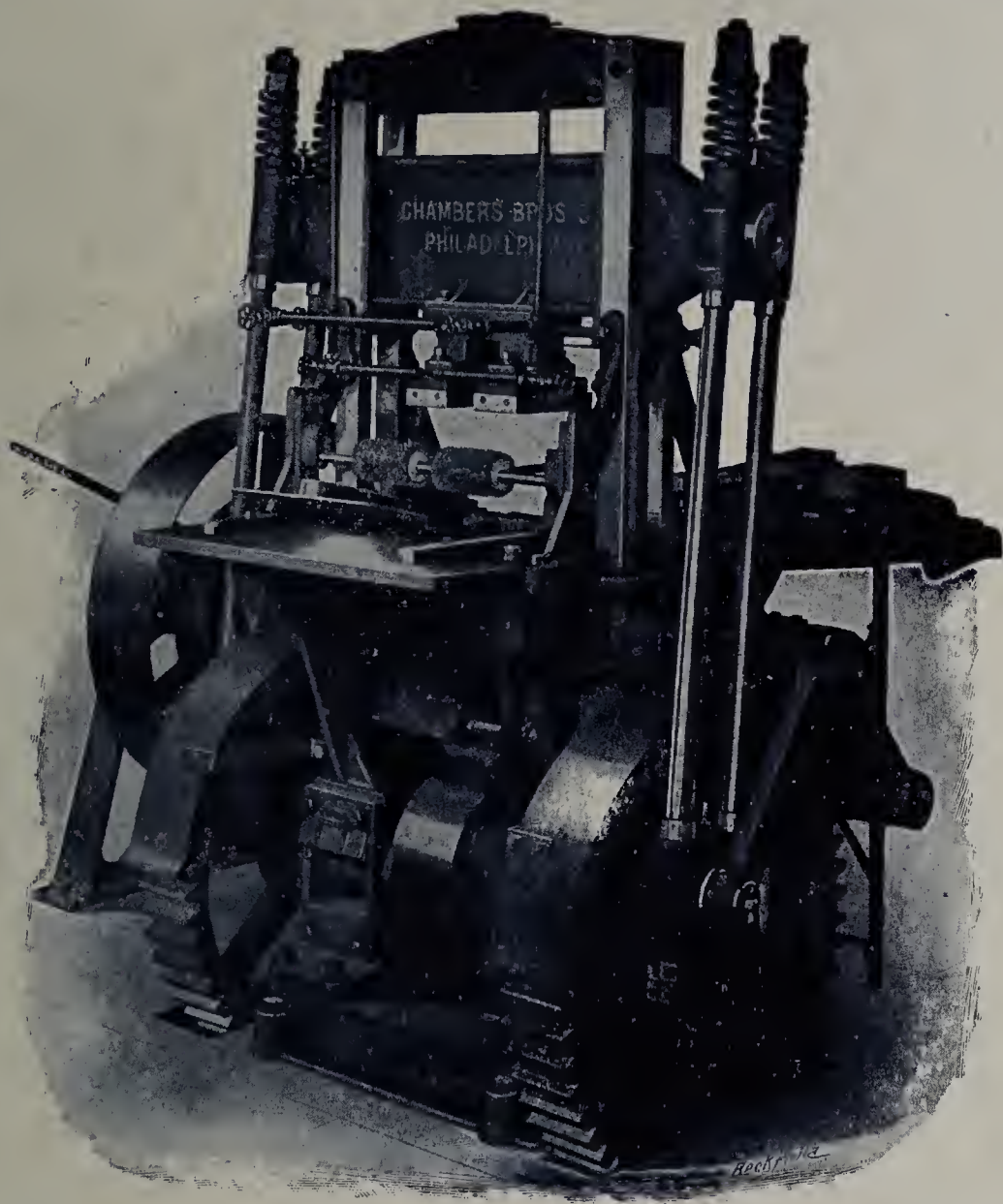
A skilled engineering staff awaits the opportunity to assist you in boosting your production and reducing your costs.

AMERICAN BLOWER COMPANY

DETROIT, MICH.
U. S. A.

End-Cut or Side-Cut Street Pavers
CHAMBERS THE LINE MACHINES

For Both Methods of Manufacture.

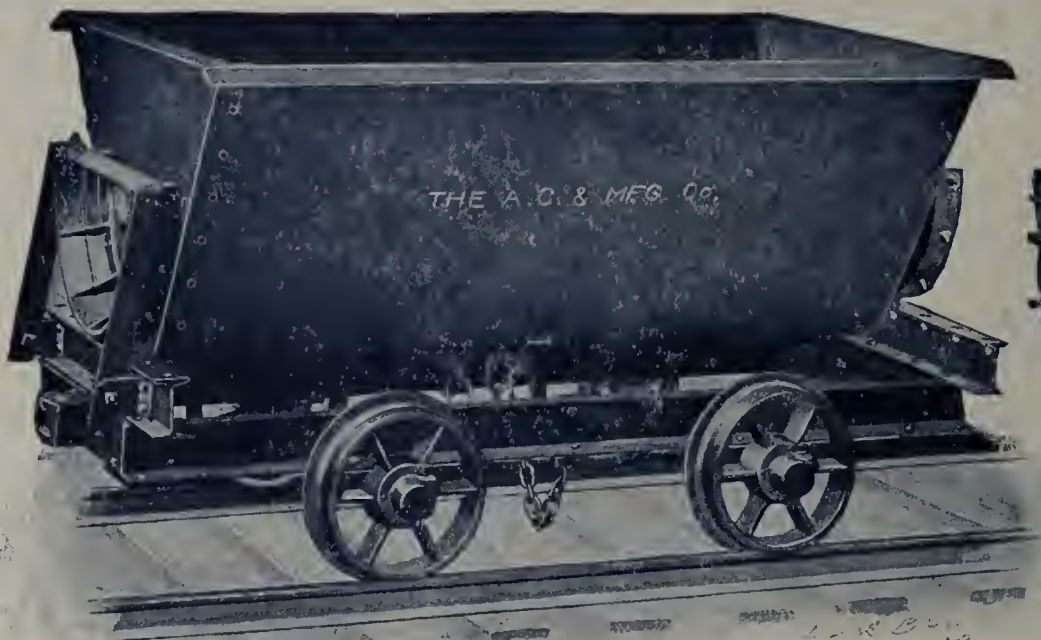
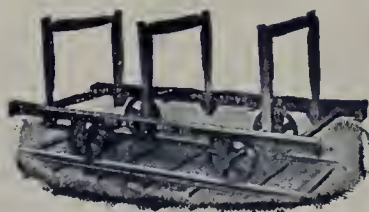


KEYSTONE REPRESS.

A direct acting Crank Press, with a very smooth and easy feed and delivery mechanism in exact time with the pressing machinery.

A strong and powerful press with shaft diameters and all wearing surfaces of liberal dimensions. Cam roller $5\frac{1}{2}$ inches diameter on pin of large diameter and of easy access. Hardened steel faced cam.

Chambers Brothers Company
 PHILADELPHIA, PA. CHICAGO, ILL.



RAIL,
SWITCHES,
FROGS.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

TURNTABLES,
WHEELS,
AXLES.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Taplin, Rice-Clerkin Co.

The Machinery Folks of Akron, Ohio, U. S. A.

SOME PLANTS WE INSTALLED

"The 'Pioneer' Wet Pan
Is the best known to man."

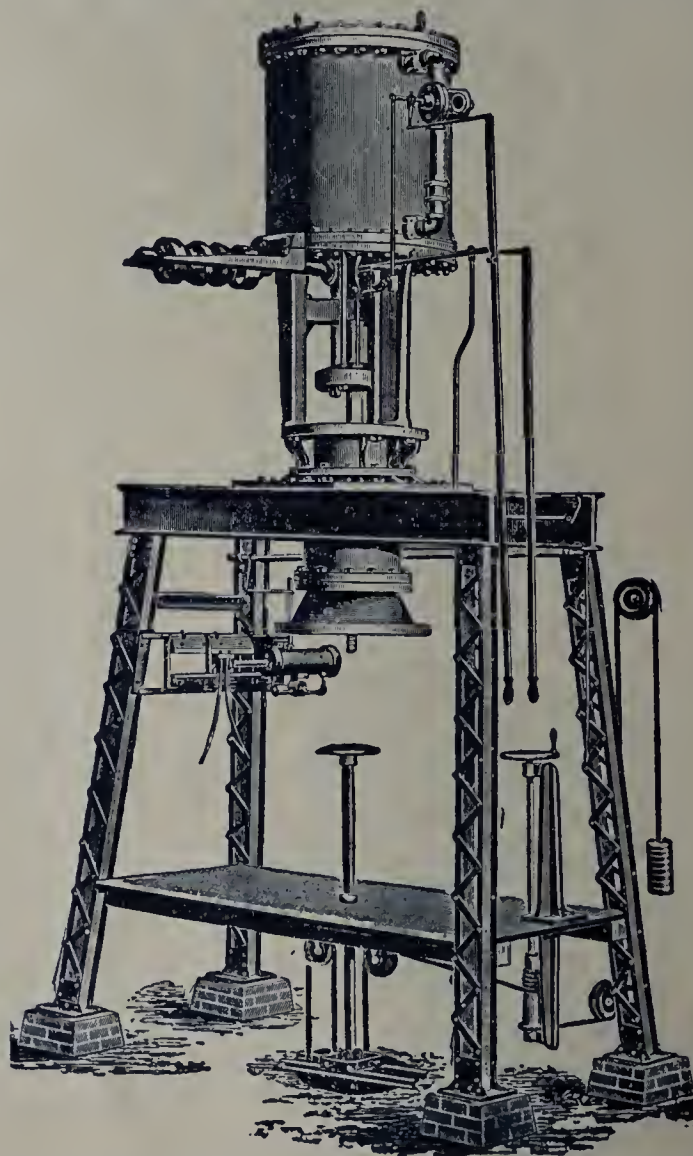
"Pioneer has no Peer."

"Pioneer Machinery is simply the best,
And Used in Clay Products it stands every test;
Durable, high-class, efficient, and true,
It does for its users what others can't do."

"Make things from Clay the
'Pioneer's' way."

"Established Eighteen-Sixty
Five,
But growing fast and much
alive."

Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny, Renton Co., Seattle, Wash.
The Gladding-McBean Co., San Francisco, Cal.
The Pacific Clay Products Co., Los Angeles, Cal.
W. S. Dickey Clay Mfg. Co., Kansas City, Mo.
Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.
San Antonio Sewer Pipe Co., San Antonio, Tex.
Henry Stevens Sons & Co., Macon, Ga.
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Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.
British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 29.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

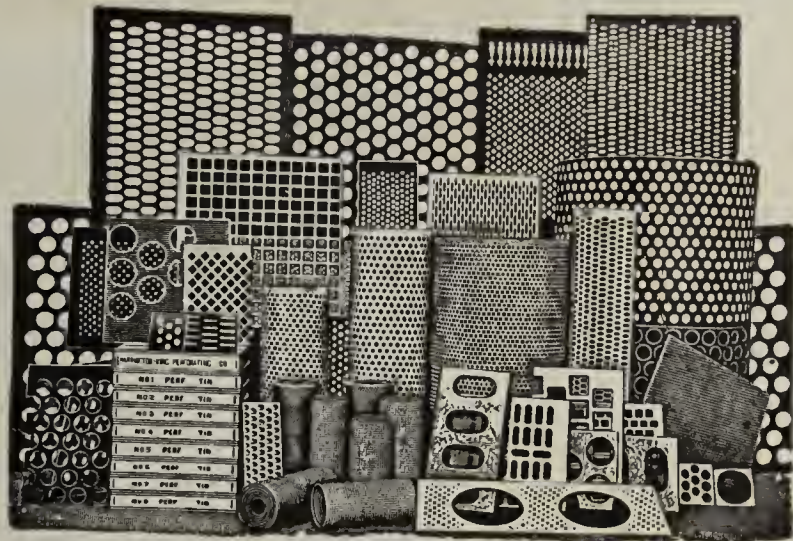
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.

CONVINCED

that a satisfied customer is the best advertisement, it is our practice to give to each drying problem the individual study and treatment it requires, thus insuring successful results.

That our efforts have been appreciated by the clayworkers of the country is proven by the fact that we are now the LEADERS in America in the designing of complete plants and the installing of Waste Heat Dryers.

We dry SATISFACTORILY most of the brick of Western manufacture.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

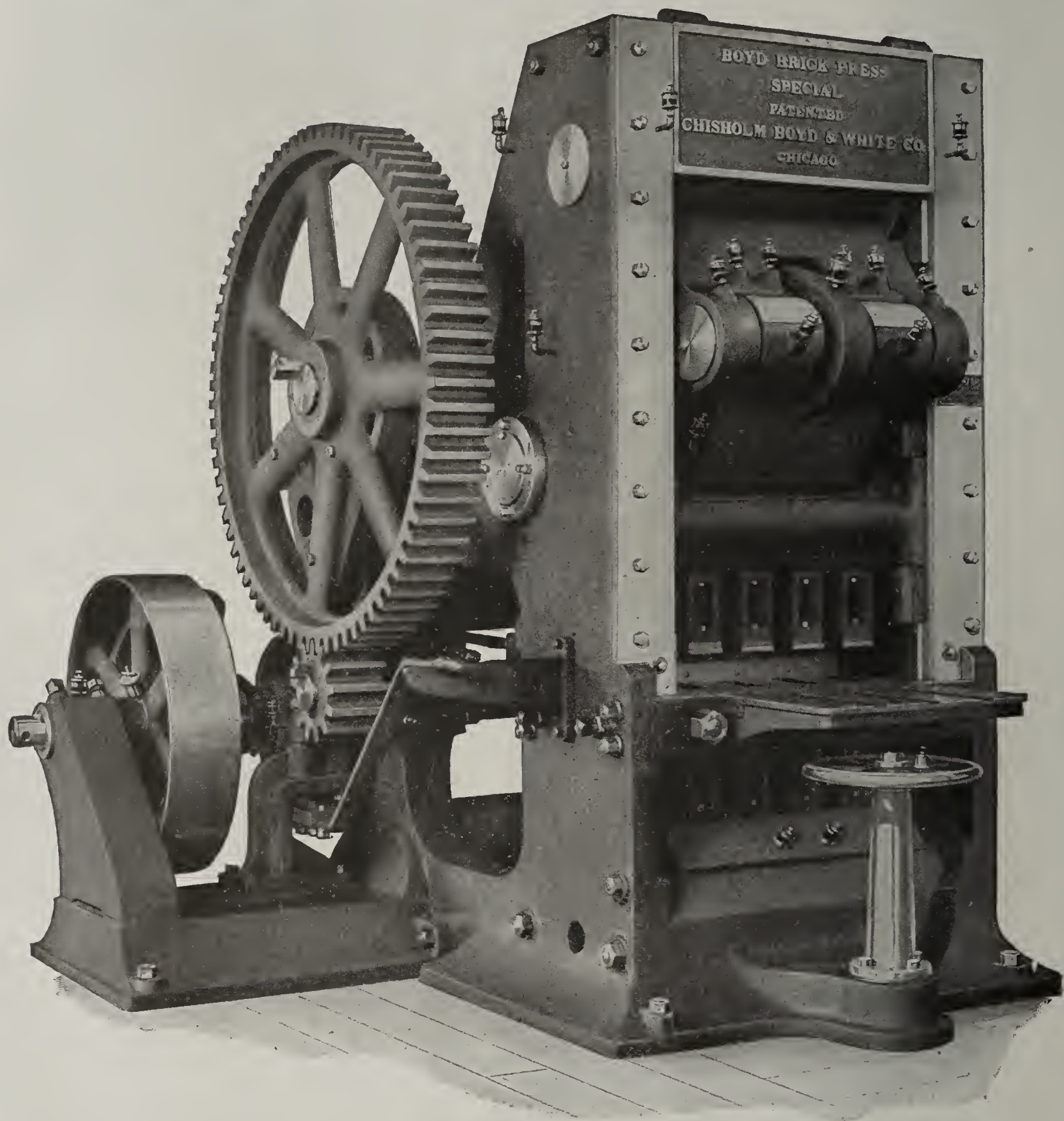
Largest Manufacturers of Brick Drying Equipment in the United States.

30 North La Salle St.

CHICAGO.

The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



OUR NEW FOUR-MOLD "SPECIAL" HEAVY DUTY BOYD PRESS.

Our BALANCED-PRESSURE improvement automatically equalizes the pressure on the brick through from TOP to BOTTOM, producing brick of uniform density throughout and FREE from granulated surfaces or soft centers and with good, hard corners and edges. Full particulars upon request.

Chisholm, Boyd & White Company

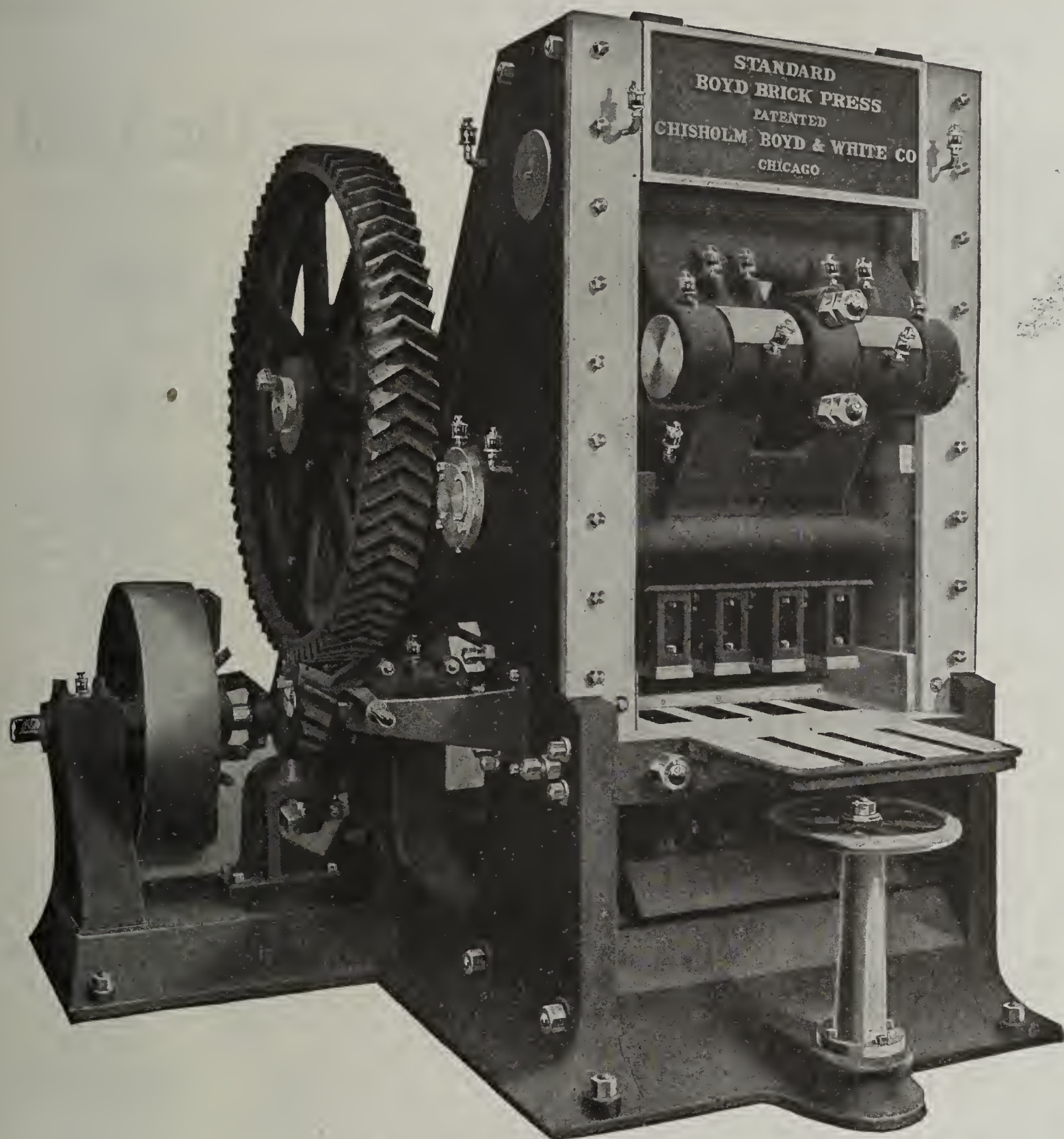
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.

STANDARD BOYD BRICK PRESS

"Built Up to a Standard—Not Down to a Price."



BALANCED—PRESSURE

The BOYD is the only Brick Press having this feature. Patent on this improvement just issued.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company

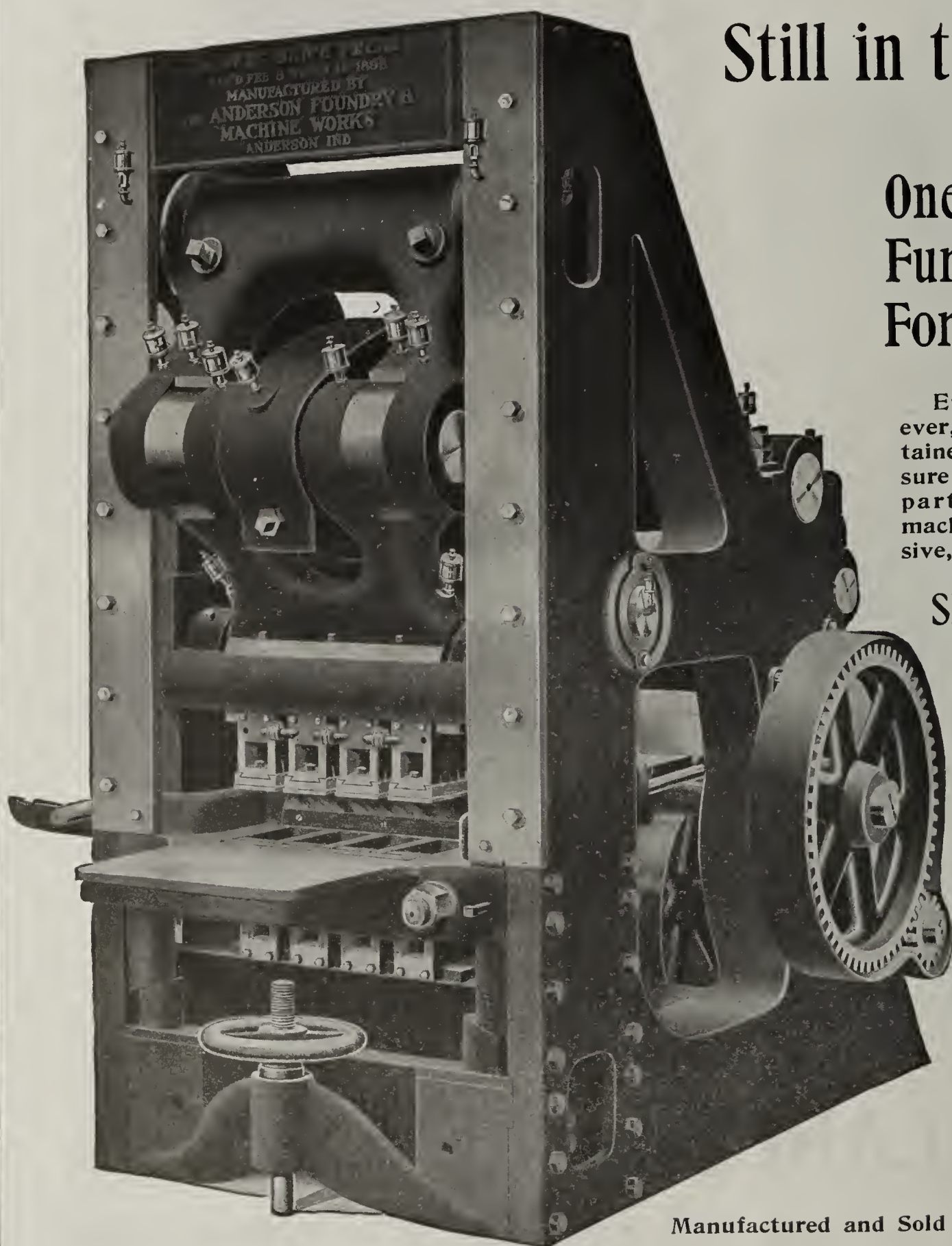
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.

NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE PIECE.

All Machines Are Equipped With

CUT GEARING.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

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Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr. Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

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Barrows and Trucks.

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Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers.

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Vitrified Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Heald, G. W.

Buffing Machine.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dump Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Wallace Mach. & Foundry Co.

Ceramic Engineers.

Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
H. Brewer & Co.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
E. M. Freese & Co.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.

Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Contracting Engineers.

Dennis, F. W.
Haigh, H.
Heald, G. W.
Hoehne, Richard B.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hillenbrand.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick & Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
E. M. Freese & Co.
Manufacturers Equipment Co.
Mittler, P.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

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Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Chambers Bros. Co.
E. M. Freese & Co.
Fate Co., The J. D.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Scott-Madden Iron Works Co.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Eastern Brick Machinery Co.
E. M. Freese & Co.
Hensley, J. W.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Co., The J. C.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Electric Shovels.

The Marion Steam Shovel Co.
Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

Electric Instruments.

The Brown Instrument Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Fans.

American Blower Co.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Evens & Howard Fire Brick Co.

Fire Clay.

Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Flower Pot Machinery.

Rockwood Mfg. Co., The

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
Illinois Supply & Con. Co.
Raymond & Co., C. W.
Richardson-Lovejoy Engr. Co.
Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle and Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Co., J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Illinois Supply & Con. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Holsts.

(See Supplies.)

Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Freese & Co., E. M.
Raymond Co., The C. W.

Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
Boss, J. C.
Buhner, Jacob.
Chisholm, Boyd & White Co.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vogt, Anton.
Yates, Alfred.

Kiln Bands.

(See Supplies.)

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Kiln Irons.

(See Supplies.)

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

(See Supplies.)

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.
Milwaukee Locomotive Mfg. Co.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Ill. Supply & Constr. Co.
Tate Jones Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Pans (dry and wet).
(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson and Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Flows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Rockwood Mfg. Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin Rice Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdry and Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese and Co., E. M.
Hensley, J. W.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

American Pulverizer Co.
Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.

Pumps.

Dean Bros. Steam Pump Wks.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Milwaukee Locomotive Mfg. Co.
Ohio Ceramic Engineering Co.
Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Con. Co.
E. M. Freese & Co.
Hetherington and Berner.
Phillips & McLaren Co.

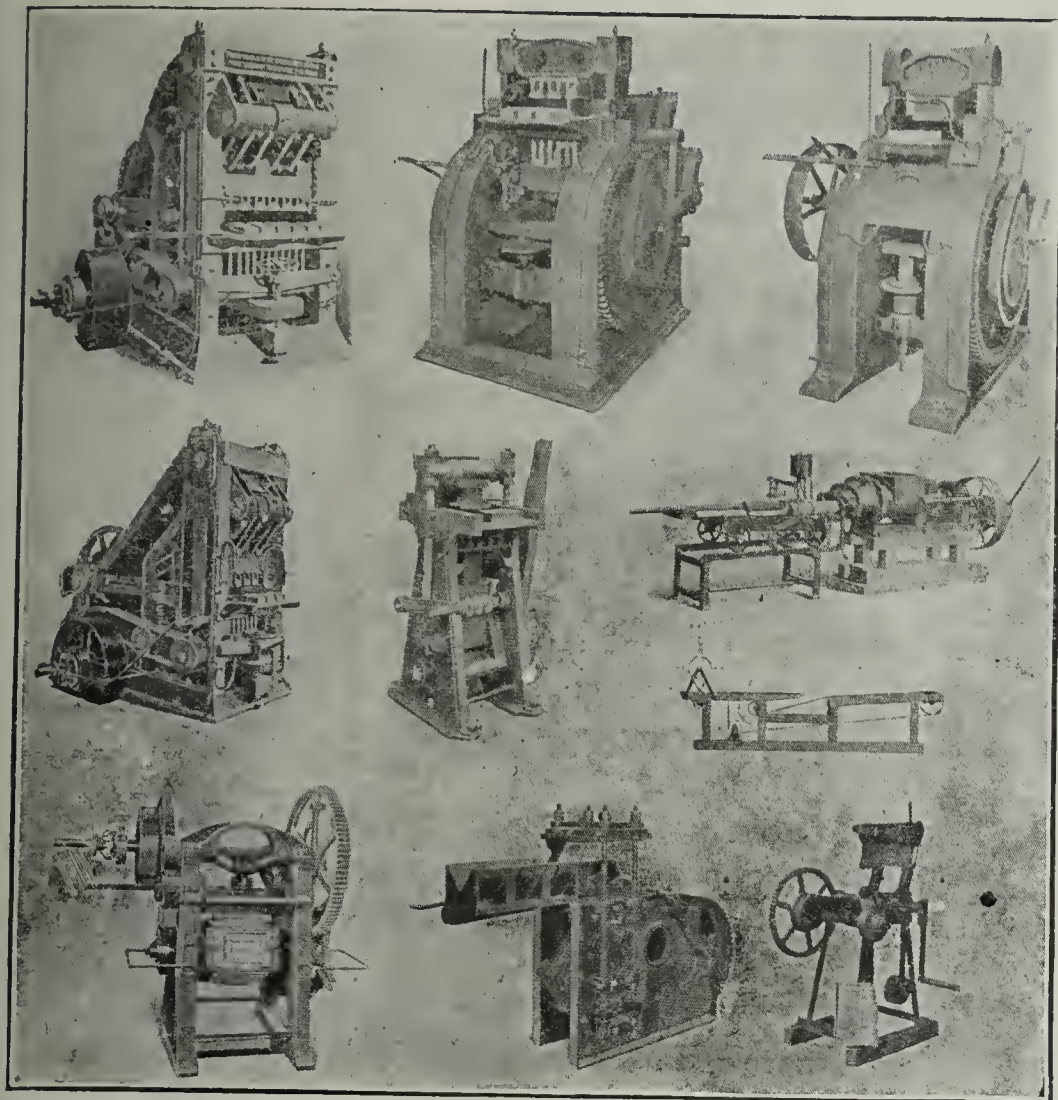
Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.
Fate Co., The J. D.

(Continued on page 372.)



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Illinois Supply & Con. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

Marion Steam Shovel Co.

Rock Crushers.

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Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm Boyd and White Co.
Fernholtz Brick Machinery Co.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.

Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.

Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott Madden Iron Works.

Screens.

American Clay Machinery Co.
American Pulverizer Co.
Arbuckle & Co.
H. Brewer & Co.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
E. M. Freese & Co.
Harrington & King Perf. Metal Co.

Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
The Stevenson Co.

Sewer Pipe.

Evans & Howard Fire Brick Co.

Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin Rice Clerkin Co.
Scott Madden Iron Works Co.
Stevenson, Co., The.

Steam Gauges.

(See Supplies.)

Steam Shovels.

Marion Steam Shovel Co.
Scott-Madden Iron Works.
Thew Auto. Steam Shovel Co.

Steam Specialties.

Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Steel Pallets.

Ohio Galvanizing Co.
Ohio Ceramic Engineering Co.

Supplies.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. & W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd and White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin Rice Clerkin Co.
Wallace Machine & Foundry Co.
Wallace Mfg. Co.
Wellington Machinery Co.

Switches.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.

Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.

Tile Machines.

American Clay Machinery Co.
Anderson Fry. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Time Recorders.

Brown Instrument Co.

Tracks and Switches.

(See Rails.)

Transfer Cars and Turn Tables.

(See Supplies.)

Unloading Device for Pans.

American Clay Machinery Co.
Raymond Co., The C. W.

Voltmeters.

The Brown Instrument Co.

Wheels and Axles.

(See Supplies.)

Wheelbarrows.

(See Barrows.)

Wet Pans.

(See Pans.)

Wire.

(See Cutting Wire.)

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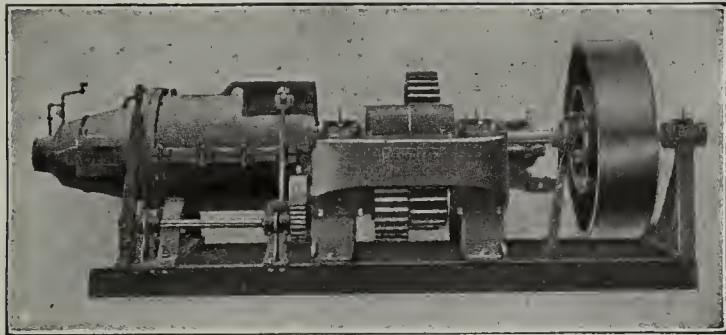
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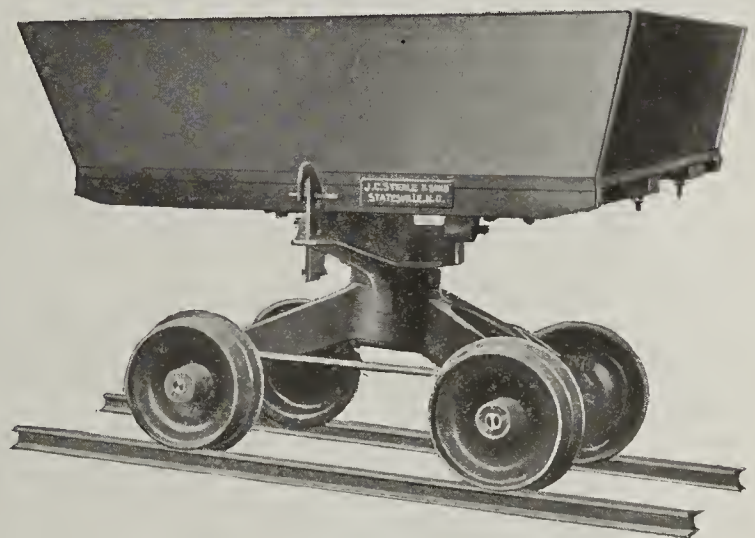
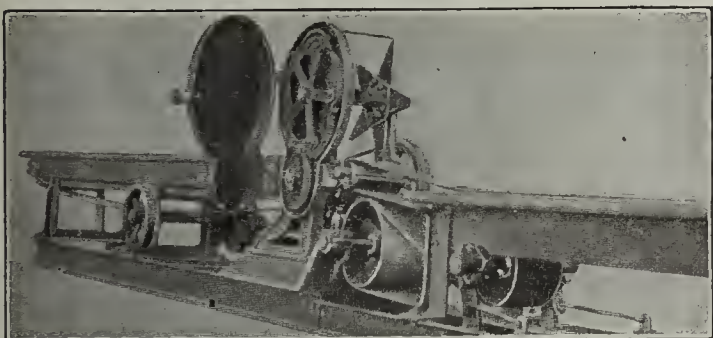
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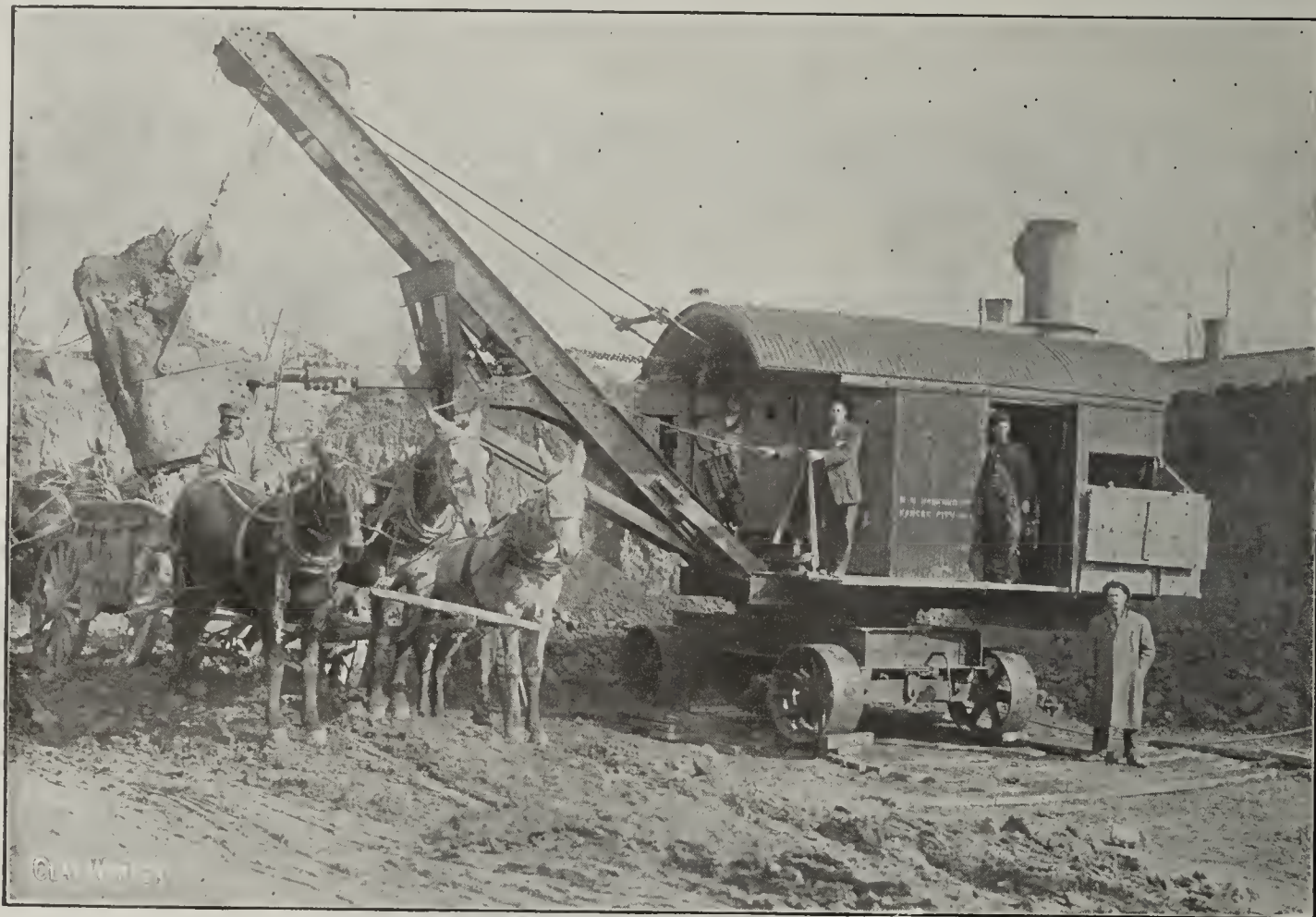


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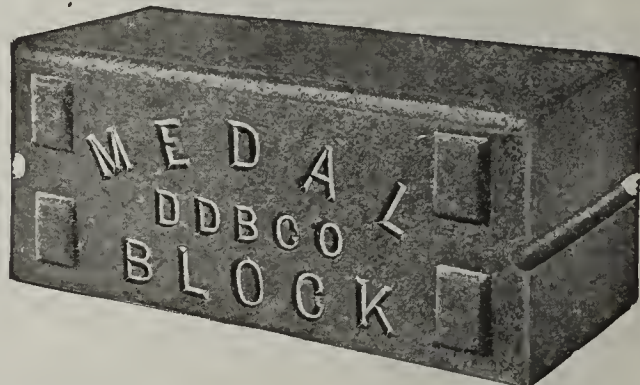
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(NAME ON REQUEST.)

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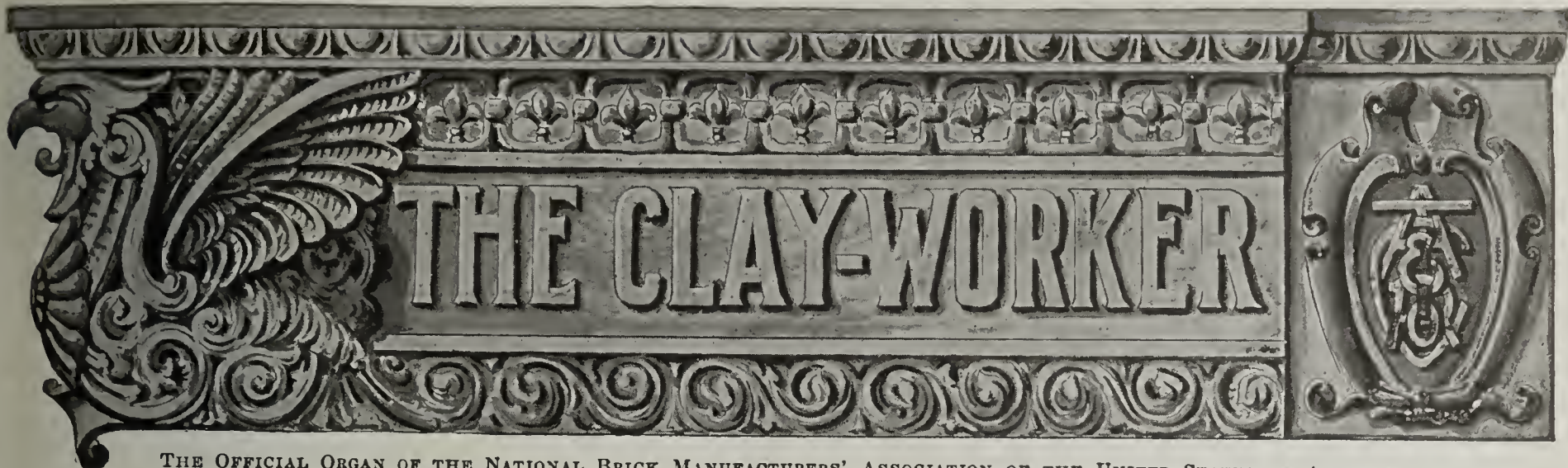
The Standard Natural Draft Steam Drier

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Clay"

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Vol. LVI.

INDIANAPOLIS, IND., NOVEMBER, 1911.

No. 5.

Written for THE CLAY-WORKER.

A SUBSTANTIAL BRICK HOME.

A Type of Low Cost, Fireproof Home Which is Much Cheaper and Better Than a Frame House.

THE AVERAGE HOME BUILDER is realizing more and more the real value of burned clay products both from an artistic and commercial viewpoint. Especially is this so in Indianapolis, where brick-built homes are now

The house was built of the new tile construction, hollow terra cotta building blocks or tiles for all walls and partitions. The hollow tile were furnished by the Vigo Clay Company, of Terre Haute, Ind. The first story exterior walls were veneered with a dark reddish-brown pressed brick made by The Western Brick Company, Danville, Ill. The backing tile were of the size necessary to give the required thickness. As the second story exterior wall was plastered a tile of greater thickness was used which extended over the brick veneering. The brick veneer was bonded with the



Beautiful Home of Dr. George E. Hunt, Indianapolis, Ind., Built of Hollow Tile Veneered With Brick.

the rule, not the exception. Well burned clay products are much in demand and architects are using every architectural effect possible to satisfy the owner. It is not a question now whether or not he will build of brick, the usual query is, how can you give me a different effect than Mr. So and So has in his brick work?

A very attractive brick residence is that of Dr. George E. Hunt, located in the new addition called "Brodleigh" at 3818 North Delaware street. The house is unique in design and has created a great deal of comment on account of its pleasant homelike appearance, beautiful brick work and unusual features.

tiles by metal ties, making a solid masonry wall, the first story wall being thirteen inches in thickness while the second story was but nine.

A snow-white plaster was applied to the upper story tile making a fine contrast with the dark reddish-brown pressed brick below, the red roofing tile above, and the exposed woodwork which was finished in the rough and stained a dark brown.

Both exterior and interior plaster was applied directly onto the tile, which is semi-porous and forms the best foundation for plaster. Especially is this true for exterior plaster, as all other foundations will sooner or later fail,

due either to shrinkage or deterioration. After this house was two years old, a leak that developed in the roof over the garage made it necessary to cut away some of the plaster around the flashing. The plaster had such a firm hold on the tile that it had to be chipped off with a chisel in small particles. The hollow clay semi-porous tile is far superior to metal or wooden lathe for the reason that the metal lathe will rust and unless placed on steel studs, the shrinkage in the wooden frame will crack the plaster, while exterior plaster on wooden lathe can never be relied upon. The interior plaster applied directly on the tile walls did away with the necessity of wooden lathe and furring and had the same advantages as on the exterior.

The cost of this construction is no greater than brick veneer on a frame building and, therefore, for the same cost one can secure a fireproof structure which is far superior to a frame building. A few points of superiority in this type of house over the frame structure are:

- 1st.—It has a more substantial appearance.
- 2nd.—A better fire risk and lower insurance rate.
- 3rd.—No shrinkage or settlement in the exterior walls,

living room, makes it possible to throw the two rooms and hallway together for entertaining purposes

The entrance to the dining room is equipped with glass doors through which a view of the room can be had. The living room is finished in mahogany, while an attractive reddish-brown brick fireplace (harmonizing with the mahogany) makes the room most inviting. The hallway and dining room are finished in mission, the dining room ceiling being beamed as is generally the case now-a-days.

The bed rooms are finished, for the most part, in white enamel with mahogany doors, while the bath room floor and wainscoting is in encaustic tile.

An unusual feature in this house is the garage built as an annex, with direct entrance from garage to house protected by a fire door. The roof of the garage is flat and has been converted into a roof garden which is reached from the second floor. The garage is about 20 x 20.

The basement walls are all of impervious clay tile on concrete footings. The floors are of cement. The house is furnished with hardwood floors and modern plumbing throughout.



View of the Hunt Home Under Construction, Showing Detail of Tile Work.

making the structure most durable and permanent, relieving the cracking of plaster on the interior.

4th—More weatherproof—the hollow spaces in the wall keep the dampness from penetrating and is insulation from both heat and cold, making the home more hygienic.

5th—More economical in the long run, as the life of such a structure is many times longer than frame and does away with the painting and repairs.

6th—The floors can be made of tile and concrete, which at a very little cost over the usual construction would make an absolutely fireproof house.

7th—With the use of this construction, the variety in exterior design and effect is almost unlimited, as almost any style or design of architecture can be carried out to suit the personal desires of the owner.

One of the principal features of the Hunt home is the center hallway opening out onto the south side of the house. This permits a large living room extending across the entire front of the house and making the front porch more private.

The stairway leading up out of the hall is most attractive, while the dining room on the opposite side from the living room, with double doors corresponding with entrance of

This house cost \$9,500 complete, including plumbing, heating and electric features.

Brubaker & Stern, prominent architects of Indianapolis, have received many compliments for designing this splendid home.

BRICK NOTES OF BRITISH COLUMBIA.

Victoria, in British Columbia, has been doing a fair share of brick using during the fall and seems to be on a sort of building boom generally. The city council not long ago awarded a contract to Evans, Coleman & Evans for one-quarter of a million vitrified brick at thirty-one dollars per thousand. It is estimated that, in addition to this, two million more brick will be required to complete extensive sewer work now under way in this city. The brick being used is only for a lower portion of the big sewers, which covers over thirty miles, but which costs over \$500,000 and on which 1,100 men are now employed.

The city is also planning some school buildings, which, it is said, will be up-to-date and furnished with the latest improvements, and that American contractors and dealers can secure particulars from the secretary of the school board.

FIRE—A CRIME.

BY F. W. FITZPATRICK.

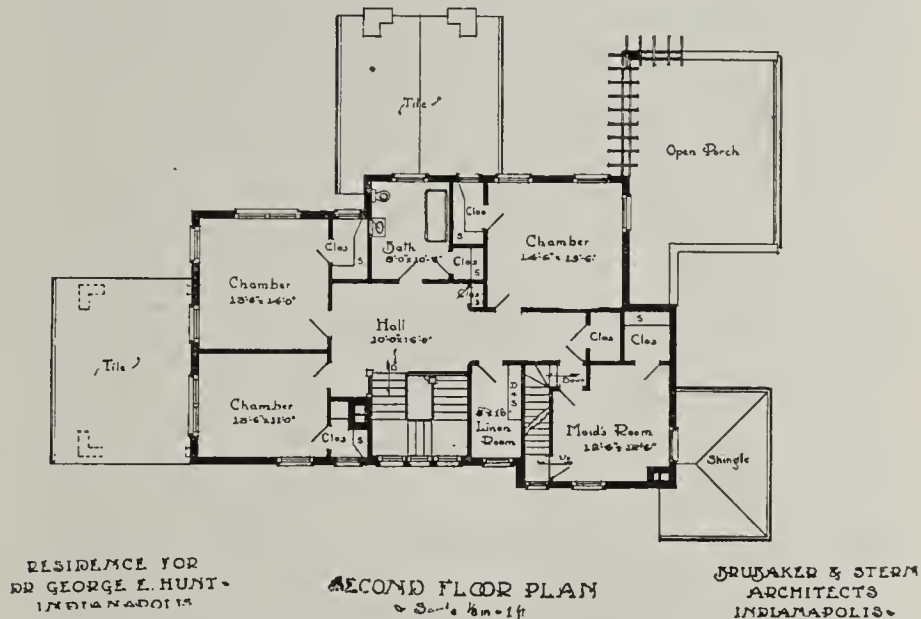
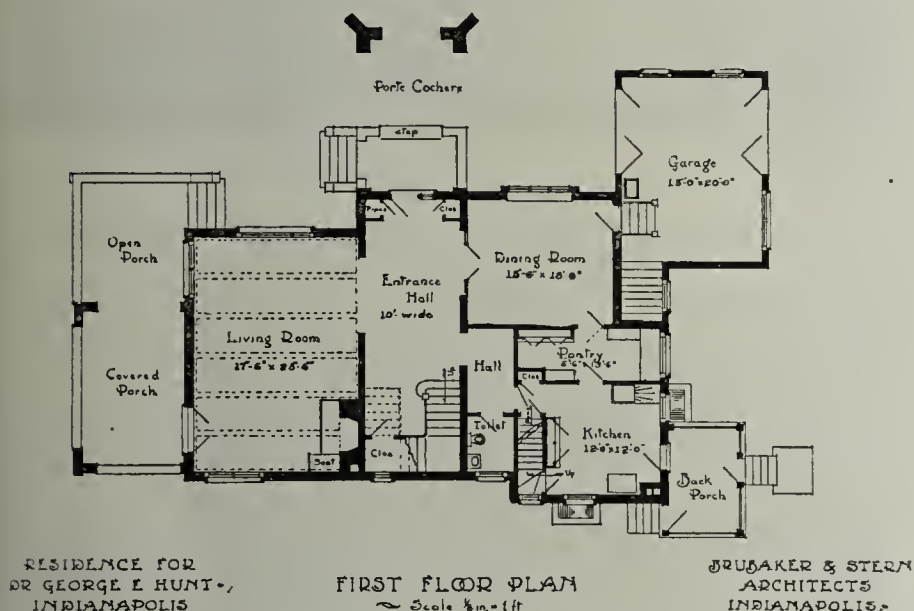
THANK HEAVEN, the campaign that has been so zealously waged by a few technical journals and "Fire Prevention" cranks, has borne good fruit. The battle cry of "Better Buildings," "better laws," "less fire," has been taken up by the architects, the engineers, a few builders, several noted magazine writers and, last but far from least, the editors of the daily papers. When once the latter are enlisted in behalf of any movement we can count that movement a success. True, we are so far gone now in the line of combustible construction, we had such an heritage of it and will leave such another that there is assured yet a long spell, perhaps thirty years, of disastrous possibilities in the form of great conflagrations and disheartening single fires. But all this agitation will certainly lead to one grand result, namely, that the law and our good sense will not permit us to add any more fuel to be consumed by those fires that are bound to occur.

A few years ago the newspapers reluctantly gave us a paragraph once in a great while in which to deliver a wee message on "Fire Prevention," today there is McClure's carrying on a series of rousing fire articles—splendidly written,

net on the cost of that building. By the same reasoning it would have been a saving to have invested that \$10,000,000,000 more than we did put into our present buildings and have made them fire-resisting enough so that yearly tax or interest of nearly \$500,000,000 would not have been necessary. It certainly is time that drastic action be taken in the matters for our fire losses, great conflagrations and consequent disturbances of business—not to mention the attendant loss of life—have grown unbearable, ruinous, a menace to our national well-being.

One more reform printer's ink may accomplish and that is the correction of an ill that it has helped and is helping along. Briefly: The one great measure of fire prevention that all can understand is that of not adding more fuel, or, in other words, getting away from the wood habit. Today we can build, even our homes, of brick, of fireproof tile, of concrete, we floor them with cement or tile or composition, our doors and interior trim can be of steel, just as handsome as and far more satisfactory than wood. There is also splendid steel furniture and our decorations may be of color instead of wood paneling and wainscoting—kindling for fire.

To stick to the wood habit is criminal. It will not be long before that is recognized and prohibited. But meantime it is a habit. "It is notably difficult," writes Auditor Darst, of West Virginia, "to awaken the adult mind to a sense of danger arising from familiar sources. The tendency is to take



so full of meat that the most callous is bound to stop and think. Newspaper syndicates are scattering columns of fire material to hundreds of papers and the editors themselves are writing clear, terse and pointed editorials on the subject; not now and then after some unusual fire excitement, but in with the other great questions of the day, treated analytically, logically. A week ago, just for a test, I had the weeklies and dailies, three hundred and twenty of them, read one day for fire matter. One hundred and eighteen had some sensible comment or news note about fire, ten gave some sort of fire-prevention advice and six had editorials regarding fire waste, fire insurance or some allied subject. The nation should be thankful for such educational matter.

Ex-Chief Croker, of New York, makes the statement that last year his department cost \$8,000,000 for maintenance, supplies, etc.—the fire loss was just about another \$8,000,000 and yet the city expended less than \$15,000 on fire prevention! I venture the prediction that within five years New York City will be spending \$2,000,000 a year on prevention and that will effect a cumulative saving of \$20,000,000. Think of it, the total of our fire losses (six and seven times greater than those of any European nation) and the cost of maintenance of our fire departments, curative measures, constitute a sum that, paid out or lost every year is equivalent to interest at five per cent on nearly \$10,000,000,000!

The Government or a wise investor will every time invest in a building rather than pay rent that equals five per cent

dangers with which one is daily associated as a matter of course and to spend little thought or effort toward improving the conditions which are responsible for them. It seems evident that if public school instruction in fire prevention had been in vogue fifty years ago the present fire waste would have been much less. The juvenile mind is much more susceptible to training than the mind of the matured man whose opinions are settled and confirmed. Our schools are one of the greatest mediums for molding characters. Should not then this subject of great and increasing practical economic importance be included in the public school training of our children? It is an intensely practical subject because it resolves itself into a question of dollars and cents. It means that in manhood they will lose less by fire, and then they will receive fire protection at much lower rates than are possible today." That instruction has been neglected. They are just beginning to realize its value and are attending to it a little. Besides the schools there is another and even more powerful educator—the press. Yet, art journals, ladies' magazines and even newspapers go merrily on publishing designs of beautiful bungalows, cottages and what not, all of wood, jig-sawed and ornamented, shingled and well creosoted and oiled and varnished to insure a good blaze when once started, and those journals seem to think they are helpful to their readers, their constituents, by aiding and abetting and urging them to keep up the wood habit!

Those same journals would take ten kinds of fits if you

asked them to advertise whiskey, dives and such, yet they go right on in their virtuous path, advertising death and disease-dealing construction, buildings that become a charge upon the entire community and that cost each community three times as much as would the policing of the "widest open" town one can imagine. It's all wrong. Perhaps I'm an extremist, but it does seem to me that that sort of thing is just as bad as pandering to any other kind of viciousness. What is the use of a journal devoting a half-column editorially to a fire prevention harangue when on another page there will be a three-column cut of a wooden contraption that is lauded and puffed and guaranteed to cost "all complete and ready for occupancy" not more than \$4,263?

Perhaps the editors have not thought of that. Perhaps it needs but the suggestion and they'll see the point, realize the wrong they are doing and turn over a new leaf. The

CLAY AND KAOLIN MINING IN EUROPE.*

BY ARTHUR S. WATTS, COLUMBUS, OHIO.

THE MINING METHODS of Europe are, in many instances, far more primitive than those practiced in our own country, but whatever the method employed, the result is always the best product obtainable from the material at hand. No matter how great a saving can be effected by the use of some mechanical device, the labor-saver is unconditionally condemned, if the quality of the product is in any way endangered by its introduction.

Failure to appreciate the importance of this consideration is, to my mind, responsible for many of the failures in the exploitation of our American clays and kaolins. The



Plate 474.

Clay Mining at Siegersdorf, Silesia, Germany.



Plate 476.

Fine Stoneware Clay Mining near Bunzlau, Silesia, Germany.



Plate 475.

Clay Pit near Siegersdorf, Silesia, Germany, About 12 Miles from Bunzlau.



Plate 477.

Typical Kaolin Mine from the Zettlitz District Near Carlsbad, Bohemia.

ladies' journals are the worst offenders. And they could do so much good. Perhaps our humble prayers will have some effect and mayhap before long we will see them offering designs for and urging the building of fireproof, unburnable, safe, real homes instead of the tinder boxes that have so long been the fashion, a fashion they have been guilty of fostering, of sustaining, almost of creating.—American Contractor.

Messrs. Thomas R. Harsha and L. Auberger, formerly engaged in the pottery business in East Liverpool, Ohio, recently moved eighteen families, of which the heads were skilled pottery operatives, from the Ohio point to Athens, Ga., where Messrs. Harsha and Auberger are now engaged in a similar undertaking, one of the first established in the south. The Athens enterprise is known as the Athens Pottery Company, and is turning out a very fine grade of china-ware.

universal complaint with American materials is lack of uniformity.

If our clay miners were confronted with half the difficulties that hamper some of our European cousins, I doubt if they would attempt to mine clay at all.

Clay Mining of Silesia, East Germany.

In Silesia, East Germany, is an enormous area of useful clays varying from a very short but excellent fire clay to a very plastic potter's clay. At Siegersdorf, about 12 miles from Bunzlau, are large workings of the average run of this clay which carries from 40 to 60 per cent of fine sand and a small content of alkali and lime, so that it forms alone a rather short open body. The illustrations (Nos. 474 and 475) show the method of working. The overburden consists

*Reprint from Transactions of American Ceramic Society, Vol. XIII. Copyright by American Ceramic Society.

or from 20 to 40 feet of sand with a small surface covering of loam. This is removed by the simplest pick and shovel method and loaded into cars and hauled from the working by a small locomotive. When the overburden is reduced to within a few feet of the top of the clay, the operation is suspended until the clay is about to be removed, thus preventing the exposure of the clay to contamination with foreign substances or the infiltration of iron bearing water.

The clay deposits are clean and uniform in quality throughout any given strata, although the various strata may differ considerably in composition and properties. Each stratum is carefully worked so that no mixing of different clays may occur. When a bench is broken down, the clay is sorted by women and any material from upper or lower benches which may be found is removed. These women also assist in loading it by hand into cars and it is hauled

original state it furnishes a splendid material for the manufacture of stew-crocks and jars, and in the hundreds of one-kiln pot-shops throughout this section, the horse-mill is the only clay-preparing apparatus employed. The mining of this clay is in keeping with the primitive methods employed in its working, since it consists of nothing more than a shaft sunk perpendicularly into the earth and surmounted by a simple hand-windlass for elevating the material to the surface (No. 476). The shaft is rarely more than 6 feet square and to ventilate the mine a wooden air flue is sunk in one corner, its mouth extending above the shed roof. The shaft is sunk with the greatest care and thoroughly cribbed from top to bottom. Between all cribbing and the face of the shaft, a layer of spruce or hemlock boughs is placed to



Plate 478.

Kaolin Mines Belonging to J. Elias & Co., Prag, Austria. Located at Podersam, about 60 Miles due east from Carlsbad.



Plate 481.

View of Kaolin Beds at St. Yrieix, France, About 25 Miles South of Limoges.



Plate 483.

View of the Kaolin Mine at Montagnac, near St. Yrieix, France.

up an incline to the various drying sheds, or weathering platforms, where it is stored until shipped. The clay here is suited for No. 2 fire brick and terra cotta, the best grade being used for cheap glazed wall tile, so much used in Europe.

In the immediate vicinity of these deposits and also to the south of Bunzlau are beds of Fein Steinszug Ton (fine stoneware clay). This clay is much fatter than the fire clay and, when washed free from sand, burns to a dense gray body at cone 10 to 12. As mined, however, it contains considerable coarse sand which must be removed if it is to be used for the better grades of pottery, but in its

insure against any overburden material sifting down into the workings.

The clay, which is found between two soft sand stones, is mined with pick and shovel, lifted to the surface in a hoist bucket, dumped into a car and removed to the weathering platform where it is spread in a layer from 2 to 2½ feet deep to weather for a season. At the end of this time, its value can be determined by the amount of iron discoloration shown.

Some of these shafts are being worked where surface mining could be operated much more cheaply, but the revenue from the clay is so small that property owners will



Plate 484.

View of a Kaolin Mine at Montagnac, near St. Yrieix, France.



Plate 468.

China Clay Mines of the Bloomdale China Clay Company, St. Austell, Cornwall, England.

not permit open mining, since it ruins the land for agriculture for many generations, while the shaft, on being abandoned, can be filled and leveled off and the land goes directly back to agriculture. This consideration is quite important since the land suited for agriculture in this section is limited.

The most important kaolin center in Germany is Halle on the Saal River, where for more than a century, the



Plate 470.

China Clay Mines of the Bloomdale China Clay Co., St. Austell, Cornwall, England. General View of the Hillside of Kaolinitic Material.



Plate 471.

Pipe Clay Mines, Devon Clay Company, Newton Abbot, Devonshire, England.

kaolin for the Royal Berlin porcelain has been obtained. The kaolin here is mined by open pit, the deposit being a bed of sand carrying kaolin and by sluice washing, as much sand as possible is removed. A peculiarity of this kaolin is the fact that it is so fat and its sand content is so fine grained that only a limited portion can be removed by

sluicing, and wherever used it is always figured as a mixture of kaolin and flint.

Kaolin Mining at Zettlitz, Bohemia, Austria.

The highest grade kaolin mined in Europe, and probably in the world, is found at Zettlitz, a village in Bohemia, Austria, only about a mile distant from Carlsbad, the famous health resort.

The methods employed in mining are exceedingly crude, being in many cases the same as the shaft mining system in Silesia, and even in the most improved mines the equipment is only increased by the addition of a steam pump for draining the mine, and a steam hoist. Many years ago the mining of this kaolin was undertaken on an extensive scale, but the vein of water which feeds the "Grosse Sprudel" at Carlsbad was encountered, and only after a great deal of trouble and expense was the leak closed. The Austrian government realized the danger of permanently injuring this famous and valuable spring, and forbade open mining in future. With the shaft mining as operated at Zettlitz, of which No. 477 is a good example, only a limited amount of kaolin can be removed from one opening, and,

iron-bearing clay and sand. The mining here is all by open pits, as shown in No. 478, and operations are on a very extensive scale. The presence of modern engineering methods about these mines is very noticeable, but the same care noted in all operations in the smaller mines is also apparent. On removing the overburden, the top is stripped for a considerable distance, but a thin layer is left immediately over the kaolin to protect it from the iron or dirt which might be washed in by rain. Vast banks of the finest clean sand from the settling tanks border the pits on all sides to keep out all surface drainage and dirt, and a thorough system of ditches drains all surface water away from the workings.

The deposit is 65 to 75 per cent sand and is loaded directly into wooden cars which are hauled by electrically driven cable out of the mine to the sifting house. Here the process of separating the kaolin from the sand and mica is carried on by means of a sand wheel, a mica settling tank and fine-sand settling sluices followed by the final settling tank and filter presses. From the filter presses the clay goes to a drying house where warm air is forced by fans

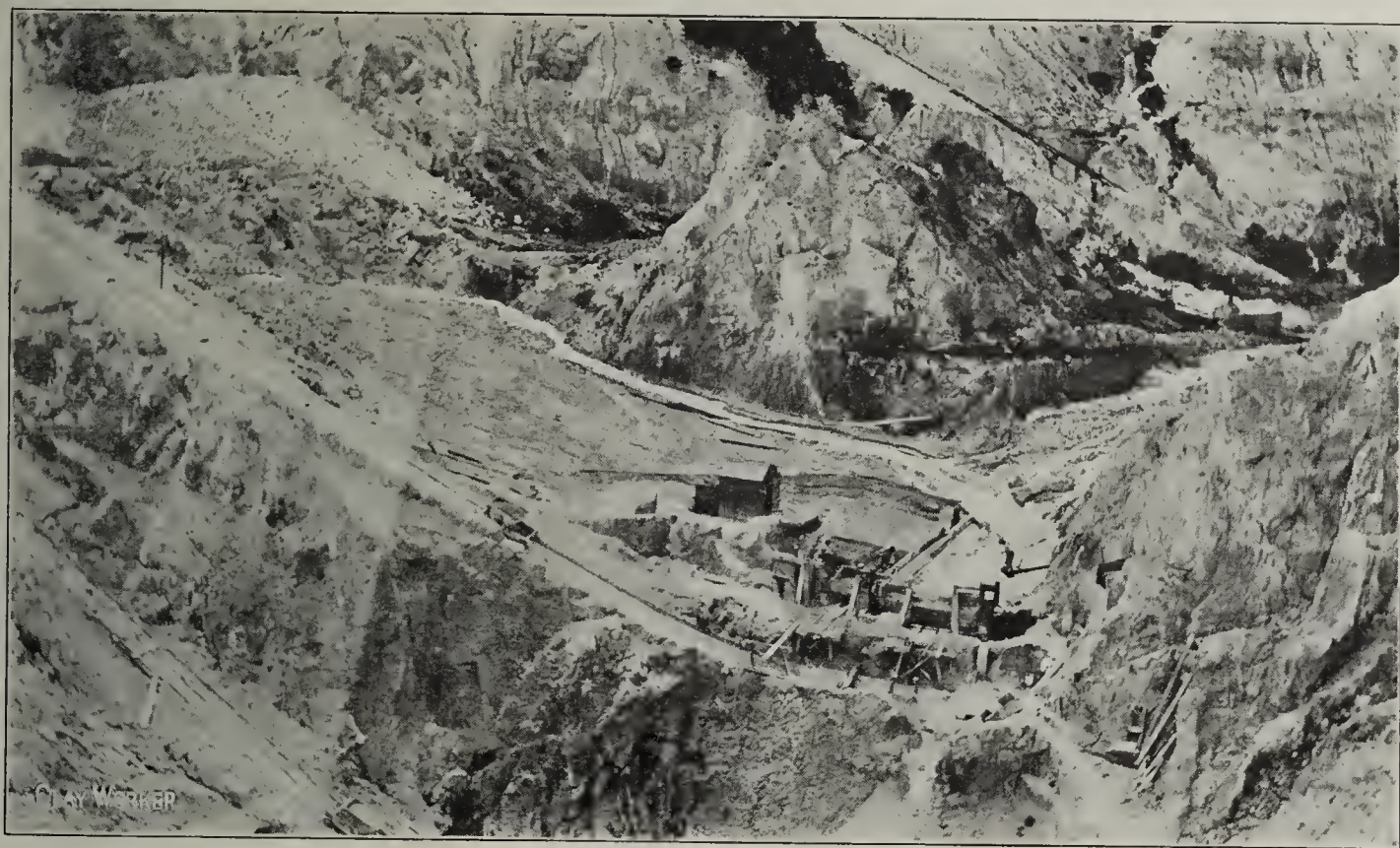


Plate 469.

China Clay Mines of Bloomdale China Clay Co., St. Austell, Cornwall, England. View at Bottom of Clay Pit.

should a stream of water be encountered, the mine can quickly be filled and closed. The kaolin found here is mixed with three or four times its weight of sand and a small amount of muskovite, and, by a process of screening, the coarsest of these impurities is removed at the better operated mines. The large white pile in the right foreground of the picture consists of this refuse sand. The crude kaolin is then taken to commercial mills, where it is refined by means of settling tanks and the product is pressed in wooden filter presses and dried for shipping. The chief superiority of the Zettlitz kaolin over the Halle kaolin lies in the fact that the sand and mica in the Zettlitz material is coarse enough so that it can be removed by a settling process until less than 4 per cent of sand remains.

Kaolin Mining at Pomeisel Near Pilsen, Bohemia.

In the neighborhood of Pomeisel, near Pilsen, is this same kaolin, but slightly secondary and carrying 0.6 to 0.8 per cent lime, while at Zettlitz it carries a maximum of 0.1 per cent. The deposits at Pomeisel are nearer the surface than at Zettlitz, being covered in places by only a few feet of

through the clay cakes and the mass is quickly dried. The entire process is carried on under roof and with every precaution to avoid dirt and dust reaching the kaolin either before or after its preparation.

Kaolin Mining at St. Yrieix, France.

St. Yrieix is the center of the kaolin-producing territory of France, and here is still being worked a treacherous vein of kaolin which appears and disappears along the face of a pegmatite vein. All French kaolin exists in these pocket-like deposits which demands that enormous quantities of refuse must be worked over in following the vein in the hope of finding a pocket of sufficient size to make mining profitable. Illustration No. 481 shows the present workings of the original kaolin mine at St. Yrieix, the pegmatite vein rising in the center of the picture, while the soft and friable kaolin appears in the lower right-hand corner and rises in benches almost to the head of the top of the pegmatite cliff. The methods of mining this kaolin are the crudest and most laborious I ever saw, but it goes without saying that the final product is a kaolin second to

none in whiteness and purity. The process of winning this famous French kaolin is better observed at Montagnac, 3 miles east of St. Yrieix, where the workings are more modern but the process exactly the same. One of these mines I show you in picture No. 483, and another which better shows the enormous area covered in following this peculiar kaolin deposit is shown in No. 484. In the former, the white of the workings and is noticeable from the clean benches kaolin is seen in the great nugget and also in the bank beyond. In the latter view the kaolin deposit is in the center exposed ready for removal to the sorting house which you see rising in the center background. The process of working is as follows:

When a trace of kaolin is found, a large pit is started, clearing the earth away from the center of operation and draining the surface water away from the workings. As soon as a pocket is found, all the loose material in that portion of the pit is cleared away and a cistern is sunk near the pocket to drain off all the water possible from the kaolin. The sand and granite refuse about the kaolin mass is cleared away from all sides so that it stands four or five

with their sand content to Limoges or Sevres. For porcelain bodies, nothing is added except a small amount of feldspar or flint, or both, and the whole is ground together to the desired fineness.

The Limoges district is peculiar in that the manufacturers do not prepare their own bodies but buy them ready for the kneading machine and in some cases ready for the jigger. A porcelain body factory is a peculiar and interesting place. The stock consists of a dozen bins of various grade kaolins with their respective content of sand, and in addition to this a stock of pegmatite, flint and feldspar, all quite coarse. The grinding is all done in chaser mills made from barrels and to obtain a sufficiently fine sand requires about 24 hours.

Pipe Clay Mining at Devonshire, England.

In England, the mining of clays is especially interesting. The mining of pipe-clays at Newton Abbot is shown in No. 471. This type of clay lies between the ball clay and the semi-plastic fire clay and resembles closely the plastic clay mined in Germany. All pipe clays are mined by open



Plate 467.

Clay Refining Plant of the Bloomdale China Clay Co., St. Austell, Cornwall, England.

feet above the floor of the pit. All is then made scrupulously clean and the work of removing the kaolin is begun. For this part of the work women and old men are employed entirely. With a tray about 20" x 20" x 5" in size, they seat themselves about the kaolin mound and with a common steel table knife dig off chunks about the size of an egg until they have their tray full. This they carry on their head to the sorting shed where each piece is carefully cleaned of every particle of biotite, and also of any lumps of undecomposed granite present. The product is like meal and has been sorted during the process of cleaning so that three grades are produced—the pure white, the cream and the buff. The latter is about 50 per cent of the total deposit and includes all kaolin that is stained from iron, and all of the material from the surfaces of the kaolin mass. Often in the center of a great block of white kaolin will be found a crevice filled with bright golden sand and kaolin. The hand-sorting enables this to be completely removed with little or no loss of high-grade kaolin. The kaolin can be washed free from the sand and mica, if desired, but this is seldom done, the different grades of kaolin being shipped

workings and the greatest care is exercised to keep the product free from foreign substances. The clay here shown is mined in two benches, the upper bench, however, being of an inferior grade and only the lower bench is mined by true pipe-clay mining methods. The digging is all by hand and the clay is taken out in shelves or tiers. A spade is used to cut the clay in uniform blocks about 9" x 6" x 6" and these blocks are loaded by hand into a car in which they are brought to the surface and stacked on a wooden platform in regular tiers like brick. After a few days of air-drying the clay is shipped. Any blocks of clay that break or spall are called "Breaks" and are of a lower grade than the solid blocks, owing to the higher sand content indicated. This clay is used for white smoking pipes, hence its name, and also more extensively for cheap white ware, yellow ware, and high-grade terra cotta.

Ball Clay Mining at Devonshire, England.

Ball clay mining in Devon is a peculiar combination of pumping out water and mining clay. The ball clay and many of the pipe clay mines lie below the level of the river,

and as the surface soil is a loose sand, the water filters in very rapidly and often two pumps are necessary to enable the clay miners to work. View No. 472 shows one of these pits being sunk, with the hoist on the left and the pumps in the rear. The cribbing necessary on account of the treacherous nature of the overburden is here shown.

Ball clay is all shaft-mined. It lies in pockets near the pipe clay but generally at a lower level. The shaft is sunk to the bottom of the clay bed and the clay then taken out from all sides. The wet condition of the clay prevents it being cut into regular blocks, but it is handled in as large lumps as possible and sorted immediately on coming to the surface. View No. 473 shows a complete rig for mining ball clay, the hoist being shown swung back away from the shaft and the double pump in the foreground to the right. All the pumps in a district are driven from a central engine by means of the walking-beam system of power transmission, and pumping goes on night and day.

China Clay Mining at Cornwall, England.

If the mining of ball clay in England is handicapped by the presence of water the mining of china clay is equally handicapped by the absence of clean water in sufficient quantity. Practically all the china clay of the Cornwall district is shipped from St. Austell. The china clay of England, like the kaolins of France and Germany, is mixed with



Plate 473.

Whiteway Bros.' Ball and Pipe Clay Mines, Newton Abbot, Devonshire, England.

many times its weight of quartz sand and other decomposition products of granite, and often lies in enormous hills, side by side with vast deposits of undecomposed Cornwall stone. A stream of water is turned on the face of a cliff, as shown in view No. 468, and by means of shovels and picks, the workmen cause the stream to spread itself about and float as much clay as possible. The clay-laden water rushes down the face of the hill through the sand and broken stone, the large particles of quartz and mica being practically certain of finding a lodging place along the way. At the foot of the steep descent, a long sloping bed of fine sand is encountered and through this the clay slip must work its way as shown in view No. 469, landing finally at the sluice level from which it is taken by trough to the pump which conveys it to the settling tanks above. The face of a clay mine from the top to sluice level is shown in view No. 470 in which the course of the water can be traced from the starting place in the upper center along the right side of the picture until it unites with other streams at the cistern in the lower right corner and is pumped to the sand and mica settling tanks on the hill 200 feet above.

In view No. 467 the clay-laden water enters the troughs in the center front and passes along these to the opposite end from which it passes to the circular tanks shown on the right, entering them at the bottom, and passing off at the opposite side top. By this time the clay is practically

all settled and the water is returned clear for another burden of clay. The clay is allowed to accumulate in these tanks until it reaches the consistency of thick cream, when it is tapped off through a large main into the final settling tanks shown in view No. 466. These tanks are of concrete and the clay accumulates here and air dries until it can be handled with a hoe, when it is drawn into the tile-roofed house adjacent, which is equipped with long tile-covered drying kilns where the last of the water is removed by evaporation, and the china clay is ready for shipment.

Discussion.

Mr. Barringer: Two things in this paper struck me very strongly: (1) The conservation of natural forces in Germany as an economic asset, carefully saving the top soil so that after the clay is removed there will still be a nice little farm; (2) the very careful preparation given to their clay.

Mr. Edgar: When speaking of the largest kaolin plant in Germany, you stated that they had a large content of sand which had to be washed out of the kaolin. I would like to know what method they used to remove the sand after it had been separated from the clay. I think you said they had from 40 to 60 per cent sand.

Mr. Watts: From the troughs it is hauled out into the bank in a wet state. A head of water is turned on in the troughs and the sand is washed out and down a hill. All



Plate 466.

The Final Settling Tank of the China Clay Refining Process of the Bloomdale China Clay Co., St. Austell, Cornwall, England.

those mines where they have kaolin washing, with the exception of Carlsbad, are gotten up as high as they can go and get water, so as to have plenty of room to get rid of their sand.

Mr. Edgar: In your last picture of the St. Austell mines you showed their process of settling out the mica in mica sluices. Is that their only method of separating the mica from the clay?

Mr. Watts: That is the only way of getting it out. You know I mentioned that the clay has to go through a bed of coarse sand before it comes to the sluice where it is pumped up and I found on examination that there was very little mica left by the time it got to that final gate and cistern at the bottom. The material as it went into the mica trough was practically free from mica. I saw them re-washing refuse and asked: "Why do you go to all the bother of taking all this sand up the hill to wash it again? Why don't you agitate it down here?" They said they wanted to give it a chance to run down through the sand bed for the sand bed would catch practically all the mica before it got down to the cistern where they pumped it upon the hill.

Mr. Edgar: I understood filter presses were used in that district.

Mr. Watts: Filter presses are used.

Mr. Edgar: Do they leave it in that final settling tank for some time, unprotected from dirt contamination? Since

they have a pumping station they must use considerable coal.

Mr. Watts: Yes, they undoubtedly do use some coal, but I did not see any evidence of dirt or refuse. They are very fussy about keeping their clay clean. For instance, a man never thinks of going into one of these houses without removing the shoes he is wearing, and putting on wooden shoes.

Mr. Sant: The clay must have been very much more difficult to reach over there than here. We have been somewhat reluctant to believe that the European clay miner has more difficulties to contend with than we have. Their natural advantages are certainly not any greater than ours, and their methods, compared with ours, seem to be more crude. I do not believe our men change their shoes when they go to lunch or anything of that sort, but we do exercise reasonable care to get out pure material.

Washing down the face of a kaolin bed to separate out the kaolin, as he described as being practiced in England, would be impractical in any deposit that I have seen in the United States, and even if it were practicable, it would seem that while the stream was washing down the kaolin, it would also wash down a good many other things we do not want. I would like to ask if this is not true in Europe?

I understand Mr. Watts to say that they get rid of their mica by settling. Mica does not settle, it floats. Mica in North Carolina occurs in small flakes and as long as there is any kaolin held in suspension, the slip will be heavy enough to float the mica. The only way we can get rid of mica is by sieving or by infiltration, and I do not believe the latter method has ever been tried here.

Mr. Watts: The amount of impurities washed down from the face of the English mines is very small, at least so far as I could observe. The material as it lays on the cliff is a mixture of sand, Cornwallstone, and mica, and every effort has been made to prevent surface material getting into the mine. The washing down of the whole face seems to remove the fine material, which is mostly kaolin. The amount of mica which reaches the settling tank, or the cistern at the foot of the incline after it has passed this comparatively level sand bed, is very small indeed, so that when it enters the first of the mica sluices there is but little quantity of mica to remove. I saw them cleaning one of these flumes or sluices. The refuse they obtained was a kaolin-like material containing shining particles. I am inclined to think that the large area of sand was really their main filtering system.

Mr. Orton: In the kaolin mines at Dillsboro, North Carolina, the occurrence of the mineral is similar in nature to that of the St. Austell bed, excepting that the vein is very narrow compared to the enormous mass, which they seem to have at St. Austell. In the latter, they go down into a body of material of practically unlimited size, all of which is white burning. In the North Carolina proposition they are debarred from using the strake or water erosion process of mining because the vein is so narrow and surrounded with red burning materials on either side. In the kaolin mines in North Carolina which I visited, they were getting only 25 to 35 per cent of kaolin, from 65 to 75 per cent being coarse quartz, mica and various large-grained minerals. If water could have been allowed to run over the steeply inclined face of that material, it would have washed out the white, soft kaolinic material and left behind the coarse matter, but it would have also included the rusty and stained kaolin with the white.

Mr. Edgar: I hardly agree that the foreigner has more obstacles to contend with than we have and I could not imagine a better proposition in mining than that in the English mines. They have no flumes to build and have water running over comparatively pure china clay. In North Carolina we had to run a pipe line for a long distance to get clear mountain water. There was water all around,

but we were afraid of getting impurities from it. Then again the country was too rough to bring the clay to the railroad and we had to bring the clay as a slip three miles through a pipe line.

Florida clay contains from 60 to 80 per cent of sand and the greater part of the clay is under water. Also the country is flat so that the removing of the sand, after it has been washed from the clay, is not always so easy a matter as it would be in a hilly country, such as those of Germany described by Mr. Watts.

When one considers the clay mining situation in the United States as a whole, as compared with that of Europe, I am inclined to think that the obstacles to be overcome in this country are greater than those of Europe, and that the American clay producers are not as well paid for their product and their efforts as are the European producers.

Mr. Sant: The proportion of mica in English, French and German kaolin must be very much smaller than it is in North Carolina, or quite generally in this country. Therefore, I think that that must be the reason they do not have any difficulty with it. In North Carolina mines, they will get a ton of scrap mica to ten tons of kaolin. They could not get rid of it by any system so far set forth. We can not adopt other plans for various reasons, as for instance our labor conditions render the European method of working in this country impossible. They do not sift their clay, while every miner of clay in this country, I believe, washes his clay through sieves, some of the mica being taken out in that way.

Mr. Speir: How many hours constitute a day's work for the women who carry the kaolin? How much are they paid per hour and how much clay do they carry in the course of a day's time in the trays on their heads?

Mr. Watts: I do not believe that the number of hours a person works gives a comprehensive idea unless you realize the amount of work they do. I do not believe that either one is worth considering unless you take into consideration the amount of pay that they get for a certain amount of work. In France these people possibly handle two tons of clay a day. They are paid from 20 to 25 cents a ton, that is, about 40 to 50 cents a day for cutting the clay out of the deposit and carrying it to the sorting house. The cleaning and sorting costs about 25 cents per ton of material handled, of which approximately one-half is marketable. After cleansing and sorting, the clay has to be hauled a very long distance by wagon to the railroad, which probably adds 60 to 70 cents a ton to the cost of the clay. In France they handle, conservatively speaking, probably one hundred tons of material for every ton of kaolin they get out. In Zettlitz, where labor is very much better paid, and the amount of material to be handled is not so great, they claim that the kaolin stands them about \$12 a ton actual investment before they are ready to ship it, and we pay in the United States about \$18 or \$20 a ton for first-grade Zettlitz kaolin.

Mr. Speir: Then I understand these women make 40 to 50 cents a day and handle two tons a day in about eight or ten hours. I understand that there is considerable sand found in connection with this kaolin or clay. Has this sand any value in the state in which it is left after the clay is extracted from it, or could it by some inexpensive process be made to have value for the making of glass or pottery, or for use in the manufacture of silica brick, or for some other purpose? If not, why?

Mr. Watts: They may have thousands of tons of sand with every little deposit of kaolin, and sand is a drug on the market. Mr. Elias said to me they would be glad to pay a man something to haul the sand off their property. This sand is used in the Bohemian glass works, but this really utilized but a trivial percentage of the amount available and the potteries require but little. In France the refuse from the kaolin cleaning is such an irregular mixture of pegmatite, biotite and quartz, that I doubt if it could be utilized in any ceramic manufacture.



BOOST FOR TILE DRAINAGE.

The Iowa State Railroad Commission, in the readjustment of classifications and rates, gave a big boost for drainage in the State. They made it possible to ship carload lots of drain tile much cheaper than heretofore by reducing the minimum on the tile commodity rate to 30,000 pounds. On account of the danger of breakage it was found impossible to safely handle heavy loads of tile. Heretofore the tile would either take the higher rate for 30,000 pounds or the lower rate for 50,000.

A WET STOCK FARM.

One submarine farm is in existence, conducted by the United States Government for the purpose of discovering the most profitable manner of growing sponges. The farm is at Biscayne Bay, Florida. An acre of sponges was planted at an expense of \$133. In four years the acre was harvested and the returns amounted to \$968.

This stock farm is different from all that we have heard of before in that it would not be benefited by drainage nor by irrigation.

For the instruction of those who may want to learn about sponge-farming we will state that, "Sponges are many-celled animals with three cell-layers, without a true digestive cavity, supported usually by calcareous or siliceous spicules, the body-mass permeated by ciliated passages or containing minute chambers lined by flagellate, collared, monad-like cells." There is no true mouth-opening but usually an irregular system of inhalent pores opening into the cell-lined chambers or passages through which the food is introduced in currents of sea water, the waste particles passing out of the body by a single but more usually by many cloacal openings (oscula). Sponges are hermaphroditic, multiplying by fertilized eggs, the germ passing through a morula and gastrula stage."

Any one who does not understand or who wants further knowledge will please hold up the right hand.

As soon as a few more farms have been established the editor will organize a class in stock judging.

THE GOVERNMENT AND DRAINAGE.

Irrigation statistics show that in nine years the Government Irrigation Service has expended \$59,580,000 in constructing 5,621 miles of irrigation canals. This to make arid lands productive and fit to be placed under profitable cultivation at the hands of our people.

What has been done by the Government to drain our swamp lands and fit them for habitations of agriculturists? The annual report of the office of experiment stations of the Department of Agriculture for 1910 shows that "investigations and surveys were made in twenty different states and territories during the year by the engineers of the office, some of the work being done in co-operation with local interests which contributed a part of the expense.

"The chief of drainage investigations directs a regular staff of twenty-five office and field engineers and two draftsmen. Of this force one engineer gives his entire time to tile drainage in various parts of the humid region, while

five are stationed in the western states to study the problems which arise in attempts to drain irrigated lands and to assist the owners who desire to reclaim tracts which have become injured by seepage or by alkali.

"Other field engineers are employed in examining and reporting upon the status of drainage in various localities, such examinations being made upon special requests which are filed from time to time with the office." They are also charged with the duty of advising engineers, farmers and others regarding the best practice in drainage.

This is being done under the immediate direction of C. G. Elliott, chief of drainage investigations, and may be classified and described under the following headings:

- (1) Improvement of farm lands now under cultivation.
- (2) Drainage of swamp lands.
- (3) Reclamation of lands subject to frequent overflows from streams.
- (4) Drainage of irrigated lands.
- (5) Collection of general and technical data on drainage.
- (6) Preliminary and reconnaissance work.
- (7) Dissemination of information.

Improvement of Farm Lands.

Under this head surveys of farms were made in Delaware, Kentucky, Maryland, Virginia, Arkansas and Louisiana. Plans were prepared for systems of open ditches and tile drains.

The Arkansas State Normal School acquired a farm of eighty acres to encourage the teachers of the state to become familiar with the principles of scientific farming. F. F. Shafer made a survey of the farm and prepared plans in detail for a tile system to drain twenty-five acres of the farm that are too wet for cultivation.

L. L. Hidingier made a survey of the farm of the Princess Anne Academy, a school for colored people near Princess Anne, Md., used as the eastern branch of the Maryland Agricultural College. A plan was prepared for a system of tile lines to drain about 106 acres, and instruction was given to the principal and local manager in the principles and practice of farm drainage, that they might be taught to the students.

Drainage of Swamp Lands.

Along the coast of the South Atlantic states are considerable tracts once devoted to the production of rice, but now abandoned because no longer profitable. In order to determine the practicability of draining such lands for the production of dry crops, surveys and plans were made for the drainage of about 240,000 acres in various sections of North Carolina. These plans provide for the excavation of ditches, the construction of levees, the installation of pumping plants, enlarging, straightening and extending river channels and the control of Lake Phelps to prevent overflow.

In Virginia a survey of a tract near Norfolk, known as Berkeley swamp, which borders the Great Dismal swamp. A system of ditches was planned to drain about 2,400 acres of this wet land.

Government engineers have aided in preparation of plans for reclamation of swamp lands in Bolivar county, Miss., and in the Tallahatchie drainage district in northwest Mississippi. This district involves the drainage of 1,800 square miles. The local commissioners and engineers adopted the suggestion of the department engineer, A. E. Morgan, to divert Cold Water river through a shorter route into the Mississippi river.

Reclamation of Overflowed Lands.

Surveys have been made and assistance rendered in the preparation of plans during the year for the protection of lands from overflow in Arkansas, Kansas, Missouri, Kentucky, Louisiana, Nebraska, North Carolina, Oklahoma, South Dakota, Tennessee, Texas and Illinois.

The recommendations given for the protection of over-

flowed lands include the construction of levees, the diversion of creeks to new channels, the excavation of ditches to intercept the waters that flow upon the low areas, the clearing and straightening of river and creek channels, the construction of large relief ditches.

Investigations were made and a preliminary report prepared for the reclamation of the fifth Louisiana levee district. The area comprises 1,562,000 acres in the southeast portion of the state, of which not more than 300,000 acres are cultivated. The other tracts examined comprise from 2,600 to 70,000 acres each

STEADY!

True, the last two seasons have been very dry, and tile sales are not as readily made, and tile are not as much in demand as they were during seasons of greater rainfall. True, the pay roll and fuel bills must be met, but that is not a valid reason for cutting prices. If tile can not be sold for a fair profit, the factory should be shut down.

Within a few months past some of the larger tile factories have been troubled with over-production and are trying to force sales by shipping long distances, paying the freight and selling at lower prices than the local factories have been receiving. This is not fair, not right, not in accordance with the teachings of the Galilean carpenter. It is not good business.

The mistake was made first when the capacities of the large plants were increased beyond a reasonable limit. The unusual demand for tile in wet seasons is not a measure of the demand for tile. Factories large enough to supply the market in wet seasons are too large for seasons of ordinary precipitation, and are sure to suffer from over-production.

The demand for dividends by stockholders of our larger tile-making corporations urges the managers to make sales and keep the plant running. In order to keep it running, they must force sales, and forced sales at cut prices with long hauls and heavy freight bills will not bring dividends.

It seems that the logical thing for the large factories to do would be to see that they have built "not wisely," but too large, and refrain from wrecking their own business as well as that of smaller manufacturers by price cutting.

How to Increase Trade.

Price cutting does not increase trade. It simply takes trade away from a neighbor and gives the profits to the purchaser. Each tile manufacturer should increase his trade by educating the land owner in the benefits of drainage and by aiding in getting drainage done. Many successful brick-makers are also contractors and thus get two profits from their goods.

If every tile maker would educate himself until the land owners would look upon him as an authority on drainage matters they would come to him for advice.

He should advertise to lay tile and be prepared to do drainage work of all kinds, or furnish men who would take charge of any drainage work that was to be done. We know one tile manufacturer who makes it a point to become acquainted with tile ditchers in his territory, and to keep the name and address of each one. He also owns a steam traction ditcher and advertises to do tiling. Whenever a farmer buys tile the manufacturer asks if he has men to lay the tile and offers to get such men if desired.

Tile manufacturers can also largely increase trade by being familiar with the lands needing drainage in their vicinity. Where several land owners need to combine their drains the tile maker could make it easy and hasten the work by knowing the laws, and taking the lead in organizing drainage districts. Often, farmers who can not or will not get together themselves can be brought to work together in harmony through the offices of a leader and mediator. In this way much drainage work may be done that would be delayed for years because no one brought the land owners together and showed them how their work could be organized.

THE PREPARATION OF CLAYS AND SHALES REQUIRING DRY GRINDING.

BY I. M. JUSTICE, DAYTON, OHIO.

HOW TO OBTAIN the most economical and satisfactory results in the preparation of shales and clays which require dry grinding, is a subject that commands the attention of all owners and managers of clayworking plants everywhere as well as companies engaged in the manufacture and sale of grinding and screening equipment.

When the writer, several years ago, introduced the "piano wire screen" to the general trade it was not believed that a screen 24 inches wide and 42 inches long would screen the product of one nine-foot dry pan, but it did, and since then this type of screen has almost completely revolutionized the method of screening clay. While this type of screen has not met with complete or universal success in every instance, still it has more nearly filled every requirement in screening clay than any other screen. In many cases where this screen was said to be a failure, the cause was more the lack of knowledge on the part of the operator than the fundamental principle upon which the screen was constructed. The piano wire screen is today a standard article of equipment and is bought and sold without fear of failure on the part of either buyer or seller.

What we now wish to bring to the notice of clayworkers generally is how to increase the daily grinding capacity of the dry pan. It is our conviction that this can be accomplished by using screen plates in the pan having larger mesh or openings in them than is the common or usual practice now or in the past. By increasing the size of the mesh a larger volume of material will pass through in a given time and a larger elevator will be required to deliver the material to the screen. Under this condition it is evident that a larger screen will become a necessity.

Each revolution of the pan will grind sufficiently fine just as much under the new conditions as it did under the old, but the new condition will remove immediately from the pan all the fine, and the large elevator and screen will separate all the fine from the coarse and thus save the pan from handling over and over again fine material which can not escape by reason of fine mesh plates. This method will slightly increase the power required for the elevator but we are sure it will save more than an equal amount on the pan and the result on the whole will be a larger volume of finished material delivered to the machine or press for molding into ware.

In part this idea of coarse screen plates, extra large elevator and large screen is theoretical, but it has been demonstrated to a sufficient extent to make it worthy of the deepest consideration by the practical man in charge of the plant as the object is to increase the output of the factory without materially increasing the investment.

AN IMPORTANT FACTOR IN ARTISTIC BUILDING.

In probably no other class of modern buildings is there so much attention paid to pleasing the eye as in hotel structures. The builders of a million-dollar hostelry realize that the success of their venture depends quite as much on pleasing the eye as in satisfying the public appetite or sheltering the public head. It is interesting to note, therefore, that for this important purpose of appearances, two of the largest hotels, one the Statler Hotel in Cleveland, a two and one-quarter million dollar hotel just started, and the famous Blackstone in Chicago, completed not long ago, have pinned their faith to Ricketson's Mortar Colors. These represent the most up-to-date development in hotel structures and in both of them Ricketson Colors were specified throughout. Hotel architects have long ago learned that it pays to buy the "best" colors.

The Purington Paving Brick Co.'s Immense Plants.

Up-to-Date Improvements and Methods Which Make Them Conspicuous in the Industrial World.

THAT THE WHIRLIGIG o' time brings many shifts and changes to us all was forcibly impressed upon the writer when, recently, for the first time in many, many moons, he visited the plants of the Purington Paving Brick Company at Galesburg, Ill. In former years during the early history of this great enterprise we were wont to make frequent trips to the plant on the invitation of the then president and general manager, D. V. Purington. Some years since failing health compelled him to retire from business activities for a time and he was succeeded as president by his brother, W. S. Purington, who had been associated with him as general manager from the time the plant was built. Later on he, too, fell ill and in turn had to seek rest and health. Luckily, both found it after a protracted period of idleness, and are now again enjoying good health.

During their enforced absence from the plant younger men

fares in a state of chaos incident to the laying of a new brick pavement. We had hoped to get photographs of same with which to illustrate this "story," but have been unable to do so. It will be a thoroughly first-class pavement, laid according to the most approved specifications, something Galesburg has needed for a long time, for while it is a brick-paved city, the old pavements were not carefully laid and have simply answered the purpose of keeping Galesburg out of the mud, and have not been in any instances show pavements, except as they proved the durability of Purington brick.

There is always something new and interesting to be seen at the Purington plants, for those in charge are progressive and are ever striving to improve their mechanical equipment and product. One evidence of this spirit was seen in the presence of four young men from Illinois University, who were recording data derived from careful tests of burning



General View of Plant No. 2 of the Purington Paving Brick Co., Galesburg, Ill.

took up the work where they left off and though the responsibility was great, it was made comparatively easy by the thorough organization established by the Puringtons, of which the aforesaid younger men had been a part. D. V. Purington is still an active member of the P. P. B. Co. directorate, serving as chairman of the board. The other officers are: F. G. Matteson, president; George C. Prussing, C. D. B. Howell, vice-presidents; W. H. Terwilliger, secretary; C. H. Chamberlain, treasurer; W. D. G. Orr, general manager; E. L. Swett, superintendent. The friends of W. S. Purington may be glad to know that he has established himself in business at Des Moines, Iowa, as president of the Enamel Concrete Brick Company, having permanently retired from the P. P. B. Company.

A quarterly meeting of the board took Mr. Purington to Galesburg recently, and he took with him as guests Mr. and Mrs. W. H. Bell, of St. Paul, Minn.; George Schwarz, of Milwaukee, and Theo. A. Randall, of Indianapolis. Mr. Bell is now representing the Purington Paving Brick Company in Minnesota, and Mr. Schwarz has sold millions of Purington pavers in Wisconsin; so it is no exaggeration to say that there was much shop talk en route. Arriving at Galesburg, the most conspicuous object was one of the main thorough-

kilns, for the purpose of determining what per cent., if any, of fuel was being wasted, and to devise means or offer suggestions for greater economy in that department of the work. Inasmuch as 500 tons of coal are consumed each day, this is a very important matter. The tests were carried on under the direction of Prof. A. V. Bleininger and occupied several weeks of constant vigil. The testing crews worked in relays, two of the young men being on duty constantly day and night. Careful heat balances were made for the purpose of determining just what proportion of the heat was utilized and what proportion was wasted through the stack and through the kiln walls. The measurements which were made consisted in taking the kiln and the flue temperature, the temperature of the walls on the outside, and in finding the excess of air which passed through the kiln. These facts, together with the amount of coal used, when determined, tell accurately just how the heat is distributed.

The plants—there are three of them—extending along the tracks of the Santa Fe railway for a mile or more, have changed little in general appearance since they were last described in *The Clay-Worker*, but there were a number of new features observed, the most conspicuous being a new stack,



The Yard Boss Who Was Crushed in a Dry Pan and Lived to Tell the Tale, and a Crew of Setters.

which pierces the ethereal blue at a height of 126 feet. High up on the side facing the railway, so that those who pass may see at a glance, appears the name of the company in letters large enough to be legible for a long distance—a good permanent ad. The stack was built by the Alphons Custodis Chimney Construction Company, of hollow brick from Brazil, Ind. It is six feet six inches in diameter at the base and as it is seldom that a very large volume of black smoke is seen coming from it, it evidently is an element of efficiency in combustion and economy in fuel consumption.

Another notable improvement is the use of trolley motor cars for transferring brick from machine to dryer and dryer to kiln. They travel at a good speed and are time-savers in handling the ware.

When it is remembered that they make on an average 300,000 paving block per day the reader may realize that "every little movement has a meaning of its own." Hence a time-saver is a money-maker. They have adopted double-deck cars and are so well pleased with them that the old single-deck cars are being abandoned as fast as the new equipment can be placed conveniently. The double-deck cars hold 650 brick, as against 450 on the single-deckers, and the percentage of damaged brick is reduced very materially.

The shale bank seems a good ways farther from the plants than in former years, and little wonder, for immense steam shovels eat into it at a ravenous rate, nevertheless there is



The Trolley Crew Taking Brick From Dryer to Kiln.

plenty of shale left. The bank ranges from fifty to seventy-five feet in height, all good clean shale, to handle which three steam shovels are used. Two small locomotives are used to haul the clay cars back and forth from bank to plant. The clay cars are larger than those usually seen on clay plants, having a capacity of three yards or more, and are hauled in trains of from three to six cars each.

There has been little change in the mechanical equipment of the plant. The same Frost dry pans, eight in number, pulverize all the raw material. The record of these pans is a fine testimonial of the durability and efficiency of the products of the Frost Manufacturing Company. The same may be said of the Chambers brick machines, which have seen few



Pulling a Train of Empties to the Shale Bank.



Taking Shale to Crushers by Cable-Hoist.

idle days since they were installed in 1890. The entire output is now repressed, nineteen Eagle represses and one Bonnot repress being required. Another innovation in brickyard equipment in a couple of "clam-shell" locomotive cranes, which are used in handling coal, etc. The distribution of coal to the kilns is in itself a formidable task, and these ponderous cranes have proven very useful.

Every mechanical convenience that ingenious minds can invent is tried out, and no suggestion for saving labor or time is ignored. "No good things are overlooked here," remarked the redoubtable George Schwarz, after an hour's stroll through one of the plants. We are pleased to present the only picture extant of that gentleman, a rear perspective,

taken when he was too busy inspecting a pile of pavers to hear the click of the camera. We did not count them, but took Superintendent Swett's word for it that they have some 15,000,000 brick piled out, 75 per cent. of them being No. 1 pavers. Their daily shipments are now averaging about fifty carloads, and more of the brick go to States adjoining on the north and west than are shipped to points in Illinois.

There are many things in and about the plant to interest brickmakers, and visitors are always made welcome. Those who are wise should be sure to reach the plant before noon. This will insure an invitation to lunch, which is served in the basement of the office building. A good, substantial



The Steam Shovel at Work at Plant of Purington Paving Brick Company.

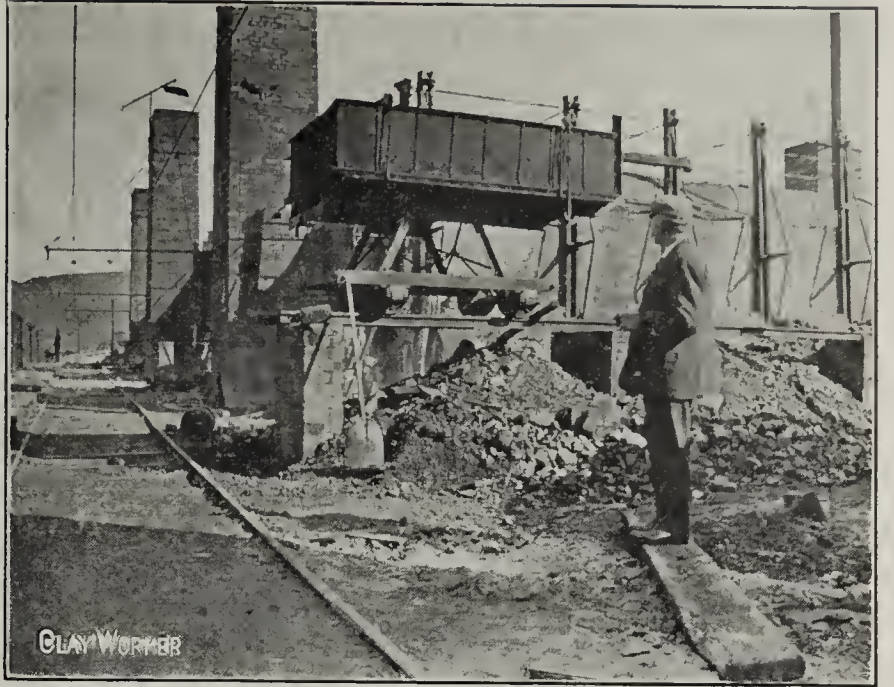


Looking Down Incline From Within Clay House, D. V. P. on Right.

lunch is prepared each day and those who participate indulge in a talkfest covering the happenings of the day. When anything unusual occurs about the plants the whys and wherefores are discussed, and thus both a pleasant and a profitable noon hour is spent.

BRICK AND THE BLACKSMITH SHOP.

In this work of boosting building brick it may prove a good idea to specialize once in a while, pick out some particular kind or class of house that offers special talking points and feature the reasons why this should be built of brick, and afterwards take another one and so on. In other



Method of Delivering Coal to Kilns. The Work is Usually Done After the Day's Run.

words, get down to cases and more intimate talking points.

The blacksmith shop furnishes an illuminating instance and one that nearly every brick man can make use of, because the blacksmith shop is common to every community.

If there is any building in the community that should be made of brick it is the blacksmith shop, yet it is a building that is too often poorly constructed from any cheap material and, instead of being a credit to, is a sort of blot on the landscape of beauty.

Why not let every man make a special campaign about the blacksmith shop? Urge an attractive type of architecture and the use of brick to secure fireproofing qualities, stability and all of that.

There are a multitude of talking points and the blacksmith shop should be one of the simplest and cheapest buildings to erect with brick. Moreover, the saving in insurance should help pay for it and no brick man, after thinking over the matter for a while, should require any outside assistance or advice on how to talk brick for a blacksmith shop convincingly.

It would be a wonderful thing for the country and for the blacksmiths, too, if we could inspire every blacksmith in the country to build a brick shop. It would put them in more substantial form and would put the trade of blacksmithing on a somewhat higher plane and stimulate a higher order of thought and inspiration generally.

Why not try it, try a little of this specializing business and start in on the idea of a brick blacksmith shop and see what you can do?



Mr. George Schwartz (to right) Inspecting a Pile of No. 1 Block. The Only Picture of "George" in Captivity.

THE EFFECT OF PRELIMINARY HEATING TREATMENT UPON THE DRYING OF CLAYS.

By A. V. BLEININGER.

Reprint from Bulletin of the Bureau of Standards, Vol. 7, No. 2.

VI. Mechanical Analysis.

IN DETERMINING the changes brought about by preheating as regards the fineness of grain, four samples of clay were prepared by thoroughly mixing them and dividing each portion into two parts. One half was preheated to 300° C and then put through the Schulze apparatus, the other was run through in the normal condition.

The results are compiled in Table VIII. In carrying out this work it became at once evident that the preheated clays showed an extraordinary tendency to form aggregate particles in spite of the fact that they were first mechanically shaken in water and apparently deflocculated by the use of NaOH and Na₂C₂O₄ solutions. These particles were found to be so hard that they could not be worked through the sieves by simple rubbing. The results show that for this reason the clays have become decidedly coarser, the surface factor having been decreased. This applies not only to the sieve sizes, but also to the sizes separated by the first two cans. This difference between the normal and the preheated clay appears to be due to coagulation, the fine individual

TABLE VIII.
Mechanical Analysis.
NORMAL AND PREHEATED CLAYS.

Clay	40	60	80	100	120	Cans			Over-flow
						1	2	3	
N	0.84	1.77	1.33	3.78	0.20	8.02	15.12	2.21	66.72
G ¹ 300°	4.04	5.76	2.42	7.08	0.39	16.90	16.28	3.00	44.13
N	1.96	1.80	1.50	3.37	0.16	4.07	4.45	2.32	80.37
A ² 300°	4.56	2.66	1.96	1.33	0.22	5.47	8.38	5.01	70.40
N	1.11	1.37	0.58	0.70	0.15	2.79	26.56	5.07	61.66
S ³ 300°	9.54	9.28	3.26	2.20	0.10	5.74	37.25	4.39	28.23
N	0.30	0.40	0.34	0.50	0.08	0.83	3.84	6.18	87.52
H ⁴ 300°	3.71	2.77	0.71	1.99	0.33	3.29	5.57	4.44	77.17

¹ Alluvial clay, Groveport, Ohio. ² Impure No. 2 fire clay, Athens, Ohio.
³ Joint clay, Urbana, Ill. ⁴ Glacial clay, Heron Lake, Minn.

particles forming aggregates of varying sizes. From this it follows that a decided change in the capillary structure of the clay must have been brought about tending either to increase or decrease the pore space. Just in what direction this change proceeds will be shown later.

Malachite Green Adsorption: H. E. Ashley¹² employs the ability of clays to absorb complex organic salts, such as malachite green, from their solutions as a means of comparing the plasticity of different clays, and makes the assumption that, other things being equal, the more plastic a clay the more of the dissolved substance it takes out of solution. In casting about for a numerical factor expressing the plasticity of a clay, however, he found it necessary to introduce two modifying factors, drying shrinkage and fineness of grain, as expressed by the Jackson-Purdy surface factor. He thus arrives at the expression:

$$P = \frac{CB}{A}$$
, where—

P=numerical value proportional to plasticity.
C=relative colloid content, based upon the amount of organic salt (malachite green) absorbed.

¹²Bulletin 388, United States Geological Survey.

B=per cent shrinkage of clay discs made by casting the lawned slip into plaster molds.
A=surface factor.

Ashley hence assumes that plasticity is proportional to the amount of malachite green adsorbed from solution and to the drying shrinkage and inversely proportional to the fineness.

Since in connection with the present work the fact that plasticity has been decreased by the preheating treatment has been established beyond doubt, it was thought to be of interest to determine the differences in the absorption of malachite green by preheated clays. This work was done by Mr. H. E. Ashley, and consisted in shaking one gram of clay by mechanical means in 100 cc of a malachite green solution containing 0.3 gram of the dye. The amount of malachite green remaining in the solution was determined colorimetrically. The value thus obtained was then expressed as the relative adsorption shown by a standard plastic clay, the Tennessee No. 3 ball clay. The latter was assumed, therefore, to show a colloidal value of 100. A clay giving a value of 75 should then contain 75 per cent of the colloid matter present in the Tennessee clay. The results of these determinations are compiled in Table IX.

TABLE IX.
Adsorption Factors of Normal and Preheated Clays.

Clay	Surface clay, Albert Lea, Minn.	Joint clay, Urbana, Ill.	Joint clay, Peoria, Ill.	Alluvial clay, Groveport, Ohio	Impure No. 2 fire clay, Athens, Ohio
Normal.....	600	142	175	104	160
Preheated at 250° C..	475	137	150	106	140

Inspection of these figures shows at once that, although in four out of five cases the adsorption has been decreased, the difference is not in proportion to the difference in the physical behavior of the clays. It is evident, therefore, that, with the exception of the Minnesota clay, no decided change in structure is indicated by these tests. It would seem then that the partially irreversibly "set" gel shows the same adsorption as the reversible gel, and that the adsorption of malachite green, from its solution, does not appear to be any measure of plasticity, as far as these preheated clays are concerned.

Distribution of Shrinkage and Pore Water.—From the results of the mechanical analyses of the normal and preheated clays, as well as from direct observation made during the course of the shrinkage experiments, it became evident that the amount of pore water in the preheated clays differed from that present in the normal materials. It hence was found necessary to determine the amounts of shrinkage and pore water present in the same clay after heating it to different temperatures. This was done similarly to the previous calculations of the drying shrinkage expressed in terms of the true clay volume. These results are collected in Table X.

For the sake of facilitating comparison the relations obtained are shown graphically in Figs. 12, 13, and 14.

Referring to Fig. 12, it is observed that with this clay a marked increase in the amount of pore water is shown between 250° and 300°, and it is quite evident that the clay approaches the condition of an inert, nonplastic material as the shrinkage water decreases. The two curves will meet.

at the point at which the clay will have lost its plasticity. This increase in pore space shown brings out the fact that the preheating of clays causes them to become more porous, and it offers the explanation of the improved drying qualities of the materials thus tested. The increased pore space opens up the clay body, reduces the surface tension, and thus offers less resistance to the flow of water through the capillary system toward the end of the shrinkage when drying conditions are most severe. Owing to the smaller shrinkage it is evident that the total strain due to contraction is lessened.

TABLE X.

Distribution and Shrinkage of Pore Water.

Clay		Per cent by volume in terms of true clay volume.						
		Normal	150° C	200° C	250° C	300° C	350° C	400° C
Alluvial clay, Groveport, Ohio, No. 12.	Total water.....	87.20	80.52	71.11	73.00	72.60	74.66	70.80
	Shrinkage water...	51.09	45.49	37.61	39.22	21.70	19.66	15.98
	Pore water.....	36.11	35.03	33.50	33.78	50.90	54.94	54.82
Glacial surface clay, Heron Lake, Minn., No. 13.	Total water.....	95.20	90.00	92.60	90.70	84.30	97.10	84.40
	Shrinkage water...	42.65	41.80	38.92	35.37	28.27	31.17	20.35
	Pore water.....	52.55	48.20	53.68	55.35	56.03	65.93	64.05
Impure No. 2 fire clay, Athens, Ohio, No. 14.	Total water.....	72.19	78.06	73.17	70.33	75.78	71.60	71.88
	Shrinkage water...	49.05	47.55	47.43	43.23	49.06	38.96	33.34
	Pore water.....	23.14	30.51	25.74	27.10	33.82	32.64	38.54

As has been shown above, however, the actual rate of evaporation from, for instance, two cubes of the same initial size, one consisting of raw and the other of preheated clay under the same conditions of temperature and humidity are about the same. This comparison is not quite fair, since the preheated clay cube would contain somewhat more weight of material than the other.

The clay represented by Fig. 13—a plastic, impure glacial clay—showed likewise a constant increase in the amount of pore water at the expense of the shrinkage water, but the change appears to be more gradual. The shrinkage water retained by the clay heated to 400° still constitutes a large

than for the latter, where an excessive temperature might carry the conditions too close to the inert state.

From the work done in the present study no general conclusions can be stated as to the behavior of all kinds of clay. As a broad proposition it might be said that the more impure clays show as a rule more abrupt change and more narrow temperature limits than the more homogeneous plastic clays of the No. 2 fire-clay or ball-clay types.

In regard to the time required for the preheating no attempt has been made to look into this matter, but it would appear from the present work that it is simply a question

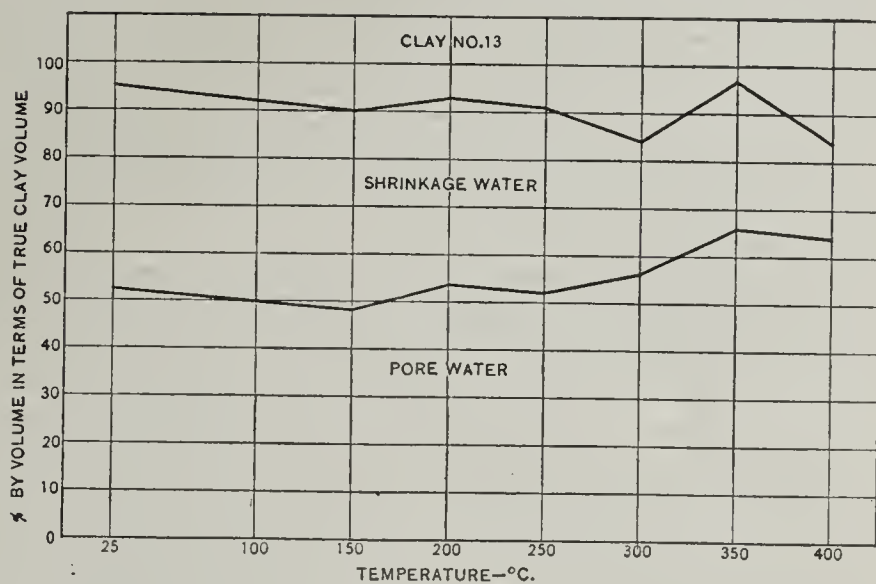


Fig. 13. Relation of Shrinkage to Pore Water of Heron Lake, Minn., Clay, Preheated at Different Temperatures, Again Made Plastic With Water and Dried at 60° C.

of transmitting the heat through the lumps of clay. The larger the average size of the clay lumps the longer should be the time allowed for the heating. From this it follows that it would be policy in commercial work to shred or cut up the material before introducing it into the drying ap-

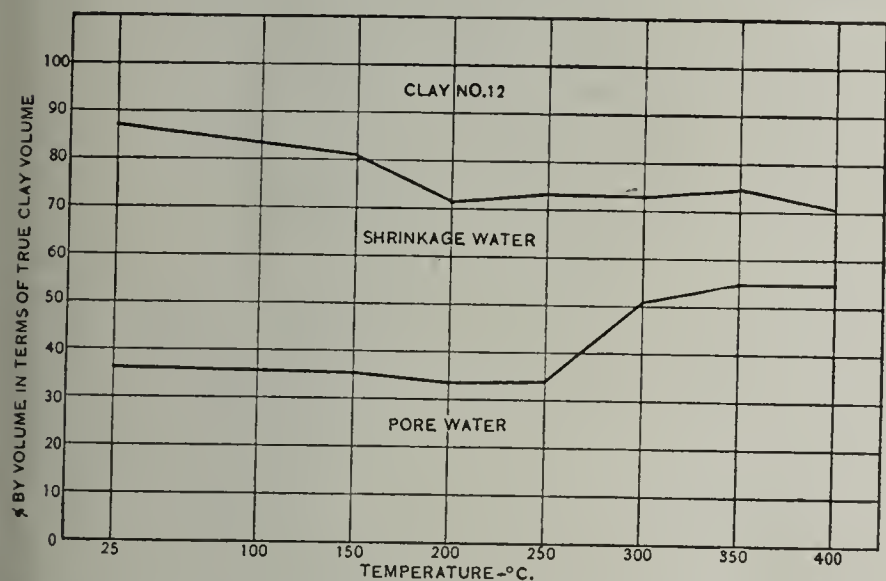


Fig. 12. Relation of Shrinkage to Pore Water of Groveport, Ohio, Clay Preheated at Different Temperatures, Again Made Plastic With Water and Dried at 60° C.

part of the total water; thus indicating that the residual plasticity is still considerable. This clay should be a safe material for preheating purposes.

In Fig. 14 the material, a fire clay, shows a decrease in shrinkage water between 300°-400° and a fairly high amount of shrinkage water at the highest temperature. It is evident that if preheating were necessary in this case the temperature could exceed 300

From these illustrations it appears that the proper preheating temperature varies for different clays. While in certain materials the desired change to a more nonplastic condition is brought about gradually it is abrupt in others. It is evident from this consideration that the permissible temperature range in the former case is considerably wider

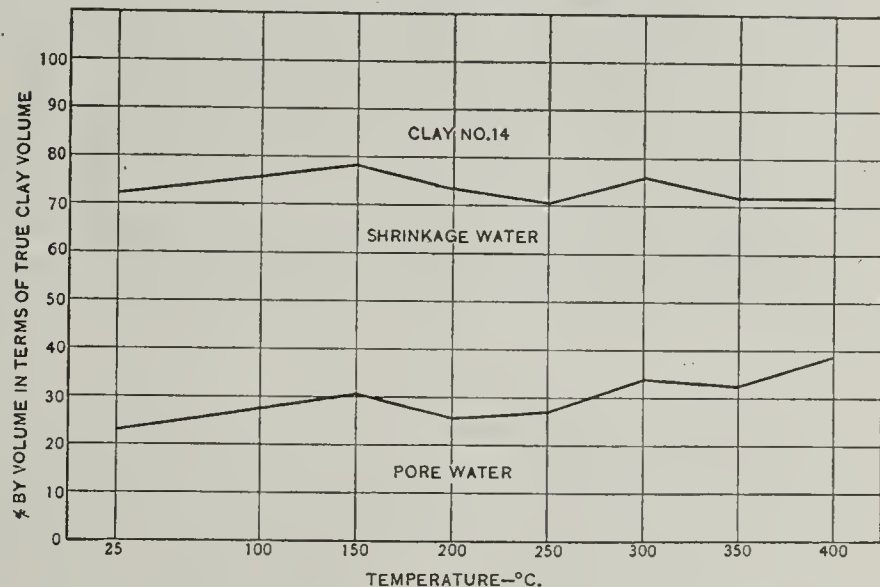


Fig. 14. Relation of Shrinkage to Pore Water of Athens, Ohio, Clay, Preheated at Different Temperatures, Again Made Plastic With Water and Dried at 60° C.

paratus. Under the conditions of practice the temperature of the rotary dryer is best maintained close to 500° C, and the time of passage through the dryer reduced accordingly.

8. The Effect of Preheating Upon the Manufacture of Clay Products.

Since it has been shown by experiment that the pore space of preheated clays increases as the clay particles gradually assume the character of more or less inert, sand-like matter, the question arises whether it might not be possible that some clays, even though preheated at lower temperatures, would become too porous to be worked successfully by certain molding machines used in practice, due to the fact that the permissible limit of pore water had been reached. Under

this condition might it not be that owing to the greater average distance between the particles the cohesive force would not suffice to hold the mass together if a larger amount of water is used than is necessary to bring the clay to the condition in which it is used in auger machines?

This point was investigated by making up two preheated surface clays with a large amount of water to the consistency of the so-called "soft-mud" process and making them into bricks in regular wooden molds. It was found in both cases that the clays showed a decided tendency to "slump" and that they were too weak to withstand the drying strains, resulting in bad cracking and checking. The same preheated clays when worked on the auger machine dried without difficulty. This shows that the amount of water used in bringing such a clay to the plastic state must not be too excessive. From this standpoint the auger-machine and dry-press process are to be preferred to the "soft-mud" method of molding.

In tempering preheated clay the point of proper stiff plastic consistency is defined more sharply than with the normal material. When the predried clay is worked in the auger machine it is important to provide the best lubrication it is possible to secure, in order that, owing to the decreased plasticity no strains are produced due to the flow of the clay through the die. The tendency to show auger lamination seems to be reduced by the preheating of the clay. Owing to the decreased drying shrinkage, the die or mold may be made smaller where common ware or other porous ware is to be produced. For vitrified products the gain due to the smaller mold size is slight, since, owing to the increased porosity of the dry clay, the burning shrinkage will be greater.

With reference to the burning of preheated clays it has been found that the combined drying and burning shrinkage, the burning being carried through vitrification, is less than in the case of the normal material. Clays differ in this respect, however. While in one instance the difference in the total volume shrinkages was but 1 per cent., in others it was very much greater. In one case the difference amounted to 12.4 per cent., expressed in terms of dry volume.¹³

For products to be vitrified the factor of the greater porosity in the dried condition may enter into consideration. Since in vitrification the pore space is more or less gradually closed up, due to the softening of the clay, it is evident that the contraction in the apparent volume of a piece of clay ware must be practically equivalent to the pore space of the dried material. The extent to which such a volume shrinkage may take place without injury to the structure, distortion, etc., is evidently limited. While, for instance, a brick made from shale, with an initial compact, dense structure may be vitrified without an excessive contraction during burning, a plastic surface clay, of loose structure on being carried to vitrification will suffer a far greater shrinkage, and hence is much more subject to defects brought about by the contraction in volume. If this clay were now to be preheated at a temperature at which its pore-water content is increased decidedly, it is clear that the difficulty referred to would be accentuated. For instance, referring to Fig. 12, it is reasonable to suppose that this clay when preheated to 300° would likely be troublesome in burning it to vitrification. On the other hand, the clay represented by Fig. 14., under the same conditions, would in all probability behave very similarly to its condition in the normal state.

From this it follows that some plastic clays, while they may be corrected as to drying behavior by preheating, might crack or check in burning, due to excessive burning shrinkage. The effect of the preliminary drying thus must be determined for each clay, and in any case the preheating must be carried on at the lowest temperature which suffices to overcome the drying defects. In some cases the admixture of normal and preheated clay might be satisfactory.

In practice the preliminary drying is undoubtedly car-

ried on most efficiently in rotary dryers, such as are now in common use in the Portland-cement industry. The cost of the treatment in well-constructed dryers of this type is estimated to vary from 10 to 15 cents per ton of bank clay under the conditions obtaining in the Middle West, including labor and depreciation. This extra cost no doubt is a burden which should not be assumed where the clay can possibly be made to dry satisfactorily by other means, such as the addition of sand, weathering, etc. But where no other material is available and clay products are in demand, owing to lack of timber and stone, or where, as has been found in the case of an Illinois joint clay,¹³ even the addition of sand does not overcome the tendency to crack in drying, the treatment offers a possible solution of the difficulty. Five instances are at present known to the writer in which preheating has been found to be the means of overcoming the poor working and drying qualities of certain clays, as has been proved by tests on a large scale.

At the same time it must be remembered that the dry clay can be disintegrated and screened more readily than the clay coming wet from the bank, thus enabling the manufacturer to remove the impurities, such as gravel, limestone, pebbles, and other mineral detritus, which are especially liable to be present in the glacial clays, more cheaply and thoroughly, besides making the operator independent of weather conditions. Also, it is thus possible to produce wares of a higher grade from low-grade material and in districts where other clays are lacking.

9. Summary.

The plasticity of clays is decreased by heating at temperatures above 100° C. This change becomes more marked with higher temperatures and is accompanied by reduction of the drying shrinkage upon reworking. According to the nature of the clay, the change proceeds abruptly after reaching a certain temperature or is more or less gradual throughout. A decided alteration seems to occur in most clays between 200° and 300° C, as is shown by the granular appearance of the clay and the decrease in the drying shrinkage. The color also becomes darker, and in ferruginous materials assumes a reddish hue.

The purer clays seem to be affected more gradually by this heat treatment.

The rate of drying of the preheated clays does not seem to differ from the rate for the undried clays.

Excessively plastic clays, which dry difficultly and result in loss due to checking and cracking, behave normally after being preheated. The best temperature for this treatment must be determined for each clay, and invariably the lowest possible temperature giving the desired result should be adopted. Some preheated clays seem to release their soluble salts more easily than the normal materials. Such clays are likely to show dryer efflorescence.

Clays thus treated should be tempered with as little water as possible and require good lubrication.

The cause of the improved drying quality of the preheated clays is to be sought in the increased porosity. It appears that coagulation of the flocculent portion and the fine, non-granular particles of the clay takes place, analogous to the set of certain gels.

The combined drying and burning shrinkage of preheated clays (burnt through vitrification) is less than that of the normal materials. In most cases the drying shrinkage is decreased at the expense of the burning shrinkage, which becomes greater than the normal contraction. In some clays the increased porosity in the dried state may cause the burning shrinkage (if carried through vitrification) to be excessive, in which case the product will show checking or cracking in burning. Such clays, unless their objectionable features in drying can be eliminated by preheating at a low temperature, are not benefited by this treatment.

Preheating offers a possible commercial method for the treatment of excessively plastic clays which can not be worked and dried successfully by other means, subject to the limitations outlined above.

¹³A. V. Bleining and F. E. Layman, *Trans. Am. Ceramic Society*, II, pp. 354-365.



In Memoriam of Professor Dr. Carl Bischof.—On August 11 last Prof. Dr. Carl Bischof died in Wiesbaden at the age of eighty-six years. Dr. Bischof was born on May 15, 1825. He studied chemistry in Bonn, and had had a great interest in the clay industry all his life time. His numerous writings, especially on the fire clay industry, has made him a name which will long be remembered among the ceramic industries of the world.

Burning of Roofing Tiles.—Burning roofing tiles in an ordinary continuous kiln with brick has been practiced for a long time, but great care should be taken to have the setting done carefully. The sketch figure 1 shows an idea of the proper setting. The lower part shows the flue setting with brick, next are the courses set as face brick,

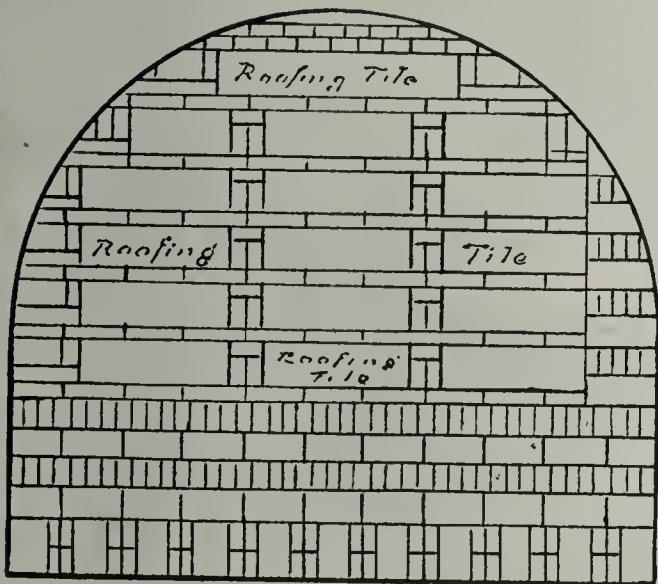


Fig. 1.

and the upper part shows the method employed to set the roofing tiles in connection with brick. This same method could also be employed for the setting of drain tiles.—Deut. Topf. Z. Z. No. 53, 1911.

Brick Car With Movable Boards.—In most brick cars on which the bricks are handled on boards, the trouble is that the reaching over is too much in order to put the brick on right on the boards. Mr. C. Hempel, under German patent 235,000, has patented a car on which the boards move each other by a level arrangement, so that the board can be filled first and then moved back and the front boards filled then. This is shown in figure 2. "A" represents the stationary front boards. "B" are the movable boards which are connected with the braces (C). The lever arrangement is operated with the handle "D." The boards move over small rollers as shown, and the operation is very easy and simple.—Tonind. Z. No. 85, 1911.

The Blue Coloring of Stoneware Bodies.—It is not very good to use the oxide of cobalt for the blue coloring of stoneware bodies. The oxide is still too coarse, and it will require a great deal of fine grinding of the clay body to distribute the cobalt fine enough through the body. The use of the cobalt salts, either the carbonate or the phosphate, is much better. The addition of these salts to the bodies does not require any grinding and the distribution is much finer

and more uniform. To make a proper solution, use either any of the above salts or otherwise a cobalt nitrate or sulphate salt. Take 100 cc of water and dissolve in the same 80 grammes of the salt by boiling. Of this solution use one gramme to every kilogram of dry clay body, and observe the color obtained. If the color is not deep enough use more solution, and if the color is too strong, use less of the solution.—Keramische Rundschau No. 31, 1911

Enlarging of a Brickyard.—At a brick yard which produces annually six million brick, it has been contemplated to double the capacity. Without the necessity of building another kiln, the present kiln could be enlarged by taking down the curved ends and extending the straight ends in proportion to the desired increased capacity, which would amount to about 225 feet in this case. In order, however, not to crowd the kiln too much, it would be advisable also to install a tunnel dryer having a capacity of from 35,000 to 40,000 brick per day. The drying of the brick in the tunnel will materially save fuel in burning the brick, and the whole operating of the yard will be less expensive accordingly.

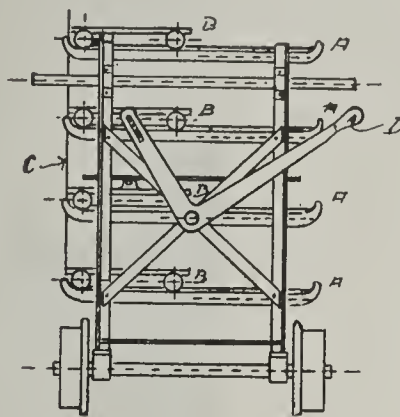


Fig. 2.

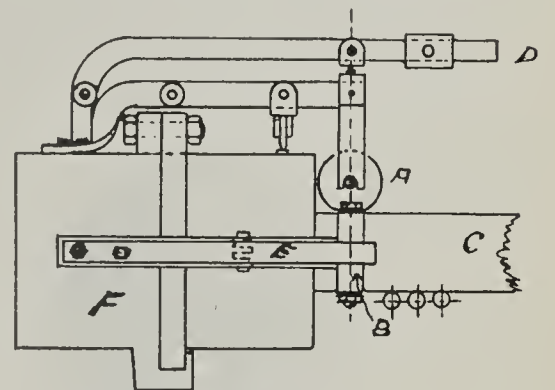


Fig. 3.

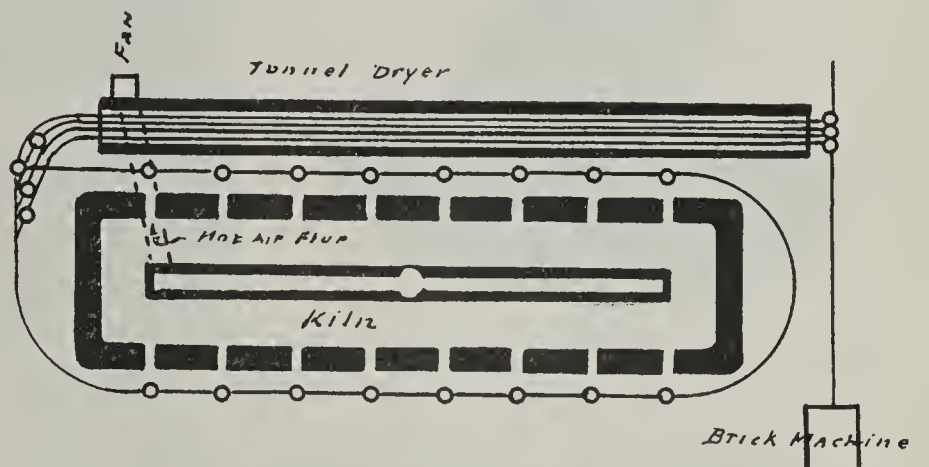


Fig. 4.

The plan, herewith shown in fig. 4, gives a good idea as to the necessary arrangements to be made for the enlarging of the plant.—Tonind. Z. No. 86, 1911.

Apparatus for Making Rough or Ornamental Brick.—In order to make rough brick or brick which are impressed with ornaments, several methods have been employed with more or less success. In order to make these brick without less expense an arrangement of rollers can be made which will make impression on the column of clay as it comes from the die. Figure 3 shows two sets of rollers of which the roller A is the top one, and B the side roller. These rollers are kept in position by a set of small springs (E) and with a small counterweight (D). The adjustments are such that they will either give a light or heavy impression on the column of clay (C). F represents the mouthpiece of the brick machine.—Tonind. Z. No. 82, 1911.

Credit is often essential to the extension of trade. Collections are always essential to the maintenance of good credit. Therefore, collections and, on the other hand, the payment of the bills, should be handled with some definiteness as to time and in a businesslike manner generally.

Written for THE CLAY-WORKER:

SIBLEY-MENGE COMPANY'S NEW BRICK PLANT.

The Pioneer Shale Brick Maker of Alabama Opens the Largest Modern Plant in the Entire South.

THE FORMAL OPENING of the new Sibley-Menge Brick and Coal Company's plant at Sibleyville, Ala., a few miles from Birmingham, which took place November 7, marked an epoch in the history of the brick industry of Alabama and the adjacent south.

The story of the company, the ruling spirit behind it, and its modern plant, the largest of its kind in the south, may be epitomized in a few words.

John W. Sibley, president of the concern which now operates the largest modern brick plant in the south, was the pioneer manufacturer of shale brick in the south—a record of unusual interest.

Fifteen years ago all brick in the south were made only from ordinary surface clays found in the lowlands, John W. Sibley himself operating the first plant at Coaldale, Ala., from clays found in the creek bottoms at that point.

When this plant was destroyed by fire it was rebuilt with

to supply the southern trade and its aim has been constantly to produce the highest grade of face brick, not counting cost, but at the same time selling its product at the lowest prices consistent with reason and safety. For more than five years the Sibley-Menge brick have been made and marketed under such standards and the magnificent plant just completed attests the success which the enterprise has attained, while as a result the price of press brick has been reduced to the purchaser several dollars per thousand, saving in the aggregate, to the property owner, many thousands of dollars.

Another significant evidence of the appreciation which the company has been shown is the large number of buildings, of every character, in every section of the south, which have been faced with Sibley-Menge brick.

Among some of the more recent contracts in which the product of this company was used are the Hillsboro hotel, Tampa, Fla.; Terrace Court apartments, Birmingham; American Trust Building, twenty stories, Birmingham; United States Postoffice, New Orleans, La.; the Burbridge hotel, Jacksonville, Fla.; the Crass hotel and the Pickwick apartments, Atlanta, and numbers of others.

In the development of the country's market the local de-



John W. Sibley,



New Brick Plant of Sibley-Menge Coal and Brick Co., Sibleyville, Ala.

equipment for the manufacture of building and paving brick from the shales which are to be found in such rich deposits just above the Black Creek coal measures.

The product of this new plant soon set the standard of excellence in both building and paving brick throughout the south, and from the first days of this pioneer plant the shale brick industry in the Birmingham district has developed until it has gained undoubted recognition as the center of the shale brick industry in the south.

Mr. Sibley was also instrumental in locating the Southern Sewer Pipe Company, another large consumer of the same stratum of shale, at North Birmingham, in which Joseph A. Menge was the chief stockholder when the company was first organized.

In 1906, the Sibleys disposed of their interest in the Coaldale plant and, in conjunction with Mr. Menge, who had just sold his interest in the Southern Sewer Pipe Company, organized the Sibley-Menge Brick and Coal Company, for the manufacture of face brick, with a daily capacity of 25,000—increased the second year to 50,000.

Until recent years the architects and builders of Dixie were compelled to go north to get high-grade face brick in various colors, as there was no factory in the south engaged in making such material.

The Sibley-Menge Brick and Coal Company was organized

mand for common brick made of shale increased to such proportions that the Sibley-Menge Company decided to erect a companion plant for that purpose and it has also just been completed—increasing the production of the common brick department by a million a month, in addition to the face brick from the other plant.

The methods in vogue with the Sibley-Menge Company, in handling the shale in its rough form until it reaches the finished stage, are sufficiently interesting to be worth description.

A visitor is first taken to the great shale pit where a gigantic steam shovel is at work cutting and ripping up the shale, which to the uninitiated looks like so much rock and wholly unsuited for brickmaking. The shale is carried to the factory over a gravity tram road and dumped into the huge dry pan, where it is crushed and ground to powder, thence it is taken by a cup elevator to the top of the factory and passed over a screen, where only the fine particles sift through, the tailings going back to the crusher to be re-ground. In this way the structure of the brick is homogeneous.

This finely ground clay then falls by gravity to the hoppers over the brick machines or presses and thence into the molds, where a pressure of forty tons to each brick is exerted and the perfect brick is delivered on the off-bearing table ready to be set in the kiln for burning.

This is what is known as the dry clay process, no water

being mixed with the clay except enough to settle the dust. By this system there is eliminated the expensive dryers and cost of handling in and out of same, as is the case with the mud brick plants.

From the brick machine the brick are conveyed on spring trucks to the continuous kiln, where they are set and the process of burning begins as each chamber is set out daily, not having to wait until the entire kiln is filled.

The heat is carried forward continuously in the kiln and practically consumes all the gases in the smoke that passes out of the stack and are wasted in the old type of kilns.

After the brick are burned and sufficiently cooled they are unloaded, chamber at a time, and then ready for re-

Two new brick presses, of the Berg type, manufactured by the Anderson Foundry and Machine Company, of Anderson, Ind.; engines from the Hardie-Tynes Manufacturing Company, Birmingham; dry pans and elevators from the Chambers Brothers Company, of Philadelphia, and electric transfer equipment from the Chase Foundry and Machine Company, of Columbus, Ohio, are other features of the new equipment.

The Sibley-Menge Company operates its own coal mines, thus insuring a constant supply of fuel both for its large power plant and the kilns, its surplus product of coal finding a ready market with nearby industrial operations.

The town of Sibleyville, named for the founder of the brick company, because it is responsible for the foundation of the town, has its own lighting system and its own water works, a wonderful artesian well of sparkling lithia water, together with a salubrious climate and mountain-girdled environs, making Sibleyville a most desirable place for the large number of employees.

The general management of operations at Sibleyville is in the hands of Mr. W. L. Sibley, whose eighteen years of practical experience in manufacturing brick insures the highest degree of efficiency in operations and the highest grade in quality of product.

Mr. John W. Sibley, president of the company, has been treasurer of the National Brick Manufacturers' Association for the past twenty years.

During Roosevelt's term Mr. Sibley was appointed a member of the National Advisory Board on the Testing of Fuels and Structural Materials.

He is president of the Builders' and Traders' Exchange of Birmingham, for the



Entrance to Coal Mine No. 2.

filling. As in every department, the equipment is arranged with a view to economy and careful handling of brick; a system of gravity carriers has been installed for loading the brick direct from the kilns to the cars.

The new kiln is a Haigh continuous kiln, erected by Harvey Haigh, of Catskill, N. Y., and H. Houlett, of Pennsylvania, under the patents owned by Mr. Haigh himself, this being the first installation made in the south.

The kiln is 500 feet long and has forty-two chambers, with a total capacity of one million brick. A unique feature of the Haigh kiln is the small fuel-feed openings in the top, of which there are 560, through which extraordinarily small portions of "slack" coal are fed for the burning.

The fire brick for the kiln were supplied by the Louisville Fire Brick Company, Solon E. Jacobs & Co., resident agents, and the local plants of the Bessemer Fire Brick Company and the Harbison-Walker Refractories Company.

A large 160-inch blower, manufactured by the American Blower Company, of Detroit, Mich., supplies the induced draft for the continuous kiln, thus obviating the necessity for a tall smokestack, noticeable only, in this case, by its absence.

In addition to this new kiln and the mechanical appliances which are parts of it, other important equipment has been installed, including a large steam shovel and a motor car equipment for handling both the raw and finished product, the latter having six-truck capacity.



Steam Shovel at Work on Immense Shale Bank.

organization of which he was largely responsible, and in addition is a member of the Chamber of Commerce of Birmingham, being identified with every movement for the betterment of civic conditions or the upbuilding of Birmingham and the Birmingham district.

Mr. J. A. Menge, who is vice-president of the company, is a native of Louisiana, but has been actively concerned in industrial operations in Birmingham for a number of years, being at the same time well-known and popular with the brick trade throughout the entire country.

In addition to the heavy output of common brick under the Sibley-Menge mark, the new plant will increase the pro-

duction of high-class face and ornamental brick, in all colors—red, white, buff, gray, manganese and “flash”—in the sales of which the company is specializing, and the celebration of the completion of the plant means not only the inauguration of operations on an increased scale, as far as output is concerned, but also of plans for the extension of the company's markets, its present plant being such as to warrant active competition in any southern state.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

THE WHEELS of the old shakily wagon groaned as they slowly wobbled along. The harness on the solitary horse was a compound of leather, string, chain and hay wire. One could have sworn that the dejected

horse, attached by these remnants to the wreck of a wagon, could not make the trip alone, let alone drag the load. Every bone seemed to rattle as he toiled slowly and wearily on and it really seemed as though were it not for the leathery skin, they would fall apart and litter up the road.

The road was dusty and the sun beat down hot and dry so that we welcomed the shadows of the pines even though they cut off what little breeze there was.

I was doubled up, tired, hot

and listless. The little shrivelled, dried up driver was tireless as a talker and had talked on and on, telling wonderful tales of freshwater lakes further on to which he hoped to lure me later. We came to a rougher country and then down over a hill, into a valley and toward a river. Along this hillside and across our road there extended a ridge of ground, an old earth work, overgrown with scrub pines and losing itself in perspective up and down the valley. This naturally excited my curiosity, and I roused the driver from his romancing and asked what it was. He said it was thrown up by the Federal troops after they had disembarked from the river and formed for the attack on the Confederates along the east side of the bay. Here was my opportunity. I had always longed to be on a battlefield—after the battle—and picture to myself the conflict and give way to my emotions. So I called a halt and climbed out of the wagon.

I suppose I might have remained in the wagon but the whole thing was dusty and my tears would have muddled it all up and annoyed the driver, so I got out where I was free and had full swing and could cry as I pleased. Looking down the line, I pictured the men in blue working feverishly to throw up the dirt into this sheltering embankment. All the hurry, all the rush, all the sweat, so that it might be ready to shelter and protect. Its protection meant life or death. If it were finished in time, life; if it were not, then no protection, and death. How they must have toiled, and they toiled well, as this lasting work testified, weather-worn and water-worn, and all overgrown by scrub pines, it was still clearly defined and testified to its purpose.

Standing thus on historic ground, I gave full vent to my feelings. Afar off through the trees I saw the glint of the sun on steel and then glimpses of grey uniforms, then ranks of men, companies, battalions. On they came with a steady sweep looming closer and larger. I glimpsed cavalry wheeling quickly into position. I noted that the men in blue were none the less active. Then there broke on the air the sharp crack of a musket and the battle was on, volley on volley and returning volley. The broken, intermittent, hoarse roar of the

artillery, answered in turn by the booming of the guns manned by the men in blue, and in it all the awful screaming of the shells, the whistle of the bullets, and the dread dull thuds that told of the targets found and the shattered body. Falling limbs from the trees and shattered limbs from the humans, groans, shrieks, yells, and blood, blood, blood everywhere. These bullets and shells were not only mangling here, but were wrecking and mangling and killing in North and South, all over the land. When they hit the loved ones here, they hit and hurt those that loved, though so far away.

So awful was it, and so wrought up was I that while the tears fell and I groaned, I just managed to hear the insignificant driver as he, apparently roused from a nap, called:

“Well, come, get in here and let's get along, there w'ant a gun fired within twenty miles of here.”

Why do I always weep at the wrong place? GATES.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



THE BUILDING season for 1911 draws to a close builders and brickmakers and dealers in this territory express their entire satisfaction with the results shown. Building totals for the year promise to eclipse last year and if the permit for the new city hall is issued before the year formally closes, 1911 will be ahead of anything in the history of the city.

The report made by the city building inspector for the first ten months of 1911 shows that the total value of building permits issued reached \$13,502,627. There were 6,900 permits issued by the office, as against 6,662 permits for a similar period a year ago, which were valued at \$1,141,649. For the month of October of this year, 814 permits were issued for buildings having a total valuation of \$1,439,462. The percentage of brick buildings is gradually rising year by year because of the tendency towards better and fireproof construction.

Several big contracts for new buildings which are to be gotten under way during the coming winter, but which will really be among the active operations early next year, were let during the past month. One of the largest of these was a \$1,500,000 office building for Daniel R. Hanna, and to be used by the Leader Publishing Company. It is to be fourteen stories in height and located at the corner of East Sixth street and Superior avenue, N. E. The general contract went to John Gill & Sons, while the steel contract, in which 4,500 tons of steel are specified, went to the American Bridge Company. The Gills will not be able to start actual building operations until after April 1, next, as there are several leases to expire on buildings now covering the site to be used for the new skyscraper. The new building is to be of red pressed brick with elaborate terra cotta trimmings, according to plans made by the architect, Charles A. Platt, of New York. The building is to have a frontage on Superior avenue of 214 feet and a depth to an alley of 150 feet, the same frontage being provided on East Sixth street. The building, when completed, will be one of the most pretentious in that section of the city.

Another good sized job which is already being proceeded with is a \$65,000 vaudeville and picture theater at the northeast corner of East 105th street and Cedar avenue. It is to have a frontage of 79 feet and a depth of 172 feet. The building is to be erected by Architect Harry A. Kone for Albert Koch. There will be several stores facing the street in addition to the entrance to the theater, which will be back of the store space.

A large and unusual contract was closed during the past month by Architect O. N. Chamberlain, of this city, for the construction of sixty moving picture theaters by a new



W. D. GATES.

moving picture syndicate. Forty are to be built right in Cleveland and twenty in small towns in this vicinity. The concern known as the Alexander Amusement Company is behind the project. The buildings are to be of tile, stucco and brick and will be built as rapidly as plans can be turned out and contracts let. It is aimed to make them fireproof throughout.

An eight-story hotel building is being planned for Walnut avenue in a section which is rapidly building up. The Pabst Brewing Company secured a long lease on the land and announced that plans were being prepared for an eight-story building to be used for the accommodation of theatrical people. The building, which is to be of brick, is to contain a modern grill room and restaurant. Another 250-room hotel is being negotiated for on Superior avenue near East Ninth street by Harvey & McClure, Hippodrome building. Arrangements have been about completed for the necessary loan. The building, complete, will be leased to the Fuller Company, now operating a hotel on upper Euclid avenue.

A fund of \$100,000 is being secured for the erection of a new fireproof hospital building for St. John's hospital, on Detroit avenue, at the present site of the hospital, from plans by W. S. Lougee, architect, in the American Trust building. The new addition will be four stories high and will be fireproof throughout. It will have a frontage of about 200 feet on Detroit avenue, as the hospital trustees own considerable real estate in that particular section of the city. Building operations are to be proceeded with just as soon as plans can be prepared.

Work has been started on a new group of buildings to cost about a quarter of a million dollars for the National Electric Lamp Company, in Highland Park in the eastern part of the city of East Cleveland. The building now being in charge of the architectural details of the work. All the buildings will be of red and brown pressed brick and will be fireproof throughout.

Cleveland contractors are securing some large out-of-town jobs this fall. At Detroit, the Hunkey-Conkey Construction Company has taken a contract to erect a large base ball grand stand from plans prepared by the Osborn Engineering Company, of Cleveland. This firm built the Cleveland base ball park, and the one in Detroit is to follow largely after it. The grandstands will be of reinforced concrete with pressed brick walls and will cost over a quarter of a million dollars.

Another new theatre is to be erected at Detroit avenue and West Sixty-fifth street by the Gordon Square Realty Company. It will have a seating capacity of 1,500, and will be the first one in Ohio to be built under the new state code, making it absolutely fireproof. The building was designed by the George A. Griebel Company, and is to cost about \$60,000. It will be of brick, tile and fireproof materials throughout.

Property has been secured on Chestnut avenue near East Twelfth street by Bascom Little and others, who are preparing to erect a six or eight-story mercantile building on the site during the coming year. It will be devoted to automobiles and their accessories. The building will have a reinforced concrete frame with brick walls, and will be ready some time next year.

Plans have been completed for a modern fireproof storage plant for the Fireproof Storage Company, at Detroit avenue and West Seventy-eighth street. They were prepared by E. F. Gibbons, engineer of the building. It will cost about \$100,000 complete. It will be of red pressed brick, and in conjunction there will be a large fireproof stable, garage, and an ornamental brick fence along the three streets adjoining the property.

The Queisser-Bliss Company has been doing a rushing business during the past month. It has sold to L. Mientz, for his new apartment on East 105th street, a quantity of

golden Turkestan rough brick for the facing. Hanover shale brick with black headers have been furnished by the Queisser-Bliss Company for two new apartments being built by C. A. Bingham, on Euclid avenue. Some very pretty oriental brick was also furnished by the same firm for a new residence being built for N. A. Dauby, on Euclid avenue near University Circle. The company reports a large number of other sales.

Actual work has been started on the new art museum in Wade Park. The building is to cost \$1,000,000 exclusive of furnishings. Considerable quantities of brick will be used throughout the building, although the walls will probably be of stone. Surveyors have staked out the ground, and excavation is now in progress. The building, when finished, will be one of the handsomest in Cleveland.

A fine oil well was struck by drillers for gas on the property of the Newburg Brick and Clay Company on the Warner road, a mile and a quarter south of the city limits, one day about two weeks ago. For several days the well spouted about fifty barrels per day. It was then capped, and has been flowing regularly ever since. The oil is being disposed of to one of the Cleveland refineries. The officers of the Newburg Brick and Clay Company are Philip Raisner, president; J. R. Zmunt, secretary and treasurer, and F. W. Green.

One of the interesting incorporations of the past month was that of the Huron Brick, Cement and Tile Company, of Huron, Ohio. It was capitalized for \$10,000 by H. A. Anderson and others, to engage in the sale of various building materials.

An interesting partnership formed during the past month was that of F. R. Walker and H. E. Weeks, for some years with J. Milton Dyer, architect. Messrs. Walker and Weeks have opened new offices in the Euclid building, 1900 Euclid avenue. They were largely instrumental in preparing plans for the new city hall, for the new Cleveland Athletic Club building, First National Bank, and a number of other fine structures in Cleveland.

A. BUCKEYE.

BRICK AND LUMBER.

It may sound a bit paradoxical, but it is a fact nevertheless, that the brick business and the lumber business are getting closer together. People are now also discussing the relation of brick and lumber in the structural world, both brick people and lumber people, and inquiring earnestly as to how the two may be combined with better results for all. It is being recognized by the lumber people that for the outer walls of the buildings brick is the future material, and lumber dealers who cater to the building trade are realizing that to hold their trade in full they should handle brick as well as lumber. Brick for the external walls, lumber for interior work and finishing. Often the lumbermen in a community operate brick plants and even where they do not there is more seeking for brick connections now than ever before, and on the other hand manufacturers, especially of face brick and other high grade products, are seeking to enlarge their outlet through the lumber trade. And out of all this is growing a closer walk between lumber and brick, notwithstanding that on its face brick may seem a competitor of lumber. Brick does compete with lumber for outside walls and this competition will prove successful in the end for two reasons. One is that brick makes a better and more lasting material and the other is that our forests are being denuded and we are reaching the point where lumber is scarce and high in price, so that to keep down the value of lumber within reach for interior work it is better, especially for the consuming trade, to use more of the clay products along with their lumber.

The thing for every brick man to gather from this is ideas that will lead him to seek for a closer walk with lumber dealers in his surrounding territory, that he may build up a trade in his product and that all may work together harmoniously to the end of educating people to build better and more permanent homes.

Written for THE CLAY-WORKER.

THE DANGER OF CONCRETE CONSTRUCTION.

IN THE October CLAY-WORKER under the above head there appeared a brief account of the calamity at Austin, Pa., and an illustration of the broken concrete dam which caused the flood that wrecked the village and brought death to a majority of its inhabitants. We now submit a view of the wreckage showing the appalling condition which resulted. As the reader may see, every building in the path of the flood was demolished and turned into kindling wood save one, that one a substantial two-story brick building which was but little damaged and stands a silent but potent witness of the stability of brick construction. The Building Brick Association, to which we are indebted for the illustration, in its bulletin recently sent to members, tersely states that "this is another victory for brick."

In the same bulletin, Secretary Fiske calls attention to

them are only laughable—as when the farmer tries to make a pig trough of concrete, and finds, in a little while, that his trough cracks asunder beneath the onset of his hungry porkers.

"Our people must use concrete increasingly, because the wood for lumber is disappearing. The forests have faded away. Every tree is valuable. Something must take the place of the good timber which once was so common. That something will be of concrete.

"A good concrete, as the phrase is defined in a very useful farmers' bulletin, issued by the United States Department of Agriculture, is 'a manufactured stone formed by mixing cement, sand, and stone or gravel together with water. In the mixture all the spaces or voids between the stones or gravel are filled with sand; and all the spaces between the grains of sand are filled with cement. That makes a concrete that lasts forever.

"Most failures in making concrete are due to the im-



Copyright, Paul Thompson.

In the Path of the Austin Flood, a Brick House the Only Structure to Withstand the Shock.

an editorial in the "New York Evening Mail" and adds that "while it is very encouraging to see that a leading newspaper like the Mail takes the position that America should no longer be built of wood, the fact that they regard concrete as practically the only successor of wood, is an indication that the brickmaker has a lot of educating to do before brick shall have taken the place in the building world to which its merits entitle it." Secretary Fiske wrote the editor of the Mail, calling attention to the erroneous deductions in the editorial, which is as follows:

The Reign of the Shack is Over.

"The American people need to know a great deal more about concrete than they know now. The fact is tragically evident in the Austin dam disaster. But not all the failures to make a proper use of concrete are tragical. Many of

proper selection of sand or gravel, and to unskillful mixing. The government teaches the farmer in this bulletin to make the right mixture.

"The time will come when the American farmer's house, and even his pig pen—perhaps we should say especially his pig pen—will be made of stone, or brick or concrete. Every frame structure in the country is destined to early destruction. All wooden construction fades away, sooner or later, like last year's birds' nests.

"America is a land of shacks, up to date. But the day is at hand when we must have houses and barns as real as those of Europe."

The editor of the Mail might have truthfully said that those "real" houses and barns of Europe are universally built of brick and that American builders will profit by building of that most enduring material.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO



HILE AT THE present time there is some quietude in the building brick business of Northwestern Ohio, the season as a whole has been a very remunerative one and brick concerns generally express themselves as being satisfied with the business done. There is a large amount of work now going on in Toledo and present indications point to more or less business all winter if climatic conditions will permit. Already a number of large contracts have been signed up for important work to be started early in the spring and the general impression prevails that building business will be booming as soon as the spring season opens up. The first ten months of the year show an increase of new work amounting to \$635,613 over last year. Up to November 1, 1,609 permits were issued for new structures in Toledo estimated to cost \$3,382,864 as compared with 1,304 permits issued during the first ten months of 1910 for new buildings at an estimated cost of \$2,747,251. October shows a material gain with new buildings valued at \$250,868 as against \$223,629 in October of last year. This year's building business has differed from last year in one respect, that there has been a larger amount of commercial and industrial building, thus furnishing a market for a bigger per cent of building brick. That there has been a season of general prosperity in the building business throughout this section is shown by the figures from several of the smaller municipalities. For instance, these figures show that Tiffin has erected 107 new structures of the value of \$155,840, and Fostoria 42 new structures valued at \$96,720. These figures are not exceptions and show the general activity in the building trade of the smaller communities. Large numbers of brick have been shipped out of Toledo to meet the requirements for the rural districts, but this demand is now falling off to some extent. Prices are holding up fairly well on building brick, the bulk of the business being done on the basis of \$6.00 and \$7.00 per thousand for foundation brick and corresponding prices for other grades. The local yards are still in operation and there is no large supply of brick on hand. Some of the Toledo concerns will manufacture practically all winter.

There has also been a splendid demand for hollow building tile, large quantities of which have been used in Toledo work this summer. These tile are now selling at about \$5.50 per ton. The demand for tile has held up well and sewer pipe has been selling in good volume. Manufacturing concerns in this vicinity are running at capacity and find a ready market at good prices for their entire output. All records for road building in this section have been broken this year and this has naturally furnished a strong demand for drain tile. Paving block has not fared so well, especially in Toledo, during the past season. There has been some feeling manifested against this material by city officials, with the result that very little has been used on Toledo streets, and in some instances practically unanimous petitions of property owners have been turned down and other materials used. In the smaller communities it has fared much better and there has been an active demand for brick paving block at good prices. Present quotations are about \$0.82 per yard.

The Enamel Brick Company, of Toledo, is making satisfactory progress with the preliminary work looking to the erection of a modern up-to-date plant on its recently purchased site in Toledo. Plans for the work have been about completed and ground will soon be broken. It is expected that the new industry will be ready for operation soon after the first of the year.

Toledo will have another immense business and office

block when the plans of the Second National Bank are concluded. A twenty-story building will be erected on the corner of Summit and Madison avenue, to cost in the neighborhood of \$1,000,000. The structure will furnish a market for an unusually large number of building brick. J. B. Burnham & Co., Chicago architects, are now preparing the plans.

The city of Urbana has decided to install a sewerage system. The initial step was recently taken when the city purchased six acres of land for a disposal plant, paying the sum of \$4,000.

The Steubenville Stone Company was recently awarded the contract for paving with vitrified brick on Carnegie street from Ridge to Penn avenue. The contract price was \$3,576.

Lawrence J. Hand will construct storm sewers in Euclid and LeRoy streets, Dayton, Ohio, and Shafer & Dill will construct sewers on Ohio, Light, Grant and Chapel streets. The contract price on the former is \$2,921 and on the latter \$914.

W. J. Cannon, treasurer of the Globe Pottery Company, at Crooksville, Ohio, recently committed suicide at his home by shooting himself with a shotgun. Despondency over a temporary illness is alleged as the cause for his rash act. He was fifty years old.

The usual quarterly meeting of drain tile manufacturers from Michigan, Ohio and Indiana was held in Toledo at the Boody House last week. The meeting was an unusually interesting one and numerous subjects of mutual interest and benefit to the trade were discussed. The organization makes it a rule not to attempt to touch the question of prices but to confine itself to other matters of equal importance. About 60 manufacturers attended the meeting. J. D. Rumsey, of Stryker, Ohio, is secretary of the organization.

Much interest is being manifested by shippers of Toledo and other cities along the route in the proposed deep-waterway project between Toledo and Chicago, utilizing the Maumee river for the purpose as far as Ft. Wayne, Ind. The Congressional Deep-Waterways Commission appointed by the recent session is now on the ground investigating the advisability of the plan. The committee has met with an enthusiastic reception at all the towns thus far visited, and it is evident that the project meets with the approval of business interests along the route. At Toledo the committee was taken in hand by the Toledo Commerce Club and a banquet was served at the Hotel Secor. While no promises were made by members of the committee, it was generally understood that it was favorable to the enormous project.

T. O. D.

COMPULSORY FIRE PREVENTION.

There is reported from Columbus, Ohio, an interesting happening, of a number of buildings ordered destroyed the last few weeks by the State fire marshal, under a law enacted by the Ohio Legislature last winter empowering him to order razed or repaired buildings in all municipalities in the State which, by their dilapidated condition, constitute a fire menace to neighboring properties. It is said that under this law in the last few weeks 6,500 buildings have been ordered demolished and others have been ordered repaired and that the cost of the demolition is perhaps two million dollars.

This may seem like getting drastic, this adopting of compulsory fire prevention, but in the end the State and the whole nation will be benefited by some such measures in every State if the country continues negligent of this great need for fire prevention and better construction.

Of course, the best thing of all is to get the country aroused so that clean-up work of this kind will be done voluntarily and people will, on their own initiative, build so well that there is no occasion for any compulsory act of this kind. The fact that one State has enacted a compulsory act of this kind is pretty good evidence of the growing conviction that we must look better after the matter of fire prevention.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.



W HILE NOT in a booming condition, the general situation of the Puget Sound country is, nevertheless, satisfactory. The general tone all around is more firm than it was some eighteen months ago. Seattle is pushing ahead of the other cities along the shores of Puget Sound. The reorganization of the Chamber of Commerce shows that the business and professional men are working hand in hand to solve the problems confronting Seattle, and to work out the best solutions possible to the welfare of everybody concerned. The formation of the Port of Seattle Commission, and the appointment of R. H. Thomson, the present city engineer of Seattle, as chief engineer of that commission will materially help to solve the perplexing question as to the use of Seattle's water front. The transformation of this water front, which already gives Seattle the appearance of a large metropolis, in large wharfs and piers, modeled after the latest designs of the largest sea ports of the world, will have an everlasting beneficial effect on the growth of Seattle.

The building activities are about the same as for the last few months; there has not been very much doing along some lines, and the brick business in particular has not been very brisk all summer and fall. One of the hopes of Seattle, the forty-two-story L. C. Smith building, is getting nearer realization than before. Mr. J. P. Marschale, of the Whitney-Steen Constructing Company, of New York, has opened office in Seattle. His firm was awarded the contract for the building, and operations will now begin very shortly. The Harper-Hill Brick Company had their brick specified for this building, and the contract calls for several million brick. The Lake Union Brick Company has again increased the output of its plant, and since the regrading in the neighborhood is now finished, the plant presents a good appearance.

The Washington Clayworkers' Association has been rather unfortunate with their officers this year. First, their president, Mr. E. D. Gates, resigned and left for New York; then the newly appointed president, Mr. Mackintosh, resigned, and the secretary, Mr. James Gibson, now has resigned his position. A farewell banquet was tendered him at the Butler hotel. Mr. Gibson also resigned his position with the Harper-Hill Brick Company, and will try his hand in raising fruit.

The Coast Clay Company, of Bellingham, is now shipping brick from its first kiln. The brick are excellent shale brick of a dark red color and hard in texture. The first kiln turned out excellent and the manager, Mr. W. A. Doyle, is delighted with his new enterprise. Mr. S. Geijsbeek, of the Geijsbeek Engineering Company, of Portland, is their consulting clay-works engineer, and personally supervised the start of the new plant, the making and burning of the brick.

The Sechelt Brick and Tile Company, of Vancouver, B. C., whose plant is located at Storm Bay, Sechelt, Inlet, will be sold by the Vancouver Financial Corporation. The property consists of 160 acres of land, wharf, building, stiff and soft mud machinery, and everything in good condition. The plant has been in operation only a short time.

The Chamber of Commerce, of Falls City, Oregon, is looking for parties interested in the brickmaking business, with a view of establishing a plant in that section. Plenty of good clays have been found in that neighborhood.

Mr. Ed Abernethy, of Dora, Oregon, has just finished a large kiln of brick, and is supplying the local demand, and will build himself a large hotel building this fall in Marchfield in which a large quantity of his brick will be used.

The Columbia Brick Works, of Portland, are going to furnish two and a half million brick for the new car manu-

facturing plant of the Portland Railway, Light and Power Company, and are also furnishing 600,000 brick to the Cook building in Portland.

The Pacific Face Brick Company, of Portland, whose plant is located at Willamina, has secured the contract for the face brick of the Lincoln high school, and for the Smith hotel building.

SIWASH.

CO-OPERATIVE ADVERTISING.

The Western Tile Drainage Bureau is an association of clay manufacturers for co-operation in the advertising and increased use of drain tile. The following indicates that their publicity campaign will be a vigorous one:

The Plan.

Advertising—with a capital "A"—is the keynote of our campaign. We are going to advertise extensively, yet our plan is such that the cost of inquiries will be kept so low any dealer can afford to join this bureau and take advantage of the new business that will be created for him.

Through advertisements in the leading farm papers we're going to reach those farmers who do not understand the ad-

Let Us Help One Another Sell Tile



Do You Want Your Share?

vantages of tiling, or who think that tiling is needed only in wet seasons. Through these ads and through the book which we send every prospect who inquires, we educate the farmer to the point where he is ready to buy tile. Then you step in and make the sale.

This advertising in the farm papers is absolutely impartial. No manufacturer is mentioned in the book sent to inquirers. Every manufacturer gets an equal chance to sell the prospects developed by this advertising. All share the advertising expense, making the cost to each small, and all get an equal benefit.

Dealer members only get the names of those who answer the advertisements asking for the free book. Each dealer member receives the names of those who answer the advertisements from their territories. A reasonable number of books will be mailed to lists of land owners furnished by dealers and additional copies will be furnished them for distribution from their offices, at cost.

This is the first time a definite effort has been made to

educate the farmer in the use of tile. That it will be profitable goes without saying when you consider the vast amount of land that is yet untiled.

Wherever it is practical these ads are signed with the name of the paper in which they appear and the farmer is asked to write to the paper for the book. The farmer has much confidence in his farm paper and this will enable us to get the honest facts about tiling profit before him in a manner that can not fail to convince him. It will be as though the editor of his favorite paper wrote him a special letter on tiling.

Free Editorial Notice in Farm Papers.

The editorial space of standard farm papers, the space wherein the papers voice their official opinions, the space you couldn't buy for any money, is at our disposal. You get the advantage of this choice publicity if you join the Western Tile Drainage Bureau and help in this broad campaign of education.

Every farm paper that has any standing whatever believes in the tiling of farms. We have prepared articles on this subject which will be carried in the regular reading columns of the papers in which we advertise, thus forming another strong link in the campaign of education which we are conducting for the benefit of all manufacturers who affiliate with this bureau.

Synopsis of the Book.

Land Values; The Influence of Thorough Drainage on Same.

A Complete Statement of Thorough Tile Drainage and What it Accomplishes.

Make-up of Soils; How Useful Moisture is Stored and Harmful Water and Acids Removed.

Comparison of Surface and Deep Tile Drainage.

Surveys; Location of Drains. Depth and Distance Apart.

General Instructions for Laying Tile.

Tables For Use in Determining Sizes of Tile to Use.

Cost: Tables of Tile Costs; Hauling, Ditching and Surveying Costs.

Indestructible Qualities of Clay Tile.

Synopsis of What is Accomplished by Tile Drainage; Makes Crops Increase From 20 to 50 Per Cent and Makes Land Worth More.

Letters From Users of Tile Stating Profit.

Hauling Tile for Storing on Farm in Advance of Need.

System; Placing Initial Installations so as to Become Part of Complete Thorough Drainage System, Either Farm or District System.

Results From Tiling; Begin Working Land Earlier in the Season; Winter Grain and Clover Protected from Heaving Soil; Protection from Summer Drought; Adjust Rotation of Crops More Evenly; Make Crops Increase from 20 to 50 per cent and Makes Land Worth More.

The Clay Block Silo.

Burned Clay Farm Buildings; Their Real Economy and Advantages.

Illustrations: Numerous illustrations will be used, setting forth telling Object Lessons, in Comparison of Returns from Undrained, Partially Drained and Thoroughly Drained Farm Land.

Hard Roads; Brick Surfacing is the Best and Most Economical, What Hard Roads Mean in Saving Transportation Cost of Crops to Market, Iowa Drainage Laws, Form of Tile Contract.

The freight item is always a big item in the brick business, and for that reason every man should make it a point to very carefully cultivate his near-by territory before seeking industriously markets at such a distance that he must add a heavy burden of freight to his product.

Written for THE CLAY-WORKER.

AMONG ALABAMA CLAYWORKERS.



HOUGH the recent institution of suits against the "Steel Trust" has already resulted in the abandonment of activity in the plants allied with the United States Steel Company in this district, particularly in the case of the new \$4,000,000 plant which the American Steel and Wire Company has been erecting at Corey, the general condition of the Birmingham district has not been impaired in any perceptible way, and outlying points, such as Gadsden, where independent plants are located, evinces increased operations.

The brick trade has not been affected, either, it may be accurately stated. In the last sixty days contracts for the American Trust building, twenty stories; the Empire hotel, six stories; the Penney hotel at Huntsville, six stories; the new postoffice at Ensley, a \$50,000 job, and numberless smaller constructions, both commercial and residential, have been placed—all to be constructed of brick.

In a comparative sense the same conditions prevail in other communities, including Savannah, Ga., Tampa, Fla., Montgomery, Ala., and both Meridian and Jackson, Miss., demonstrating the belief that a fair volume of business will exist through the balance of the year.

The Norwood-Boyles Lumber Company, which was recently organized here by H. A. Speaker, E. D. Speaker and others, with \$10,000 capital, will handle brick and other masons' supplies on a large scale. The Norwood-Boyles Company has leased the Fulenwider yards at East Birmingham and is making an active bid for a share of the district's business. Mr. H. A. Speaker, president of the company, was with the W. D. Wood Lumber Company, of this city, for about ten years and is widely known to the trade.

It has been announced that Harry Cooper, of the firm of Cooper & Ferguson, dealers in brick and masons' supplies, Nashville, Tenn., would open a branch supply house in Birmingham about the first of the year. The firm of Cooper & Ferguson is an old and well-established member of the trade at Nashville, and its vigorous methods will lend increased interest to legitimate competition locally.

Certain trade journals have recently stated that the Art Tile Company, of Mobile, Ala., had been formed to succeed the National Mosaic Flooring Tile Company, of that city. Such is not the case, as the Art Tile Company mentioned, with J. T. Ballard, president; W. G. Smith, vice-president, and M. Macies, secretary, has no connection whatsoever with the National Mosaic Flooring Tile Company, of which Maj. W. F. Tebbetts, of Mobile, is president and general manager. The Art Tile Company is a \$4,000 enterprise, while the National company is capitalized at \$150,000. The Art Tile Company will, however, make a specialty of the product of the National company, known as "Adamantile." The National Mosaic Flooring Tile Company has a branch office in this city under the management of Mr. M. J. Brennan and another branch office and warehouse will shortly be opened in Chicago.

The Southern Mosaic Tile Company, of Birmingham, of which W. A. Biles is manager, secured the contract for the handsome new Hillman hotel cafe in this city a few days ago. This will be one of the handsomest tile "jobs" ever laid in Birmingham, when completed.

The Greenville Brick Company, W. C. Terrell, manager, of Greenville, Ala., has completed the installation of new equipment for manufacturing brick on an increased scale. Reports from Greenville are very optimistic, past and present building operations being more numerous than expected, necessitating the enlargement of the brick plant.

J. R. Pittman, of Atlanta, Ga., has purchased 300 acres of land near Piedmont, Ala., on which a large, modern brick plant will shortly be constructed. The land is bedded with some very fine deposits of shale, for brick purposes, and it

is intended to have the plant in operation as soon as possible.

The new plant of the Bibb Sewer Pipe Company, which was organized a few months ago at Macon, Ga., by the same interests as own the Bibb Brick Company, is nearing completion, and when ready for operation will be one of the largest and most modern enterprises of the kind located in the south. The raw product for the Bibb Sewer Pipe Company will be dug from the same pits which the Bibb Brick Company opened earlier in the year a few miles from Macon.

Salt glazed vitrified sewer pipe, fire clay flue linings and stove pipe and wall cappings will be manufactured by the new company, which expects its plant to be ready for operation by November 15.

The Bibb Brick Company and the Bibb Sewer Pipe Company, in a joint sales agency agreement, have opened a general agency in Atlanta for the sale of their product. The offices are at 1610-11 Candler building, and Mr. John Kelley, an experienced clay-crafter, will be in charge.

In addition to the numerous other activities planned by the Horine Development Company, which was recently organized in Atlanta, under the laws of the State of Georgia, it is announced it will engage in the manufacture of both common and face brick on a large scale. The Horine Development Company, regarded by Atlanta as one of the most interesting enterprises recently organized in that city, purchased, a few weeks ago, a tract of 3,643 acres of land adjacent to Lafayette, Ga., on which had been found large deposits of both lime rock, cement rock and a very fine grade of clay. E. M. Horine is president of the company and Henry L. DeGive, who is very wealthy, and other prominent Atlantans, are interested with him. The company is capitalized at \$200,000. Mr. Horine has authorized the statement that large kilns, a large Portland cement plant and a large brick plant would be installed and in operation as soon as practicable.

F. H. Reid, manager of the Memphis Brick Supply Company, sales agents for L. L. Stephenson's oriental and the Brick Selling Company's smooth impervious wire-cut brick, in Memphis, Tenn., spent a week in Birmingham early in the month as the guest of Mr. Stephenson and Mr. C. D. Patterson, manager of the Brick Selling Company.

A new brick plant is being planned for Reedville, Ala., formerly Reed's Mill, near the line between Etowah and Calhoun counties. It is understood that the board of trade of Calhoun, Ala., is behind the undertaking.

The Rossland Development Company, of Birmingham, announces the plans for the organization of the Atlanta Clay Products Company, which is to develop some very fine kaolin beds near Fayette, Marion county, Ala., is nearing completion and plans are being prepared for the plant which is to be erected. R. R. Zell is president of the Rossland Company, and also of the Atlanta Clay Products Company.

The Princess Brick and Building Company, of Geiger, Ala., is the name of a new concern in the "Black Belt" region of this state which will erect a plant and engage both in the manufacture and sale of brick, to be known as "Princess" brick, and also in a general building supply business. The officers of the company are Ray Crow, president; Geo. Waller, secretary-treasurer, and W. L. Waller, vice-president. The new company is capitalized at \$10,000.

It is known that three Alabama brick companies will be represented at the National Clay Products Exposition to be held in Chicago in March, next, the Sibley-Menge Brick and Coal Company, the Brick Selling Company, of Birmingham, and the Jenkins Brick Company, of Montgomery, having decided to participate. It is also understood that Shepherd Brothers, the well-known brickmakers of Columbus, Ga., will make a display.

In describing notable industrial exhibits at the Georgia state fair, which was recently held in Macon, Ga., the Macon News paid the following compliment to the Standard Brick Company: "One exhibit attracting much attention on the grounds is that of the Standard Brick Company of this city. The principal effect is a special design made up of pressed brick and it is finished by an elaborate display of crocks,

and vases made from earthen ware which are exceedingly interesting. It is not often that such a display of fine art is made in earthen ware and the big bowls and crocks have caused more than ordinary attention. They are the first of the kind ever put on public exhibit in this section, if not in this country, as they were made by a moulder brought here from Europe."

The Standard Brick Company recently sold one order to Tampa, Fla., for 300,000 bricks for immediate delivery to complete a large manufacturing plant in that city. Face brick made by the same company is being used in the construction of shop buildings which are being erected for the Georgia School of Technology, in Atlanta.

The Ragland Brick Company, of Ragland, St. Clair county, Ala., has placed an order for a new continuous kiln, the cost of which is estimated at \$60,000. The kiln is not to be constructed until next spring. This kiln, when completed and in operation, will triple the present capacity of the Ragland Brick Company.

At the regular meeting of the Copeland-Inglis Shale Brick Company, which was held in this city on October 29, a flattering report of the company's operations for the past year was presented by W. L. Inglis, secretary of the company. Plans for the increase in the plant's equipment and for the extension of its operations were outlined for the coming year, the improvements contemplated to cost \$100,000 in round figures.

J. R. Copeland, who is president of the Copeland-Inglis Shale Brick Company, is also president of the Southern Asphalt and Construction Company, which was organized in Birmingham a few weeks ago with \$100,000 capital. John E. Donelson, formerly of Nashville, Tenn., is manager of the latter company, and Eugene Fies, a banker of this city, is actively concerned in its affairs.

Capt. W. H. Graves, president of the Graves Shale Brick Company, and the Graves-Matthews Paving Brick Company, a veteran of many years' experience in the brick trade of the Birmingham District, has practically retired from the active management of the two companies with a view to taking an European trip during the coming year.

Mr. Frederick Gunster, of New York City, who is Capt. Graves' son-in-law, has been induced to accept the management of the two companies and came to Birmingham early in October to assume his new duties. The position which Mr. Gunster now holds was originally made vacant by the resignation of Mr. H. S. Matthews, who was associated with Capt. Graves for a number of years.

The fire brick for the new Haigh continuous kiln just completed by the Sibley-Menge Brick and Coal Company were furnished by the Louisville Fire Brick Company, Solon E. Jacobs & Co., agents; the Harbison-Walker Refractories Company, from its Corey plant, and the Bessemer Fire Brick Company, of Bessemer, Ala. The kiln was constructed by Harvey Haigh and H. Houlett, the latter coming here from Pennsylvania to assist Mr. Haigh. This is the only continuous kiln in the south at this time. A. L. A.

BOSS SYSTEM INSTALLED AT PAYETTE, IDAHO.

The John C. Boss Company, of Elkhart, Ind., report a very favorable condition of business at the present time. They recently completed the installation of the Boss steam brick burning equipment on the brickyard of William F. Sherwood, at Payette, Idaho. The equipment consisted of three 18-arch up draft kilns. The popularity of the Boss system grows apace as the merits of the same are known by the brick manufacturers. A number of brick plants in the land northwest have recently been equipped with this system where they are burning the brick with lignite exclusively. The Boss system is particularly adapted where these classes of fuel are used. A new department of the Boss system is the Boss ten-hour dryer. It has been recently completed. By this system they are supposed to dry the brick at a cost of not to exceed three cents per thousand and have now under way the installation of this dryer in a number of plants.

SCOTT-MADDEN IRON WORKS ADDS NEW LINE.

THE WELL-KNOWN firm of the Scott-Madden Iron Works, of Keokuk, Iowa, has added a new line to their already large list of machinery. They not only manufacture a complete line of all kinds of brick and drain tile machinery, but give a great deal of their attention to the making of steam shovels and dredges. One of their latest machines is the traction shovel which is equipped with only one engine burning fuel oil, thus making it a one man machine. The machine is not an experiment but has been in successful operation for several years. The present machine, which we show in the illustration of this article, dispenses with the craneman and crane engineer, allowing one man to have full charge of the dipper, thus securing prompt action in making the dip and preventing friction and delay which naturally follow from lack of simultaneous action where the dipper is under control of two men instead of one.

It is purely a traction machine and can be moved about like any traction engine. No tracks or jacks are necessary while operating this machine, as is the case with other

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

THE KANSAS CITY Hydraulic Pressed Brick Company reports all of its yards shut down at the present time, and they will probably remain closed until March 1, when they will start up in better shape than they have ever been, as all plants will be thoroughly overhauled between now and that time and everything brought up to date. The mine at the Diamond plant has been sunk 150 feet below the level just worked out, and they have struck a fine body of shale, and the tests made from it indicate that it will make the best brick ever turned out at this plant. Another shaft is to be dug this winter and when the plant opens for business in March it will begin on the shale from this lower level.

The new union depot will make use of between seven and eight million brick, and it is understood that the contract has already been let, but no information could be obtained about it yet. This is a big contract for someone to take on to last a couple of years when the price levels are as low



Large Traction Shovel Made by Scott-Madden Iron Works.

shovels, consequently no men are required to handle the track or jacks when the machine is moved forward. The operator can move the machine at will at the same time the dip is being made. The shovel can go anywhere that a one and one-half yard wagon loaded with dirt can be pulled by two horses, without laying track or corduroying. This facility of movement, combined with the fact that it requires only one man to operate, and that fuel will not cost over one cent per horsepower per hour, makes it an ideal machine for brick plants, street and road work and will save its cost in a short time in labor and fuel.

Both their shovels and dredges are made in size from five-eighths to one and one-half cubic yards in capacity. Their latest catalogue, which is attractively illustrated, can be secured upon request of the Scott-Madden Iron Works Company, of Keokuk, Iowa.

You can speak the solid truth by telling the people of your community that brick homes add real as well as advertising value to a community.

as at the present time and a good many of the Kansas City firms absolutely refused to make any bid. It is possible that this timidity on the part of most brickmakers may have enabled the one making bids to get a fair price, but it was generally believed in the trade that the construction company would skirmish around and get the brick at cost of production or below. The foundation work on this big building is progressing with a fair degree of rapidity, and there is every reason to expect a large amount of other building to start in that section of the city next year. It is hardly believed that the depot will be ready for use before a couple of years, and building operations in this neighborhood are not likely to become really lively until about the right time ahead of the depot opening, so the new buildings will be ready to occupy by that time.

The Lyle Brick Company is running both of its yards on regular time and will probably continue to do so for a good while yet if the weather remains good, for the product is being sold as fast as made and at satisfactory prices, everything considered.

K. A. W.

CLAY PRODUCTS OF THE UNITED STATES, 1910.

With corresponding totals for 1909, compiled by United States Geological Survey.

STATE.	COMMON BRICK.				VITRIFIED BRICK OR BLOCK.				FRONT BRICK.				FANCY OR ORNAMENTAL BRICK. (Value.)	DRAUGHT. (Value.)	SEWER PIPE. (Value.)	ARCHITECTURAL TERRAZZO. (Value.)	FIRE-PROOFING. (Value.)	TILE, NOT DRAIN PIPES. (Value.)	STOVE PIPES. (Value.)	FIRE BRICK.			MISCELLANEOUS. (Value.)	TOTAL BRICK AND TILE. (Value.)	PORTLAND CEMENT. (Value.)	TOTAL CEMENT OF TOTAL.	STATE.	
	Quantity. (Thousands.)	Value.	Average Price per thousand.	Quantity. (Thousands.)	Value.	Average Price per thousand.	Quantity. (Thousands.)	Value.	Average Price per thousand.	Quantity. (Thousands.)	Value.	Average Price per thousand.																
Alabama.....	136,785	\$746,961	\$5.50	19,772	\$236,616	\$11.96	(b)	(b)	\$15.96	(b)	\$3,773	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	10,683	\$183,672	\$16.76	\$29,269	\$1,646,818	\$22,246	.96	Alabama.	
Arizona.....	12,740	115,977	6.10	(b)	(b)	(b)	(b)	(b)	20.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.06	Arizona.	
Arkansas.....	67,885	466,707	6.91	(b)	(b)	(b)	(b)	(b)	11.02	(b)	4,236	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.84	Arkansas.	
California.....	280,285	1,694,312	6.05	8,636	140,130	16.41	11,475	\$285,468	24.86	\$46,572	55,366	\$1,031,061	\$678,249	\$151,603	\$97,685	(b)	15,416	\$71,017	\$4.67	90,764	4,744,968	87,423	9.85	California.				
Colorado.....	128,711	652,986	6.83	(b)	(b)	(b)	(b)	(b)	12.16	(b)	18,066	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	9,980	\$908,650	\$23.16	95,632	2,032,714	50,887	1.50	Colorado.
Conn. and Rhode Island.....	240,234	1,454,471	6.05	(b)	(b)	(b)	(b)	(b)	15.76	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.92	Conn. and Rhode Island.	
Delaware.....	91,940	174,139	7.94	(b)	(b)	(b)	(b)	(b)	16.49	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.12	Delaware.	
District of Columbia.....	28,484	302,136	7.09	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.14	District of Columbia.	
Florida.....	42,196	334,524	6.66	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.14	Florida.	
Georgia.....	305,025	1,820,174	6.31	(b)	(b)	(b)	(b)	(b)	9.46	(b)	6,920	373,387	(b)	19,634	81,800	(b)	8,489	\$7,623	19.42	10,490	9,210,740	21,298	1.48	Georgia.				
Idaho and Nevada.....	32,271	322,869	8.22	(b)	(b)	(b)	(b)	(b)	20.82	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.20	Idaho and Nevada.	
Illinois.....	1,186,526	8,696,636	6.76	115,908	1,415,365	12.21	22,138	\$74,696	12.41	10,676	1,613,696	838,663	1,680,438	552,905	(b)	90,179	\$98,730	18.27	44,730	14,531,414	444,747	8.99	Illinois.					
Indiana.....	234,297	1,402,154	5.96	61,034	682,868	11.19	46,691	\$75,627	10.26	(b)	2,071,684	406,643	(b)	468,377	622,726	(b)	10,189	\$166,917	16.82	540,181	7,148,306	986,704	4.76	Indiana.				
Iowa.....	149,914	1,088,966	7.26	19,867	239,283	12.03	6,142	\$103,276	12.08	(b)	3,337,851	313,430	(b)	200,968	(b)	(b)	(b)	(b)	(b)	18.00	97,188	5,810,706	17,535	6.18	Iowa.			
Kansas.....	218,356	922,640	4.22	118,650	1,082,976	9.18	25,814	\$23,676	8.67	(b)	60,726	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	81.046	9,661,667	(b)	1.67	Kansas.				
Kentucky.....	115,890	743,739	6.42	(b)	(b)	(b)	(b)	(b)	9.72	(b)	66,217	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	9,000	9,418,116	149,431	1.51	Kentucky.				
Louisiana.....	80,555	602,330	6.24	(b)	(b)	(b)	(b)	(b)	10.85	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	97,479	546,873	(b)	.89	Louisiana.				
Maine.....	54,541	367,903	6.73	(b)	(b)	(b)	(b)	(b)	10.76	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	.85	Maine.	
Maryland.....	164,796	1,061,361	6.38	(b)	(b)	(b)	(b)	(b)	16.20	(b)	5,669	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,614,348	838,825	(b)	1.09	Maryland.				
Massachusetts.....	166,815	1,120,824	6.76	(b)	(b)	(b)	(b)	(b)	16.44	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,443,018	238,396	(b)	1.00	Massachusetts.				
Michigan.....	232,551	1,363,316	5.86	9,080	116,446	16.82	(b)	(b)	12.46	(b)	348,905	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,707,412	(b)	1.29	Michigan.				
Minnesota.....	169,698	1,104,668	6.04	(b)	(b)	(b)	(b)	(b)	12.16	(b)	160,706	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	2,084,528	112,697	1.12	Minnesota.				
Mississippi.....	91,068	527,951	5.80	(b)	(b)	(b)	(b)	(b)	11.16	(b)	68,065	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,901,996	(b)	.87	Mississippi.				
Missouri.....	201,281	1,264,697	6.38	66,708	647,441	11.42	38,428	\$16,606	16.44	23,673	121,068	1,210,348	(b)	146,981	(b)	(b)	(b)	(b)	(b)	914,447	7,088,708	29,061	4.17	Missouri.				
Montana.....	88,124	264,282	9.73	(b)	(b)	(b)	(b)	(b)	17.87	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	411,824	(b)	.54	Montana.				
Nebraska.....	119,017	781,651	6.65	(b)	(b)	(b)	(b)	(b)	16.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	938,527	(b)	.55	Nebraska.				
New Hampshire.....	77,587	666,121	7.30	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	566,191	(b)	.85	New Hampshire.				
New Jersey.....	401,108	2,216,626	5.52	(b)	(b)	(b)	(b)	(b)	12.65	(b)	23,147	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	994,135	17,834,309	5,888,455	10.48	New Jersey.				
New Mexico.....	63,703	63,703	8.03	(b)	(b)	(b)	(b)	(b)	19.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	199,275	(b)	.08	New Mexico.				
New York.....	1,380,084	6,897,438	5.00	21,662	334,432	15.44	9,229	\$137,746	14.63	(b)	272,836	136,574	1,108,371	910,944	76,815	86,948	14,190	\$14,990	26.99	6,160	9,778,598	9,083,661	6.98	New York.				
North Carolina.....	187,966	1,036,319	6.19	(b)	(b)	(b)	(b)	(b)	10.55	(b)	9,555	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,908,674	14,960	.78	North Carolina.				
North Dakota.....	17,941	140,862	7.85	(b)	(b)	(b)	(b)	(b)	16.76	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	327,465	(b)	.13	North Dakota.				
Ohio.....	405,773	2,607,742	6.12	268,817	2,876,187	9.99	134,759	\$149,054	11.05	35,966	1,682,101	9,000,086	(b)	934,960	1,896,876	(b)	116,764	\$1,709,039	14.93	867,009	17,931,236	14,944,712	18.53	Ohio.				
Oklahoma.....	131,146	783,236	5.92	11,256	114,916	9.96	2,662	\$35,286	13.16	(b)	1,669,623	3,289,837	(b)	(b)	(b)	(b)	(b)	(b)	(b)	8,089	920,991	(b)	.54	Oklahoma.				
Oregon.....	62,888	482,333	6.23	(b)	(b)	(b)	(b)	(b)	24.56	(b)	51,516	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	878,839	(b)	.56	Oregon.				
Pennsylvania.....	628,703	6,371,707	8.48	101,430	1,204,724	11.86	171,415	\$9,001,967	11.68	35,788	11,460	583,418	472,150	300,167	413,047	182,667	846,423	\$6,444,928	18.43	563,663	10,814,355	9,978,930	13.96	Pennsylvania.				
Porto Rico.....	2,515	25,109	8.81	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	97,778	(b)	.06	Porto Rico.				
South Carolina.....	115,128	687,801	8.71	(b)	(b)	(b)	(b)	(b)	14.20	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	696,800	7,990	.41	South Carolina.				
South Dakota.....	6,080	57,150	9.45	(b)	(b)	(b)	(b)	(b)	11.20	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	71,200	(b)	.04	South Dakota.				
Tennessee.....	140,576	826,533	5.87	(b)	(b)	(b)	(b)	(b)	9.73	(b)	22,707	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,908,108	909,180	.83	Tennessee.				
Texas.....	971,440	1,776,062	6.55	(b)	(b)	(b)	(b)	(b)	16.02	(b)	18,408	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	31,037	9,744,846	119,088	1.66	Texas.				
Utah.....	54,537	411,415	7.54	(b)	(b)	(b)	(b)	(b)	13.02	(b)	7,768	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	864,266	(b)	.51	Utah.				
Vermont.....	9,433	58,766	8.10	(b)	(b)	(b)	(b)	(b																				

a Including adobes, aquarium ornaments, burnt clay bal-
last, charcoal furnaces, chimney pipe and tops, conduits,
crucibles, curbing, flue lining, gas logs, glasshouse supplies,
glazed brick, grave markers, muffs, radial chimney bricks,
retorts, saggers, scorifiers, stone pumps, vases and ornaments,
and wall coping.

b Included in "Other States."
c Made by Connecticut alone, and included in "Other
States."

d Includes all products made by less than three producers
in one State.

e The total of "Other States" is distributed among the
States to which it belongs, in order that they may be fully
represented in the totals.

f Undistributed pottery products.
g Including enameled brick valued at \$832,225, made in
the following States: California, Illinois, Maryland, Missouri,
New Jersey and Pennsylvania.

h In the total quantity and total value of fire brick are
included, respectively, 145,779,000 silica brick, valued at
\$3,289,028, of which 112,033,000, valued at \$2,234,063, was pro-
duced by Pennsylvania, and the remainder, 33,746,000, valued
at \$1,054,965, by Alabama, Colorado, Georgia, Illinois, Indiana,
Missouri and Montana.

i Including enameled brick, valued at \$993,902, made in the
following States: California, Illinois, Maryland, Missouri,
New Jersey and Pennsylvania.

OUTPUT AND VALUE OF CLAY PRODUCTS IN THE UNITED STATES IN 1910.

MANY INTERESTING FACTS can be gleaned by a careful study of the chart appearing on the opposite page, which is a reduced copy of the statistical report mailed us recently by Mr. Jefferson Middleton, the statistician in charge of the work for the United States Geological Survey.

A glance will show that the clay industries have prospered well during 1910, the past year being the banner year in the history of the clay trade so far as production and value are considered. The report shows the total valuation of all clay products made during 1910 to be \$170,115,974, a gain of nearly four million over 1909, when there was a valuation of \$166,321,213. The 1909 valuation was the greatest total up to that time and was considered remarkable, so that the gain in 1910 surpasses all expectation. The value of \$170,115,974 includes all clay products made in the forty-eight states and Porto Rico, the latter furnishing only two hundredths of one percentage of all. The products rank as follows in valuation:

Common brick	32.46 per cent
Pottery	19.85 per cent
Fire brick	10.64 per cent
Sewer pipe	6.72 per cent
Paving brick	6.47 per cent
Drain tile	6.11 per cent
Front brick	5.05 per cent
Architectural terra cotta	4.10 per cent
Tile (not drain)	3.08 per cent
Fireproofing	3.01 per cent
Fancy or ornamental brick	.60 per cent
Stove lining	.30 per cent
Miscellaneous	1.61 per cent
	100.00 per cent

The miscellaneous item includes adobes, aquarium ornaments, burned clay ballast, charcoal furnaces, chimney pipe and tops, conduits, crucibles, curbing, flue lining, gas logs, glass house supplies, glazed brick, grave markers, muffles, radial chimney brick, retorts, saggers, scorifiers, stone pumps, vases and ornaments and wall coping.

The production of common brick fell off nearly six hundred million, while the average price per thousand increased fourteen cents. There was also a slump in the paving brick production, there being a decrease of about sixty million with an increase in average price per thousand of thirty-six cents. Front brick fell off about one hundred and twenty million, with an increase in average price of forty-one cents.

The other products showed gains in value as follows: Drain tile, six hundred thousand dollars; sewer pipe, over one million dollars; architectural terra cotta, seven hundred and twenty-five thousand dollars; fireproofing, six hundred and fifty thousand dollars; stove lining, eighty thousand dollars; fire brick, one and one-half million dollars; pottery, nearly three million dollars.

With the larger production of fire brick came a loss in average price per thousand of seventy-four cents; the price in 1909 was \$19.83, while in 1910 it was \$19.09.

There were many changes in the ranking of the states, the most noticeable being the advance of West Virginia from twenty-fifth to tenth place. This was due to its large production in common brick and with it came a higher price. Nearly twenty-two million more common brick were made in West Virginia than in 1909, and the average price per thousand was \$6.53, while in 1909 it was \$6.06. West Virginia had an increase of a little over five hundred thousand in paving brick with a fall in price from \$12.38 to \$12.25. The

average price received for front brick was \$10.00 per thousand, while in 1909 the price in that state was \$14.74. There was a gain of over \$22,000 in the value of tile other than drain tile, the total valuation during the last year being \$104,633, while in 1909 it was \$82,461. There was a decrease in the price and production of fire brick. Nearly three million less were made, while the price showed a decrease of \$1.49 per thousand. The total valuation of West Virginia's clay products during 1910 was nearly four million, while in 1909 it was slightly over three and one-half million.

The ten leading states in the production of clay products were Ohio, Pennsylvania, New Jersey, Illinois, New York, Indiana, Missouri, Iowa, California and West Virginia, respectively.

Ohio was the leading clay state in the Union in 1910 and has had that honor since 1890, with the exception of 1909, when Pennsylvania held first place over Ohio by a narrow margin. Ohio led in the production of paving brick, sewer pipe, tile (other than drain tile) and pottery.

New York led in the production of common brick with Illinois its closest rival. New York's production was nearly fourteen hundred million, while Illinois had twelve hundred million. Pennsylvania produced over eight hundred million, while Ohio came fourth with a little over four hundred million. All of these states produced less common brick than in 1909, New York falling off the most with more than one hundred million decrease. Georgia, which ranks fifth in the production of common brick, had a gain of over twenty-nine million. Ohio lead in a production of paving brick with a total of about two hundred and ninety millions, a decrease of nearly thirty-five millions from 1909 production. Kansas was second in rank in paving brick, making in 1910 nearly one hundred and twenty million brick, an increase of sixteen million over 1909, with an increased average gain per thousand of thirteen cents, while Ohio had a gain of thirty-three cents. Illinois was third with one hundred and sixteen million, a decrease of seventy-four million, but the average price per thousand showed a gain of \$1.06. Pennsylvania was fourth with one hundred and one million, and an average price of \$11.89, while in 1909 the production was one hundred and sixteen million, with an average price of \$11.39.

Pennsylvania led in the production of front brick with one hundred and seventy-nine million, a decrease of twenty million over the previous year, with an increase in average price from \$11.39 in 1909 to \$11.68. Ohio was second with a production of one hundred thirty-four million and an increased price per thousand of \$11.65 for 1910 over \$10.67 for 1909. The production was over four million greater.

New Jersey ranked third with forty-seven million, a loss of almost half of total for 1909. The average price per thousand rose from \$10.66 to \$12.85. Indiana was fourth with a loss of four million, the production being forty-six million and the average price \$10.25, a five-cent increase over price of 1909.

California had the lead in fancy or ornamental brick with a value of \$48,572, while Pennsylvania had a value of \$35,768. Ohio, Missouri and Illinois ranked next in order named. These five were the only states figuring extensively in this line of clay products.

Iowa, as usual, led in the manufacture of drain tile with a valuation of over \$3,000,000, a gain of nearly \$500,000 over 1909. Indiana was second with a \$2,000,000 valuation with about \$60,000 increase. Ohio and Illinois were third and fourth, the latter having about the same valuation as in 1909, while Ohio suffered a loss of nearly \$200,000.

This loss was more than made up, however, in the valuation of the Buckeye state's sewer pipe, which was \$3,289,537, an increase of over \$280,000. However, 1909 was the poorest year in many for Ohio in sewer pipe manufacture. Missouri and California ranked second and third, the latter showing

the larger gain, that of nearly \$100,000, while Missouri gained \$50,000 in valuation. Washington, Pennsylvania, Illinois and Indiana ranked next in the order named. New Jersey had a banner year in her architectural terra cotta manufacture and turned out products worth over \$2,000,000, her greatest value in years. Illinois, with its large plants, was second, nearly \$320,000 lower than the leader, while New York came third, nearly \$600,000 behind Illinois; Colorado and Pennsylvania ranked fourth and fifth.

In fireproofing terra cotta, lumber and hollow building blocks, New Jersey again led with the largest total valuation in years, with \$1,852,101, a gain of nearly \$300,000 over 1909. Ohio was second with about two-thirds the valuation of New Jersey, and a gain of \$100,000. Illinois and Indiana were third and fourth, the former gaining approximately \$120,000, while Indiana gained only \$55,000.

In the tile (not drain), Ohio had a valuation of close to \$2,000,000, giving her first rank. Her closest competitor was New Jersey with a valuation of about \$700,000 lower.

In the manufacture of stove lining, Massachusetts and Pennsylvania had very little competition, Massachusetts leading with a valuation of \$166,018 and Pennsylvania following with \$132,567, both showing gains, the latter's being more remarkable. A great number of states enter into the manufacture of fire brick; Pennsylvania, however, is in a class of its own with a production of 346,473,000, while its nearest rival is Ohio with 116,784,000. This, however, is a loss of over \$200,000 in Pennsylvania's valuation, while Ohio's loss is \$21,000. Ohio's price per thousand is \$4.00 less than Pennsylvania, with \$18.63.

In pottery, Ohio, of course, led again as usual with New Jersey second. A careful study of this chart gives us a clearer idea of the present status of the clay industries and is especially interesting in that it affords a comparison of the prevailing average price for the various kinds of brick in the different localities. Anyone desiring one of these large charts can secure one from Jefferson Middleton, statistician in Department of Interior, United States Geological Survey, Washington, D. C.

FROST MANUFACTURING COMPANY'S PRODUCTS IN DEMAND.

Among the firms that never complain of a dull season is the Frost Manufacturing Company, of Galesburg, Ill. The popularity of their dry pans is attested by the fact that during the month of October they shipped twenty-nine Frost pans. We give below a list of some of the recent shipments to clayworking plants in seven different States:

Barr Clay Products Company, Zumbrota, Minn.—5 9-inch dry pans, 4 72x78-inch boilers, 150 pounds pressure.

Streator Paving Brick Company, Streator, Ill.—1 9-inch dry pan.

Edw. Ford Plate Glass Company, Toledo, Ohio—2 9-inch dry pans.

White Hall Drain Tile Company, White Hall, Ill.—1 9-inch dry pan.

The Falk Company, Milwaukee, Wis.—1 9-inch dry pan.

Sheffield Shale Tile Company, Sheffield, Ill.—1 9-inch dry pan, 1 72x18-inch boiler, 150 pounds pressure.

Tramp & Tramp, Audubon, Iowa—1 9-inch dry pan.

Davenport Brick Machinery Company, Davenport, Okla.—1 9-inch dry pan.

Hamilton Clay Manufacturing Company, Hamilton, Ill.—1 9-inch dry pan, 1 16x20 engine, 1 72x18-inch boiler, 150 pounds pressure.

Indianapolis Terra Cotta Company, Indianapolis, Ind.—1 6-inch dry pan.

Mexico Brick and Fire Clay Company, Mexico, Mo.—1 9-inch dry pan.

Commonwealth Steel Company, St. Louis, Mo.—2 9-inch dry pans.

In addition to the dry pans they have sold several hundred boilers and engines in the same time.

Written for THE CLAY-WORKER.

FALSE ECONOMY IN PAVING MILWAUKEE STREETS.

The Smaller Wisconsin Cities are Wiser and Pave With Brick.

WHAT'S going to happen to our pavements within a few years?" is the question taxpayers at Milwaukee are asking themselves and others at this time. And it is a momentous question, when it is considered that \$350,000 or more has been spent for pavements in Milwaukee this season, a saving of approximately \$125,000.

It is that \$125,000 that is making the men who put up the money for street improvements "sit up and take notice." Is it a saving, or no? Judging from the popular trend of thought, it is not a saving, and the sooner taxpayers are disillusionized, the better will they be off.

The whole question arises over the efforts of the Social Democratic administration, which is ruling the city of Milwaukee, as well as the county government, to make a good showing in the expenditure of the public moneys. Money has been saved, it can not be denied, so far as momentary saving goes. But at what expense?

The manner in which the saving of \$125,000 in paving contracts has been effected is this: Asphalt has been used more generally than ever before, because it is probably the only paving material that could be used to manipulate in the direction of a saving. The universal asphalt paving specifications adopted by the society of municipal engineers and other notable organizations, have been slashed and cut into ribbons and placed before the contractors—and it might as well be said right here that they were placed before the contractors only after the efforts of the Socialists to do paving work without the intervention of formal contracts were nullified.

The revised specifications omit some of the most important features of the universal specifications, notably the binder course. This is where the temporary saving comes in. Contractors have been able to cut quite a bit off the usual prices per yard because the important binder course has been left out, and the most of the contracts were awarded at from \$1.35 to \$1.70, whereas formerly, under the full specifications, the cost was anywhere from \$2.10 to \$2.60, according to the nature of the cutting and filling, the haul, the topography and other elements.

The Socialists claim the \$1.35 pavement will last as long or longer than the old \$2.10 pavement. But reputable engineers say the omission of the binder course will reduce the life of the pavement much more than an equivalent of the saving in the contract price, and instead of effecting a saving, the Socialists have placed an additional burden on the taxpayers.

One of the strangest features of the whole proceeding is that Superintendent Mullen, in charge of the street improvement work, was one of the men who framed the universal specifications. When he assisted in this work, however, he was not an employe of the Socialists of Milwaukee. He came to the Wisconsin metropolis only a year ago.

All of which leads up to the demand of taxpayers that a stop be put to the Socialist way of paving; that there be a stop put to the use of asphalt on streets or individual blocks where brick are necessary, the asphalt being used to effect the supposed saving.

It is generally admitted that brick could not be used under the Socialistic idea of paving. It would be ridiculous to omit an important specification in brick paving, not even for a "time being" pavement, such as the present asphalt paving is. Therefore, asphalt has been used when brick or block should have been the material.

Before the Socialists went into office, there was a suitable degree of sanity in paving matters, as the wide use of brick

attests. Today, brick has practically been ostracised. Many stretches of asphalt show repairs with brick, however.

Reports from many of the smaller cities of Wisconsin are to the effect that many thousands of yards of brick pavement will be laid next season. In the small cities brick is the only paving material used, if only for the reason that asphalt pavement can not be kept in repair excepting at a great outlay of money for kettles, etc. But the heavy farm traffic in the city streets would not permit of the use of asphalt. The experiment was tried by one city of 8,000, but in a short time the pavement was torn up and brick substituted.

The city of Watertown, Wis., is a fine example of the universal use of brick. Its main street is two miles long and every inch of it is paved with brick. Some of this pavement, which has been down for ten to fourteen years, is today as good as new.

Milwaukee and Wisconsin Brick News.

Wisconsin brick manufacturers have practically concluded their season's run and are making preparations for the coming year. It has been many years since the total output has reached the enormous production of 1911, the last half of the season being especially active in so far as the movement of stocks is concerned, due to the action of the Wisconsin Railway Commission in fixing more favorable intra-state rates for brick and tile shipments. The coming year will probably be the biggest that builders have ever experienced and the season's record doubtless will exceed that of the great boom year of 1907. The reinforced concrete method of construction has not made any considerable inroads into brick construction in the smaller cities, and in the large cities the idea is rather on the decline. With the improvement in business already noticeable, certain to continue and grow, factories will be making extensions and additions and the consumption of brick and clay products of other kinds will be stimulated.

Enameled terra cotta and ornamental work of this kind will probably have a toe-hold on this class of business in Milwaukee next year. A number of buildings are projected which will take more of this stuff alone than all the buildings erected in Milwaukee in three years put together. The First National bank will erect a huge building at Mason and East Water streets, to cost \$1,500,000. It has not been decided if steel skeleton or reinforced concrete construction will be used, but it is definite that the entire frontage of 120 feet on East Water street and 250 feet on Mason street will be in white enameled terra cotta. The Northwestern Mutual Life Insurance Company has started work on a \$2,000,000 home office building, covering a solid block, in which terra cotta will be the exterior finish, with granite pillars on all sides. There are a half dozen other buildings ranging in cost between \$200,000 and \$500,000 which are already projected for 1912-1913.

Brickmakers are interested in the work being done at Manitowoc, Wis., where the William Rahr Sons Company, brewers and maltsters, are erecting one of the tallest brick smokestacks in Wisconsin. The monster shaft will tower 173 feet into the sky and 65,000 brick will be used in its make-up. The inside diameter at the bottom is 17 feet and at the top 14 feet. It will take care of a battery of eight large boilers. It is proposed to use the Rahr stack as one "pole" for the United Wireless Telegraph system now carried by another stack 145 feet high.

The Langenberger Brick Manufacturing Company, of Stevens Point, Wis., has been filling some of the largest orders in its existence this season. The material for the new city hospital has been purchased exclusively from the house of Langenberger and includes 225,000 brick. The company also was awarded the contracts for furnishing the brick and building material for the new McDonald block, in Stevens Point, and the new school at Jordan.

The Jefferson Brick and Tile Company, one of the largest

industries at Jefferson, Wis., will use the dull winter season in further improving and modernizing its yards. Last winter, portable carriers and much other equipment doing away with manual labor was installed, and at the close of the run in a few weeks, work will be started on a series of new drying sheds. The output is to be doubled. Several new industries have recently been secured for the city by the Jefferson promoters' club, and all of these need new buildings. While the Jefferson Brick and Tile Company has been having its hands full to supply the local trade, the increased production will make it possible to extend the outside business considerably, the new freight rates making it profitable to seek this trade.

The employes of the Hydraulic Press Brick Company, of Menominee, Wis., which is considered the largest plant of its kind in Wisconsin, recently were the guests of the management at a monster outing and picnic in Riverside park. The men of yard No. 4 swept the boards in most of the athletic events. There were games for the ladies and children, too, and the picnic was voted one of the finest times any of the participants ever had.

The Grand Rapids Brick Company has been organized at Grand Rapids, Wis. The articles of incorporation have been approved by the secretary of state and a charter granted. The authorized capital is \$12,000 and the incorporators are J. L. Hamilton, William Scott and William Knuth. Grand Rapids is a city of 7,000 people and today one of the most progressive in the state of Wisconsin. The Commercial Club has succeeded in getting several new industries, notably an automobile factory, and considerable building work in other lines is projected, so that the new brick company starts out with the finest of prospects for success.

The Standard Brick Company, of Milwaukee, has been made defendant in a suit for \$25,000 damages by Eli Medolic, formerly a switchman in the employ of the company. Medolic lost a leg when, he claims, he was struck by a large lump of clay which was jolted from a car and threw him under the wheels.

A. BADGER.

SCIENCE AND THE BURNING SENSE.

That scientific research has done a lot to make more positive and definite the work of kiln burning, there is no question. In fact, it has contributed more to successful progress in brickmaking than any other one thing. Yet, with all our sciences and scientific research and instruments and methods, there still remains a strong dependence on what might be termed the natural gift for burning. There must be a natural gift for sensing fire and conditions and understanding the clays being burned and also this must be augmented by lots of practice with the clay in a given community.

An expert burner in one territory may change to another and make a rank failure at his first few attempts. By and by, however, if there is a natural gift for the work, he comes to understand and he will eventually make a success in any kind of clay or in almost any position. Without this natural gift for sensing things in connection with kiln burning, though, there is a chance to do lots of damage, even with all the scientific enlightenment we have today.

There is in this an argument against changing burners when you have a good one, because the breaking in of a new man is an expensive proposition. If, however, there is continual trouble in the kilns it may be that the man in charge of the burning, no matter how conscientious and intelligent he is, is lacking in this peculiar gift necessary for that class of work.

People are created often with traits for this calling or that calling, or born to the work, and half the problem of industry is to fit the right man to the right kind of work. When you get the right kind of combination you can attain a higher order of success than is practical any other way, and it is worth experimenting now and then and shifting men about and perchance you may strike one with a peculiar strong gift for burning, then if to this natural gift for burning you can add scientific research and plenty of training, you have something to treasure.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Immense New Iowa Plant.

Editor CLAY-WORKER:

You will be interested, no doubt, to know that the Acme Co-Operative Brick and Tile Company, recently incorporated in the state of West Virginia, has purchased the plant of the Webster City Brick and Tile Company, at Webster City, Iowa, and will entirely rebuild same, making it one of the most modern plants in Iowa.

The new plant, when rebuilt, will have fourteen thirty-foot round, down-draft kilns, horizontal tile machine and steam press for making large tile and sewer pipe. The equipment will be strictly modern in every respect.

Yours very truly,

ACME CO-OPERATIVE BRICK AND TILE CO.,
By B. H. WARD.

New Company Will Increase Capacity of Plant.

Editor CLAY-WORKER:

In reply to your favor of the 16th inst. we beg to hand you, herewith enclosed, check for \$2.00, covering one subscription to your paper, which has been read with much interest and profit during the past year.

Business during our first year, while not as brisk as it might have been, has encouraged us as to the future, and the company intends to quadruple its clay storage capacity in the immediate future.

Wishing you success with THE CLAY-WORKER, we are,
Yours very truly,

Charleston, W. Va. VALLEY BRICK COMPANY,

Manufacture Large Tile.

Editor CLAY-WORKER:

We notice in your October number an article headed "Make Larger Tile." In connection with this article, we wish to call your attention to the fact that this company is making vitrified salt glazed drain tile in all sizes from three inches to forty-two inches, and that we carry all sizes in stock, making a specialty of 26, 27, 28, 30, 33, 36, and 42-inch. From your article, we are afraid the engineers will think they can not secure any large tile and specify something else for their work.

If you will publish the fact that we are making large sizes of tile, we will be much obliged to you.

Yours very truly,

St. Louis, Mo. BLACKMER & POST PIPE COMPANY.

A Kentucky Drain Tile Plant.

EDITOR THE CLAY-WORKER:

We are enclosing check for \$2.50 to pay for one year's subscription to THE CLAY-WORKER and for the pocket kit. We enjoy THE CLAY-WORKER and feel a little lonesome if it don't get here on time. We are sending a small photo of plant. We have two round down-draft kilns 26 feet in diameter; one dry shed two stories high, 85 x 24 feet; one Brewer 9-A brick and tile machine, Brewer disintegrator and conveyor and Benson cutting table for 3-inch to 8-inch tile. We make 12,000 to 14,000 4-inch tile per day of ten hours. We

turn out five kilns of tile in sixty days for seven months per year. Our drying is done by atmosphere. Our power is a 50-horsepower General Electric motor which is very satisfactory, as this is our third season and we have never lost a minute on account of power equipment. Our clay is a hillside clay, color varies from yellow on top to chocolate, then reddish to blue on bottom; it is very tough and plastic and works nice.

We have a clay bin which holds practically 100 cubic yards of clay, enough to fill our shed with tile. We have a conveyor belt under floor of bin which feeds clay to disintegrator. We have a track on top of bin and a bottom dump car which is pulled up by hoisting drum and cable. We dig our clay with pick and shovel. Will be glad to welcome visiting clayworkers at any time.

Yours very truly,

MADISONVILLE DRAIN TILE CO.

Bursting Strength of Vitrified Tile.

Editor CLAY-WORKER:

The bursting strength of vitrified clay tile has not received the attention due it. It often occurs that if this strength was better known that the tile of this character could go into hitherto unoccupied fields. Perhaps one of the



Plant of the Madisonville Drain Tile Company.

most prominent of these fields, that today being invaded by concrete tile, is the irrigation field.

In California, land values have gone up and water rights have become expensive, thus making it necessary for the conservation of both moisture and land. This forced the land owners to carry their water for irrigation in pipes placed under the ground. This solved the problem. The pipe thus used is subjected to small heads of water, making it necessary for the pipe to be impervious and have a bursting strength great enough to withstand this small head. Concrete pipe has pushed its way into this field and is today being used to quite an extent.

Florida has the same trouble with the irrigation question. Their soil being sandy caused them to look to pipe early in their irrigation experience. Originally the cast-iron pipe appealed to them, but first cost and short life soon made a change desirable.

It was on account of these needs that some vitrified clay tile of standard manufacture was tested to determine their bursting strength when subjected to hydraulic pressure.

In carrying on this test, two lengths of tile were placed together and the joint filled with a 1 to 1 mixture of cement and clean sand. These tile joints were allowed to cure thirty days before they were tested. Wooden bulkheads with rubber gaskets were fitted into the ends of the tile and the heads drawn up uniform. The tile were embedded half their diameters into the ground. A pressure gauge was placed in

one bulkhead. Water was admitted to the tile slowly and the pressure raised gradually.

The following table gives the results obtained. In many cases the tile broke with a loud report. The joints held very well, which showed that this method of sealing them was all right. The tile was practically impervious.

Table Showing Bursting Strength of Vitrified Clay Tile.

Size of Tile Inches	Bursting Pressure lbs. per sq. in.	Remarks
8	62.5	
8	...	Could not break at 63.5 lbs.
8	16	
8	60	
10	41	
10	62.5	
10	60	
10	37	
12	...	Could not break at 41 lbs.
12	47	
12	16	
12	21	

Now, it is not assumed that anything final has been obtained in this experiment, as not enough tests were made. More tests should be made and the testing carried on until it is determined just what the safe working strength of these tile under these conditions are. Many of the tile thus tested in this experiment broke on the top, which leads a person to suppose that if they were buried in the ground and had the soil pressing around them, they would hold a higher pressure. This work done here shows that this kind of tile will withstand small heads of water and that the question of sealing the joints is a simple proposition. Then the fact that pipe is practically impervious adds also to the value of this pipe for the purposes named above. D. S.

Some Mistakes of the Brick Business.

EDITOR CLAY-WORKER:

It has been said that all that is required to make a good brickmaker was a strong back and a weak head. This, I think, is a gross slander on the profession.

It is true that from some of the mistakes made in the business we are sometimes inclined to believe it.

The great trouble seems to be we find engaged in the business too many men with ability but not sufficient capital who are trying to raise from the position of employe to that of employer, and while having ability and experience, do not possess enough money to carry on the business successfully, or those with money but without knowledge or experience in the business and not willing to pay for what they lack—a combination of the two is hard to find.

The man with money is ambitious and anxious to get a start and in consequence of not having sufficient capital to get what he wants he takes what he can get, something he probably would not consider were he better fixed financially. It is not his best judgment but it is his only chance under the circumstances. He puts his little bit of money in the business but it is not enough, so he struggles along and is lucky if he gets more than wages for his time and investment. Then, on the other hand, we have the man with money but without ability or experience in that line but an abundance of conceit and who thinks he knows it all.

If he consults anyone it is probably some one about as well informed as himself. He thinks he has the business down fine and will show some of the plodding old brickmakers how to make brick. He is so satisfied with his knowledge of the business that he does not consult a practical man at the beginning, when he needs him most, but goes ahead, selects the place, buys his machinery, lays out his plant before he has any idea that he needs assistance. His selection of location, material, machinery, etc., may have been a grand

mistake. About this time he begins to look around for some one who can make the brick and conduct a successful business, but many times it is too late. A mistake has been made in the choice of location, material, laying out of plant, etc., but he has money and is willing to lose some of it rather than admit he was wrong.

It seems to be the opinion of too many that as brick is made of mud any one can make brick—that it does not require experience, even ordinary intelligence, where in fact there is hardly any business that requires as much judgment. The mariner has his compass with which to guide his craft to points of destination, the astronomer his instrument and glasses to take his observations, the mechanic his plumbs, square, level, etc., to guide him in his work, while the brickmaker has to rely almost entirely on judgment.

PHILOSOPHER.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

PLANTS on the Hackensack river are still in operation, the last burnings of the season being now in arches.

At Granton, the companies are still mining clay and fresh arches in process of laying ready for burning later. The Raritan river district has practically closed down for the season. Prices range about fifty cents per thousand lower than Hudson river stock, which would make them about \$6.50 as this is written. It is not likely that they will decline any further this season.

The season is not closed yet so it is impossible to obtain statistics of the output, but it is understood that the Hackensack district has made about 100,000,000. This is perhaps a little larger than was predicted, though the figures are by no means guaranteed by the makers. The estimate before the season opened was 73,000,000, but the weather has been better than usual and the season is lasting longer, though there is little likelihood that anything further will be done after the present burns are provided for.

The Hackensack brick has been well distributed, though most of it has gone to New York. There has been a good home demand this year. Several important structures near home have contributed their share toward the prosperity of the manufacturers. They have little to say about the coming season, but according to some information from another source the outlook is good.

The National Fireproofing Company received the contract for supplying the fireproof partitions in the Woolworth building in New York. This is one of the largest contracts of the kind ever given out. It has made their plants busy for the sometime, even though they are so large. It represents an advance in the construction of huge buildings which increases their safety without materially adding to the price.

HIRAM.

NEW REPRESENTATIVE.

In making several changes in the traveling force of The C. W. Raymond Company, they have been fortunate in securing the services of Mr. R. L. Dennison, more familiarly known as "Bob" Dennison, Kansas City, Mo., to handle their business in that territory and the gas belt. Mr. Dennison is probably better acquainted with the brickmakers of the gas belt than any other one man of that section of the country, having lived and traveled there all his life, and has already started in his work and his address is 539 Ridge building, Kansas City, Mo. Our acquaintanceship with Mr. Dennison shows him to be a gentleman in every respect, a man of ability and with a thorough knowledge of the brick industry, and we predict for him a very successful business.

There seems to be a crack in the government of China and it is a question whether it can be mended or if there will have to be a new one.



OFFICIAL ANNOUNCEMENT.

—Twenty-Sixth Annual Convention of the National Brick Manufacturers' Association to be Held in Chicago, Ill.,
March 4 to 9, 1912.

AT OUR LAST CONVENTION at Louisville, it was agreed that if a National Clay Products Exposition was held in Chicago the following winter, we would hold our twenty-sixth annual convention there at the same time. The clay products show will eventuate March 7 to 12 next. The great Chicago Coliseum has been leased for the occasion, and it is anticipated that it will be an exhibition which will reflect credit upon the entire clay industries of the country and prove a source of interest and profit to every clayworker in the land, and hence will insure the largest attendance in the history of our organization. Consequently, it has been decided to hold our twenty-sixth annual convention in Chicago March 6 to 9, 1912.

Hotel Annex Headquarters.

Owing to its proximity to the Coliseum, its immense capacity, and the splendid facilities it affords, Hotel Annex has been selected as headquarters during the convention and exposition. All convention sessions and functions will be held in the Hotel Annex. Its numerous convention halls, beautiful banquet and reception rooms, all of which will be at the disposal of the Association, will afford unexcelled facilities. The Hotel Annex is one of the largest and finest hotels in America, and will comfortably accommodate our entire membership. If, as it is hoped, the attendance is double that of previous conventions, all who attend may find satisfactory accommodations under its roof, and those desiring luxurious quarters for entertainment purposes, etc., will have no fault to find with the service, which is par excellence in every respect. The ladies, particularly, will be delighted with the parlors, cafes, library and lounge rooms, all of which are elegantly appointed.

Convention Sessions.

As usual, the N. B. M. A. sessions will begin Wednesday, March 6, at 2:00 p. m. Succeeding sessions will be held from 9:30 a. m. until 2:00 p. m. on Thursday, Friday and Saturday. By holding one session a day only, the members will be given ample time and opportunity of visiting the Clay Products Exposition and indulging in sight-seeing trips, as suits their individual fancy. A series of able papers will be presented and the program of events, which will provide for a busy and profitable week for all who attend, will be announced in due time.

The National Paving Brick Manufacturers' Association will meet at the same time and place. Their first session will be held in Hotel Annex, Monday, March 4, at 9:00 a. m. For program of full particulars, those interested should communicate with Will P. Blair, secretary, 824 Board of Locomotive Engineers building, Cleveland, Ohio.

The American Ceramic Society, too, will meet the same week as in former years, beginning their sessions Monday a. m., March 4. Prof. Edward Orton, Jr., secretary, Columbus, Ohio, will give full particulars as soon as he has completed preliminary arrangements and program.

The Building Brick Association of America will hold its

regular annual meeting in the assembly room of the Annex Wednesday, March 6, at 9:30 a. m. The general publicity meeting will be held Thursday at 9:30 a. m. in the main convention hall. Secretary J. Parker B. Fiske, Flatiron Building, New York City, will be pleased to correspond with those desiring further information in regard to the aims and work of that, our publicity organization.

All other allied organizations, whether manufacturers of or dealers in clay products of any sort or character, are cordially invited to hold meetings during the exposition period, and ample accommodations will be afforded each and all who will do so. The executive officers are requested to communicate with Secretary Randall relative to time of meetings, etc., in order to avoid the interference of one organization with another.

Our members are invited to suggest topics for discussion and subjects for formal papers touching on various important phases of the business in which they are interested. Those desiring information as to the requisite of membership in the N. B. M. A. or other particulars as to the convention or exhibition, are requested to address the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
Charles M. Crook, President.

Theo. A. Randall, Secretary.

ANNUAL MEETINGS OF THE BUILDING BRICK ASSOCIATION OF AMERICA.

The regular annual meeting of this association will be held in Chicago at the Auditorium Annex on Wednesday, March 6, 1912, at 9:30 a. m.

The "General Publicity" meeting will be held on Thursday, March 7, at 9:30 a. m.

These meetings come about one month later than usual owing to the Clay Products Exposition, which will be opened in the Coliseum at Chicago, March 7, 1912.

This notice is only preliminary and will be followed by more detailed information later. It is given at this time in order that all may have due notice and will make their plans to be present at these meetings.

ROCHESTER PROGRAM COMPLETED.

THE PROGRAMME of the eighth annual convention of the American Road Builders' Association, to be held in Rochester, N. Y., November 14 to 17, has been prepared, and several interesting features have been arranged.

As has been announced previously, the entire four days will be devoted to papers and discussions on the topics of organization, construction and maintenance.

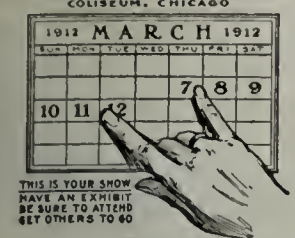
State Engineer and Surveyor John A. Bense, of New York, will address the convention on the topic, "Highway Administration." His paper will be followed by a discussion on the subject by two state highway commissioners.

Nelson P. Lewis, chief engineer of the Board of Estimate and Apportionment of New York City, will present a paper on the topic of the "Adaptability of Roads and Pavements to Local Conditions," and James S. Owen, consulting engineer of Newark, N. J., will have as his topic, "The Maintenance of Roads and Pavements." The topic, "Problems of Construction," will be presented by Maj. W. W. Crosby, of Baltimore, chief engineer of the Maryland State Roads Commission. All the formal papers will be followed by discussions.

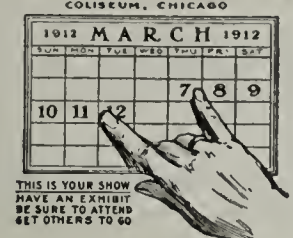
ARBUCKLE CLAY FEEDERS IN DEMAND.

Arbuckle & Co., of Rushville, Ind., advise us that they have been getting many inquiries for their new clay feeders and are getting about all of the orders they can take care of comfortably. In addition to the clay feeder they have a complete line of stiff mud brick machinery.

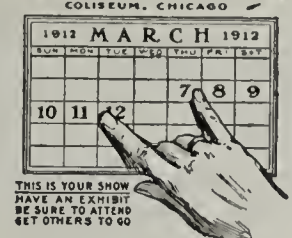
CLAY PRODUCTS SHOW



CLAY PRODUCTS SHOW



CLAY PRODUCTS SHOW



CLAY PRODUCTS SHOW



CLAY PRODUCTS SHOW



CLAY PRODUCTS SHOW



PLANS AND PICTURES FOR THE EXHIBITION.

AN EXCELLENT THING to supplement exhibits that will be made at the great Chicago exposition should be plans and pictures. Plans and pictures of houses of modest type and buildings of note and also pictures of the work of manufacturing clay product.

Some of the most interesting features of the World's Fair at St. Louis were pictures along with the exhibits. Take, for example, those in connection with the German forestry exhibit. The pictures were an education themselves. So were those in our own forestry department, those shown in connection with testing machinery and other implements used.

There is particular need for more attention to the matter of plans and pictures of attractive modest homes in which is used brick and clay products. Of course, in this connection one excellent plan is to make some exhibits of complete bungalow and cottage types of homes. This is one of the things that was done by the yellow pine lumber people at the World's Fair, the exhibiting of a complete three-room cottage, which attracted so much favorable attention that it was taken about over the country and shown in several different cities, for a number of years. Only a limited amount of this can be done, however, the exhibiting of material put up in finished form. On the other hand there is no limit to the instructive features that may be added in the way of plans and pictures of homes that have already been built and of homes that it may be worth while to build.

The clayworking people should get busy and keep busy on this subject, keep devising new and attractive plans together with perspective views of every type of building from the cottage up to the mansion and big business structure. Take a lesson from what the lumber people have done and go them one better. These pictures properly presented will help not only the decoration of booths, but they will help instruct the visitor as to how the clay products may be used and will look after they are put into a home or fireplace or whatever the picture portrays.

This is a great day of picture taking and it is easy enough to get as elaborate pictures as may be wanted of houses that have already been erected and get them in any size and shape. Also get pictures illustrating the process of making clay products.

It is not so easy to get plans of the prospective buildings to be erected. These require architectural drawings. For this very reason it is perhaps all the more important that the brick people should give special attention to developing as wide a range of different plans and drawings together with perspective as possible between now and the time of the big show, so that these can be made a feature of and serve the purpose of assisting materially to impress clay products.

DEALERS LOOKING FORWARD TO CLAY EXPOSITION AS OPPORTUNITY FOR ENTERING INTO MONEY- MAKING TRADE CONNECTIONS.

Dealers will remember that at the last annual meeting of the National Brick Manufacturers' Association, held in Louisville, Ky., it was decided to hold a clay products exhibition, the avowed object being to demonstrate to the public the superiority of burned clay. The Coliseum in Chicago was picked as the place for this show and the time decided on was March 7th to 12th, 1912. Subsequently the other important associations of brick manufacturers gave this project their heartiest endorsement, and pledged their support to it.

With such an assurance of whole-hearted support as this,

those who were placed in charge of the show have gone ahead with energy and enthusiasm, and dealers will be glad to know that this show is an assured success.

Dealers in every part of the country are coming more and more to realize that brick is a live proposition and that there is good money for them in handling it. So it is, too, with drain tile, sewer pipe and structural tile. The public is waking up and is taking a great interest in these lines. This clay exposition is certain to increase this interest. It will make clay products the talk of the country. Dealers are looking forward to it for that reason; for they know that their sales are going to be increased through the good effects of the general interest created.

Many dealers, too, have not yet put in a line of building brick and are looking forward to this clay exhibition as their opportunity for sizing up the proposition, comparing all the various lines and so making an intelligent selection of the best line to handle. An evidence of this interest are numerous inquiries received by the Dealers Record from dealers in many parts of the United States asking about the exposition and asking advice as to the best line of brick to handle and the address of the manufacturers. To all of these the Dealers Record has replied that the best manufacturers will be represented at the exposition and that it will afford an ideal opportunity to make a trade alliance.

This is a point that brick manufacturers will not be slow to take advantage of. They need the co-operation of local dealers to handle their lines and they see in this show their opportunity to win new dealer agents. All worthwhile lines will be on exhibition and every progressive manufacturer will have an exhibit worth traveling a long way to see, in charge of experienced clay men who have been schooled in brick manufacturing and selling and can give you practical pointers of value that you will need in going into this business.

Dealers who are interested in brick, but have not yet put in a line, can see and learn and judge intelligently at the Clay Products Exhibition. This is a show national and even international in its scope and the product of every wide-awake manufacturer will be on exhibition, so that you can make comparison between the various lines and establish trade connections that will be the most serviceable for your particular case.

Dealers can be assured that any manufacturer not represented at this Clay Exposition is putting out a product of very little merit or one that he is ashamed of.

When plans for the Clay Exposition were first being talked over, it became evident that there was a tendency among some of the brick manufacturers to leave it to their local Chicago dealers to contract for space and put in their exhibits for them. This will not do, however, as the more wide-awake ones in the industry have been quick to realize. The local agent, or dealer's representative, handles many lines. He is interested in all and can not reasonably be expected to concentrate on any one item and incur the expense in money and time required to exhibit this one line effectively at the show.

This is the manufacturer's opportunity to meet the dealers at first hand and get acquainted with them. Every manufacturer who takes space and exhibits the way he ought to, will win converts to his line and will establish new agencies among the dealers. A local agent, on the other hand, could hardly be expected to do this. He has no interest in the matter, and, in fact, would be rather against it than otherwise, since it might make competition for him.

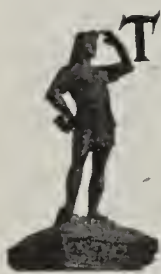
Then again, the dealer who already represents a clay manufacturer may look upon any lack of co-operation or enthusiasm on his part as a lack of interest; and he may find

some other manufacturer at the exposition who shows more enterprise and gives the dealer more promise of assistance. This may lose any short-sighted manufacturer of this kind dealers and markets.

The manufacturers recognize this as a national show. No matter where their plants are located there will be interested buyers and dealers present from the localities concerned. Dealers will be on hand from every section of the country, they are expecting an interesting and instructive display of clay products, and from the way the leaders are going after the proposition, planning for their exhibits, it is certain that no one will be disappointed except those who stay away and any dealer can find a goodly number of live manufacturers at the show who are making the best of clay products and want good selling agents. In a word, the Clay Products Exposition will be a big factor in the clay business, both going and coming.—Dealers Record.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.



TO ORGANIZE or not to organize. That question seems to be one which will return again and again to trouble the brick manufacturer in this district, and it will be impossible to shift conditions, many think, until something of this sort is done. Whether or not sufficient manufacturers can be brought to a realization of this fact or not remains to be seen. So far, nothing has been done, but the steady increase in favorable sentiment would seem to point toward that solution of the question sometime in the near future. It may be that organization will be influenced by the success of the one which now controls the situation in New York. Until something of this character is done many believe the price of brick will continue low in New England, though there is every reason to suppose that it would be high.

The season is about over in Maine, though warm weather during October and so far in November contributed to prolong the operations. The output has been larger than last year, but as this is written statistics are unavailable and it is impossible to even approximate what the output has been. Prices have been rather better, but less than \$6.00 seems like too small a sum to pay for good brick. Makers are quite certain that there should be some change made which will benefit them. The fire in Bangor was responsible for considerable of the increase in demand during the year, though that could hardly be expected to settle all the problems which have confronted manufacturers.

Charles E. Hubbard, formerly manager of the Farmington Street Railway Company, has purchased the sewer pipe and earthenware business which was long carried on by Stanley Bosworth, at Hartford, Conn. Standard Ohio sewer pipe is the principal article manufactured, running from three-inch to twenty-four, with fittings. He carries a good stock on hand and could probably equip a sewer system in a town of considerable size without the necessity of manufacturing any more stock. Few establishments are better favored in this respect. His factory will also devote much attention to stone and earthenware. Flue lining, wall coping, chimney tops, drain tile and other clay products will constitute important divisions of his output. He says he is going to make his establishment headquarters for manufactures of this character.

All the yards around Berlin, Conn., have closed for the season. The output has been generally about the same as the previous year, though some are of the opinion that, owing to lateness in opening up, the production was diminished. Whether this be true or not there is no doubt that the supply on hand now is less than it was last season at this time. This is due to a good sale throughout the season and a disposition to make as much of the opportunity as possible.

Business in and about Boston is unevenly distributed and

prices are about the same as they have been heretofore. Until there is a change in the situation brick manufacturers will hardly have much chance to make money. While building permits have been more numerous, the proportion of those for brick structures has been less. This, of course, has created a condition of semi-dullness in some directions. It may be, however, that the opening of the coming season will see a change in this respect.

John McDonald, of Brewer, Me., made 1,200,000 this year, compared with 800,000 last year, a good output for the season. The Bangor Brick Company made 3,000,000 this year, while their output was 4,500,000 to 5,000,000 last year. The Bangor fire was a big help to this manufacturer. Others have profited by the same calamity.

In Vermont the conditions have not been as favorable during the season, though here and there trade has been up to the average. Something is the matter with Vermont. One town of 2,000 population, for example, has lost forty families in the past two or three weeks and one hundred and thirty-five families during the past year. While not all towns are in this deplorable situation, the fact remains that there is more or less decadence in the state and an exodus is more likely to occur than an emigration. It seems to be the fact that building is not progressing very rapidly, excepting in spots, and the brickmaker who depends upon Vermont demand for his business will likely be in bad shape before the season closes. The opportunities for successful development are many. The men who will undertake them are few. It is, therefore, of importance to know whether there will be improvement in the future or not, and it must be confessed that the tone of replies to answers are distinctly pessimistic. Perhaps the upward turn will come, but for the present, at least, the state is not a particularly desirable location for a brickmaker. He might find it difficult to get ahead. A. L. B.

Written for THE CLAY-WORKER.

BRICK IN NEW YORK SKY-SCRAPERS.

THE USE OF BRICK will shortly begin upon the great Woolworth building, at Broadway and Park Place. The steel frame is fast going up and the filling in process will begin before very long. This will be the most notable building in the world, so far as height is concerned, and it fills half a block along Broadway from Park Place to the next street below. An immense quantity of brick will be required before the great operation is finished. A great many architects are of the opinion that it will not be as desirable as some of the other high buildings, while others equally recognized as professional authorities, are enthusiastic in their commendation and assert that the addition of a few stories will make no difference. The building will be in every way just as desirable as the others.

Some talk has been heard regarding a proposition to make the Whitehall building, at West street and Battery Place, one hundred stories high. It is about twenty-five now, and eminent architects and engineers say there is no reason why it could not be carried up to an indefinite height. The foundation was carried down to bed rock originally and, therefore, it would not require further work in that way. It stands at the south end of the island, looking out over the upper bay. It is alone now and is a very striking structure as the traveler comes up the harbor. With seventy-five stories added to its height there would be no comparison with any other building in the city. The erection of such lofty structures belongs more to the engineer than the architect. And engineers say there would be no insuperable difficulty.

It is interesting to note that the only one of the high buildings which possesses any pretension to architectural beauty is the West Street building, just below Liberty street, on West. The adornment on that is elaborate and is an exhibition of what can be done, even with these engineering freaks.

Still, it is scarcely correct to call these buildings freaks. They are a characteristic feature of modern American business life and illustrative of the tendencies of the times. Even the skyscraper has claims to beauty, and during the past few years artists have recognized this and there are structures building now which are strikingly beautiful in their fidelity to the tendencies which make modern life picturesque. It required foreign artists to see the beauty, but now the way has been shown, there is no trouble about American artists. They are seeing it, too.

One can not help saying that the more liberal use of burned clay will tend to improve these buildings artistically. Architectural terra cotta, for example, can be utilized in ways which have never heretofore been suspected. Decorations are possible in this material which could be worked out in no other and there is no reason why these buildings should not have elaborate and characteristic decorations. It depends upon the architect.

The architects of the Middle Ages erected churches and cathedrals which are still the wonders of the world. But they are no more characteristic of their age than the skyscraper is of this one. They expressed the dominant thought and the aspiration of the time. The skyscraper does that. It does not do more. It should not do less.

New York, the original home of the skyscraper, is one of the most picturesque cities the world ever saw. Its giant buildings impart a quality to the landscape which could not be equaled elsewhere and which makes it so individual that there is no comparison with anything else. The development from year to year, or from building to building, is so marked that it is still unsafe to make predictions as to what will occur before the architects and engineers are done. The skyscraper tells the story of modern American business development. New York, therefore, contains an epitome of all that modern business has done, or hopes to do, in the future. It is all expressed in its skyscrapers. They deserve more serious study and a better understanding than has hitherto been possible.

The Brick Market.

The determination of the Greater New York Brick Company to hold prices at \$7.00 throughout the winter has done much to reassure the nervous ones, and the market has steadied down under the attempt to make things go better. A steady price of \$7.00 is such a change from former conditions that there is no comparison. Makers and dealers alike are confident of success and anticipate continual improvement throughout the winter. One manufacturer declared that it meant dividends for most of the makers, where heretofore they have been compelled to ask accommodation of the banks to see them through the winter. With such a prospect they may be pardoned if they are somewhat jubilant over the proposition.

The next point of interest to the trade is the quantity which is now available for use before the new season's stock will be ready for delivery. The figures run about this way:

1911	1,056,450,000
1910	1,102,265,000
1909	1,198,000,000
1908	1,064,000,000
1907	875,979,000
1906	1,218,784,000

These figures give the quantity remaining ready for delivery when the season closed for the past six years. It is not essentially different from most of the seasons and represents sufficient stock to satisfy the requirements for the next few months. The shutting down early did not, apparently make any special reduction in the output. Plants up the river increased their capacity in some instances the past year and more plants were operated for a portion of the season, but as

a rule there was little change, either in the number of plants at work, or the output as a whole.

Builders will now be able to go forward and make their plans for the future without fear that supplies will run short or that there will be an arbitrary increase in price. Both of these factors are important, particularly when large operations are concerned, and the assurance which follows stability will go far toward helping in the business development. It is to be hoped that there will be something done to maintain the conditions elsewhere besides in New York. Other sections in the east might well profit by this change in the management of the affairs about New York.

BURTON.

OBITUARY.

John McLaren Dies of Heart Failure, While En Route Home From a Business Trip.

John McLaren, president of the Phillips & McLaren Co., Pittsburg Pa., died October 15th in the Pennsylvania Railroad Station at Braddock, Pa., while returning from a business trip to Morgantown, W. Va. He was waiting for a train when heart failure seized him. Strangers who observed that he was ailing called a physician, but he died before medical aid could be administered. Up to the time he left Morgantown, Mr. McLaren had apparently been in his usual good health. He had never complained of heart trouble, so the untimely summons was wholly unexpected.

Mr. McLaren was sixty-one years old. Was born in New York, but had lived in Pittsburg since a mere lad. He had been a member of the N. B. M. A. for many years, and was always glad of an opportunity that enabled him to advance the interests of that organization. He was a kindly man, and a host of friends will mourn with his family, consisting of his wife and six children, all of whom reside in Pittsburg.

THEW STEAM SHOVEL COMPANY PROSPEROUS.

F. A. Smythe, president of the Thew Automatic Shovel Company, Lorain, Ohio, is again at his desk after an enforced absence of seven weeks, due to typhoid fever. Business was very good with this company during recent months with prospects for a continuance of this happy condition straight through the winter.

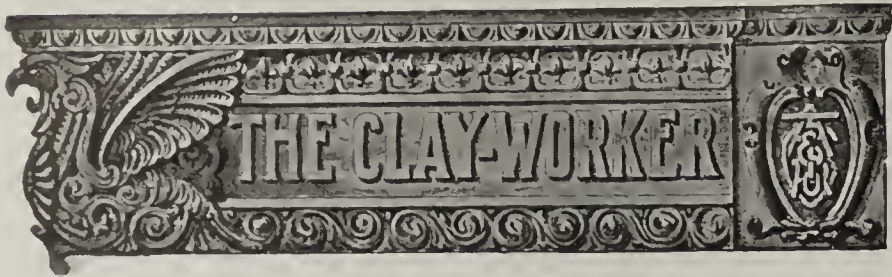
RODGERS ENGINEERING COMPANY ENJOYING BUSY DAYS.

L. E. Rodgers, president of the L. E. Rodgers Engineering Company, of Chicago, waste heat dryer specialists and brick work engineers, report that they are extremely busy at the present time. One of their latest contracts is a complete plant for the Albion Shale Brick Company, of Albion, Ill.

ROOKWOOD POTTERY TO BE ENLARGED.

Rookwood Pottery, on the brow of Mt. Adams, Cincinnati, Ohio, is to be enlarged by an annex for architectural material, the addition containing about 3,000 square feet. President W. W. Taylor states the plans would be made by the company and efforts taken to secure a reproduction of the same peculiar style of exterior architecture. The new part will be added to the north end of the works.

It is the man that fails in business that is in position to give the best kind of advice from his own experience, but the public is not generally disposed to attach weight to advice from such sources. This is just another of the train of misfortunes that often pursue a man in this world.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

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Subscribers when ordering a change of address should give both the old and new address.

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Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LVI.

NOVEMBER, 1911.

No. 5.

CURRENT COMMENT.

About the only man that objects to feeling waste heat in the winter time is the fireman that has trouble keeping up steam.

* * *

Read the N. B. M. A. official announcement on page 534 and make a note of the time, March 4-9; the place, Chicago, and the show.

* * *

It is due to a natural craving for excitement that a call for a fire prevention day does not create as much interest as the call of the fire alarm.

* * *

The fact that Canada didn't reciprocate need not keep the average nephew of Uncle Sam from having turkey for Thanksgiving—if he has got the price.

* * *

Surely this cry of "back to the land" was not hearkened to this year by as many people as we were led to believe, otherwise there would have been more farm produce available at lower prices than is the rule today.

* * *

The country-wide movement for improved cities and enlarged sewer systems makes some splendid openings for clay products. Are you making a drive for some of these openings and boosting brick for sewer construction?

* * *

A successful clay burner in one district may make a fool out of himself in another district unless he is wise enough to realize the difference in treatment required for clays in different sections, even though they look something near alike.

* * *

In this day of scientific management and systematic accounting we are occasionally in danger of losing sight of the fact that these are merely factors and that it is push and en-

ergy that really make business go. Let us not forget this fact, for a young man trained up in the idea that system and scientific management alone will run business, will have to learn a new lesson before he is successful, unless he is mighty lucky.

* * *

Sanitary ware is developing into quite an important branch of clayworking and it looks like it is only beginning to get busy, that the quantity of this product needed in the near future will easily quadruple the amount being used at present.

* * *

Just as a man's final success is not determined until the end of his race, so should we withhold judgment on others who are not apparently succeeding until the final "thirty" is written. Even then, some may prove greatest who are seemingly failures.

* * *

The championship series of baseball games is past history now. The pre-election political pot is done boiling, the football games will be over soon, and then we can have a few days for concentrating the mind on work before the prodings of Santa Claus begin. It is only a few, however, so make good use of them.

* * *

There is an increase reported in the roofing slate production that speaks good news in one respect, but it carries a suggestion of a hint that perhaps the clay tile people are not as busy boosting their product as they should be. It is an indication that people are turning from wood shingles to something more substantial and lasting as a proof against fire, and that the time and the trade is ripe for active successful exploitation of burnt clay roofing tile.

* * *

In the passing of Joseph Pulitzer, who was in reality the pioneer in that school of journalism termed "yellow" today, there goes from among us a man of wonderful ability who accomplished great things in the world while carrying a serious handicap. For fifteen years or more he was totally blind and yet he kept in just as intimate touch with his great publishing interests as if he were the managing editor in charge. There are several morals to be found in the life and work of a man such as this, not the least of which is that sometimes a handicap helps make a man great.

THE ANNUAL DAY OF THANKS.

Industrial conditions during the present year have pointed strongly toward the reason for the original instigation of a day of thanksgiving in this country by our forefathers. The original Thanksgiving was by agricultural people and was by way of rendering thanks, especially for the products of the earth. During the present year there has been heard throughout the land a great cry of "back to the farm," and perhaps more people have turned back, in thought if not in fact, to the farm and to agricultural pursuits. Some of the agitation has been by land-selling promoters with perhaps no special commendable purpose in view, but the general public has looked more longingly toward the farm and agricultural pursuits during the past year than at any time perhaps in the present generation.

It has been partly due to the lethargy in the industrial world, and the increased cost of living, making it hard for the average man to come out even. A sort of feeling of unrest in the industrial world itself, in which the farm has been looked to as a sort of refuge. It is perhaps well, too, that this spirit has been generated because even though many who turn back to the farm may be disappointed and return again soon to urban life, it will serve to counteract some of the general spirit and trend from the farm to the city, which has prevailed with us so long and so persistently that it has been difficult to keep the young men on the farm.

The final result will perhaps be to balance things up

and next year we should have better and larger results from agriculture as well as perhaps an easier time in the industrial world and not so much stretching to make both ends meet and cover the cost of living.

It has withal been a very good year, and there is plenty of room for heartfelt thankfulness. And this year as every year nearly there has been brought forth an abundance of products from the soil. There is no other nation on the face of the globe so well blessed in this respect. Therefore, it behooves every citizen of the United States to not only make a special day of thankfulness of it, but be reminded of the special blessings we have around us in the rich products of the farm.

THE AWAKENING TO FIRE PREVENTION.

Slowly but steadily the country is awakening to the importance of fire prevention and the governors of the different States are setting apart a day for the discussion of this subject so that all may be impressed with this just as regularly as school children are impressed with the importance of tree planting on Arbor Day.

It was pointed out at a recent fire-prevention day gathering by one of the speakers that everybody owning property has to help pay for every fire. That everybody in the country today is helping pay for the San Francisco fire, for the Baltimore fire, and for every other fire that occurs.

The explanation of this is in the fact that insurance rates are regulated by the fire loss and, theoretically, we have to pay for insurance a rate that is equal to all the fire loss and all the expense of maintaining the insurance machinery of the country.

This is a viewpoint that makes people sit up and take notice and it needs driving home hard, because we are slow to realize that we are paying for a thing when we pay for it indirectly. It is a fact, though, that when properly realized will have a wonderful effect in promoting the construction of more fireproof and slow combustion building.

Along with it, too, should be impressed the other fact that when a thing is destroyed by fire it is wiped out and eliminated entirely from the assets not only of the individual, but also of the State and nation. The fire loss is estimated to be \$3.00 per capita in this country, while in Europe it is only thirty-three cents. Moreover, notwithstanding the agitation that has been kept going about it, the indications are that the fire loss of this year will exceed that of last year.

There is only one way to get at this fire-prevention business right and that is to start at the ground and build better buildings. Use brick and other clay products and fireproof building material. This is the point that all of this fire-prevention day teachings should finally get around to and drive home. The point of every man, whether building a modest home or business structure, should build it out of fireproof material.

FACTORS OF SAFETY IN DAM BUILDING.

Quite recently we have had another horrible example of what devastation may be wrought when a dam of great height gives way, and turns loose a great flood of water. Accidents, of course, will happen now and then, but they should serve to remind us of a thing well known in the structural world, and that is the factor of safety.

Occasionally a big building collapses, but it is not very often, and the reason that accidents are infrequent in building operations is that in figuring the crush and strain in structural material liberal allowance is made for a factor of safety. In other words, all material entering must stand several times the maximum load that will be put upon it, and the number of times this load may be multiplied is what is termed the factor of safety.

Perhaps when people build dams they think they are including in their work just as large a factor of safety as is put into other structural work, but there are some problems

entering this work that are different. There is especially the problem of anchoring the dam at both the bottom and the sides and it is difficult to determine a factor of safety when a dam is built extremely high. It is not the quantity of water in surface measure, but its height, that makes pressure, and when it reaches a great height, for every foot of pressure that is generated against the face of the dam there must be an anchoring security.

It is easy to figure from this how a dam of any great surface, when the water reaches some height, generates an enormous pull on its anchor joints, the ends and the bottom. It is not merely a matter of getting strength enough at any given place in a dam to stand the pressure. That is only a small part of the problem. The great problem is anchoring it so that no part will give way. And it is right here that some of our best engineers occasionally fail, or rather their work fails. They may think they have got it, but they really do not get factor of safety enough in their anchorage.

Moreover, it is really a difficult thing to get. It is not a plain case of resistance of pressure like we have in erecting a building upright, nor is it merely a matter of resistance to shearing stress. It is a matter of getting anchored to some of nature's own formations. This problem in a big dam is more difficult and complex than we may imagine and for this very reason extra care should be taken to see that there is a good factor of safety in their construction.

THE BOOMERANG OF FALSE CLAIMS.

Every once in a while we see amongst the rivals to brick in the structural world instances where enthusiasm over the product offered runs away with itself and such extravagant claims are made that they become really untrue advertising and eventually result in a reaction and prove to be a sort of boomerang.

We had quite a lot of this in connection with cement products, and lately we had a fair share of it in connection with wood products. The cypress people, for example, have been doing some exploiting of cypress as "the wood eternal" in popular magazines. Also they have devised a trademark consisting of a reproduction of the end of a cypress log, on which is printed the words, "cypress will not rot."

Of course, those conversant with the business understand that this is merely the result of a desire to emphasize the durability of cypress in comparison with other woods. Yet, taken literally, these assertions prove to be boomerangs, because there is no wood but what will eventually rot when exposed to the weather. On the other hand, almost any wood will last indefinitely if protected from the weather or, rather, from changes of moisture conditions and so on.

The claims of the cypress people are extravagant enough that it has aroused a little antagonism among the people offering other woods and has resulted in some of the lumber papers calling a turn on this cypress advertising and pointing out that it is not a proper exploitation. That in the end it will bring a reaction because it leads people to expect too much of it and when they find it proves disappointing it will then be worse off than if it had never been exploited in this manner.

The truth of this matter is, say cypress will rot in a mighty few years, and even heart cypress must be kept protected with paint. Properly protected with paint any wood can be made to last for many years. There are instances on record where wooden buildings have lasted over a hundred years, but they are buildings that have been taken care of and protected with paint.

Against these hundred-year records there are thousand-year records on brick, but after all it is not the mere occasional instances of longevity that count, it is the average life and usefulness of building material. The amount of exposure it will stand and how it will retain its life and usefulness under a general condition.

There has never been devised anything superior to prop-

erly burned clay products to stand the weather and to furnish an all around building material of superior and dependable qualities.

Every once in a while some rival offering will make extravagant claims and seemingly gain a temporary foothold, but in the end this extravagant advertising always becomes a boomerang and the product for which false claims are made pays the penalty.

Those exploiting clay products should keep this everlastingly before them. They, too, should avoid extravagant claims for the sake of emphasis. There are other ways to get emphasis. Persistent advertising is one way to keep impressing people, and there are plenty of claims to make for brick products without drawing on the imagination or overpainting any brick pictures. Brick has stood too long and has made too good a home for itself in the world to go into the boomerang business.

And while steering clear of all this extravagant business in their own work of exploitation it is well for the clay products people to keep their eyes on instances of it that develop in connection with the exploiting of rival products to point them out and watch the development and see when the time is ripe for the return of the boomerang.

AN UNUSUAL ORDER FOR ILLINOIS SUPPLY AND CONSTRUCTION COMPANY.

The Illinois Supply and Construction Company, of St. Louis, Mo., report orders for hand power presses and a complete press brick plant equipment and also a two-mold power briquette press for a firm in St. Louis said to be using a melter for pressing high grade ores in the briquettes.

TRADE LITERATURE.

Pony Catalog No. 86 contains information on steam pumps and condensers. It consists in all of sixty-four pages of illustrations and descriptive matter, all of which is of interest to the average clayworker. It is issued by Dean Bros. Steam Pump Works of Indianapolis, Ind., who have been manufacturing pumps for many years. A postal card request will bring a copy of this handy pocket pamphlet to any one interested.

Tate, Jones & Company, Inc., of Pittsburg, Pa., recently favored us with a copy of their new circular No. 139 with a supplementary sheet, the former containing a well-written article on "Why you should use the Tate, Jones & Co. system of fuel oil burning for your kilns," while the supplement presents a revised price list of oil burning equipment for ceramic industries effective November 1, 1911. This well-known firm has furnished hundreds of plants with this equipment which always proves a money-saving item. If you are interested in oil as a fuel, write them for their latest circulars and pamphlets.

Clay-Working Machinery, Catalogue, No. 29, is the title of a finely printed catalog issued to the trade by the Taplin-Rice-Clerkin Company, of Akron, Ohio. It contains over a hundred pages of interesting information relative to their various types of pans, elevators, feeders, steam dummy engines, sewer pipe presses, cut offs, steam presses, friction clutchpulleys, cars, trucks, barrows, drums, screens, trimmers, haulage machines, combination disintegrator, and crushing rolls, pug mills, brick, tile and fireproofing machines, cutting tables, disintegrators, pottery machinery, gears, etc., etc. In the back are tables showing number of teeth, pitch, face and diameters of various patterns of spur, bevel and miter wheels. This wellknown company makes complete lines of brick, tile, sewer pipe and pottery machinery. Write them for a copy of this comprehensive cataiog.

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“GETTING THE MOST FOR A DOLLAR” has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 573.]

FOR SALE, WANTED, ETC.

FOR SALE.

Marion “A” 45-ton steam shovel; 1¼-yard bucket; friction crane. First-class order. Will make attractive price. Can be seen at Millville, N. J. Address, S. B. DOBBS, 304 Bailey Bldg., Philadelphia, Pa.

FOR SALE—Rotary sand-dryer, manufactured by the American Process Co., 62 William St., N. Y. In A1 condition. Will sell at a bargain, as we have no further use for it. Make us an offer.

ROCHESTER COMPOSITE BRICK BRICK CO.,

64 Clinton Ave., N., Rochester, N. Y.

For Sale, Wanted, Etc.. Ads Continued on pages 561, 562 and 563.

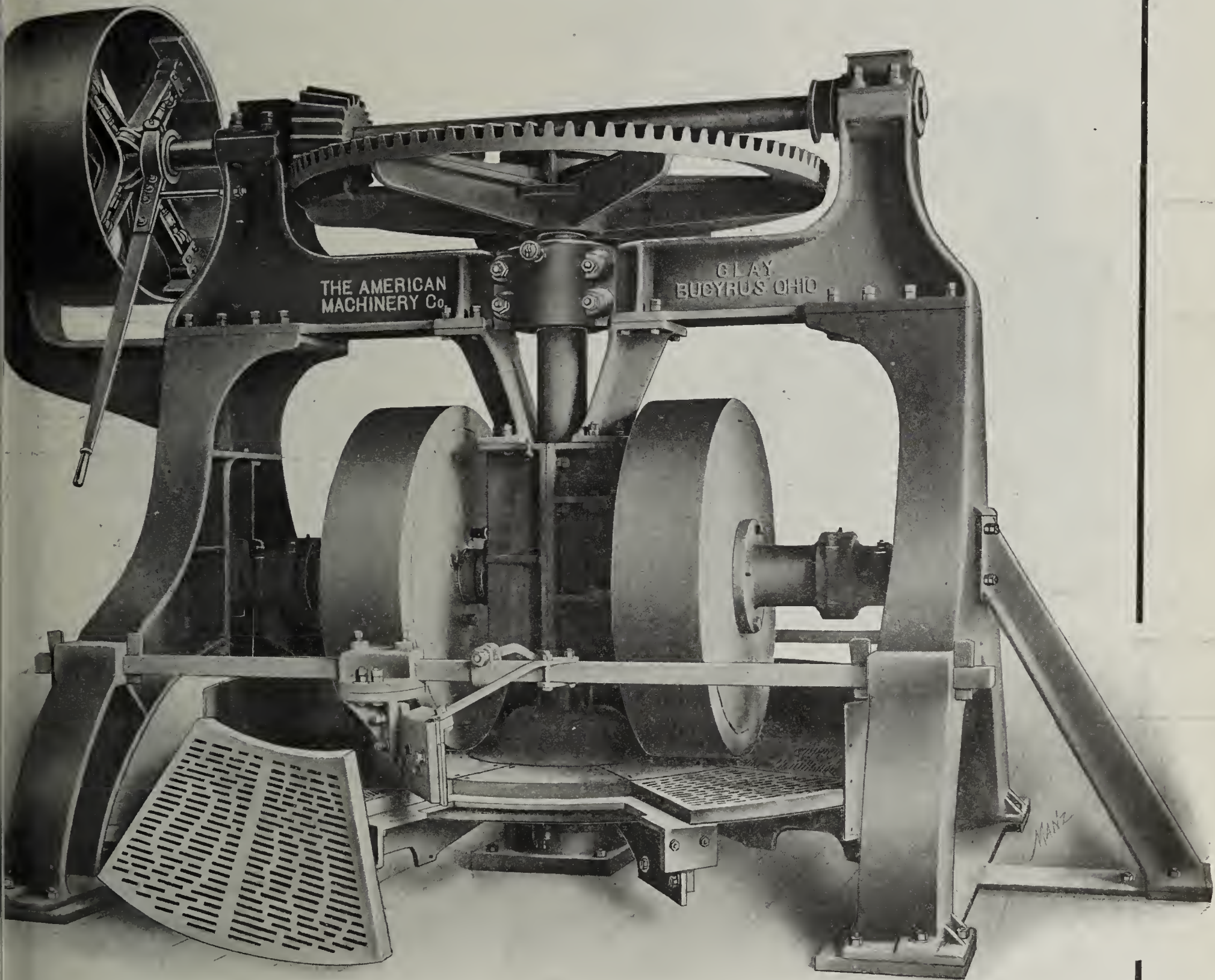
"A Quality Above All Others in Clayworking Machinery."

BUY CAPACITY AND QUALITY

When you buy a pan to make paving brick you are most interested in the capacity and the ability of the pan to stand up under that capacity.

A pan which will grind 200 tons of clay a day and grind it to a satisfactory fineness without delays for break-ages is worth much more to you than a pan which will grind from twenty-five to fifty per cent. less material and maintain even that speed at the cost of frequent repairs. The one pan may be cheaper at first, but in the long run it is far more expensive. Our pans are most carefully built to insure a uniform, never-lagging capacity. They are built to make them exempt from repair bills and will perform up to and beyond their rated capacity without frequent annoying and expensive delays. There are features in our pan which are interesting to know about because they make up that quality characteristic of the American Clay Machinery Company pans. We will be glad to tell you all about them on request. We build several dozen styles and sizes and can exactly meet your requirements. There are no better pans built anywhere than ours, and few, if any, as good.

Our line includes every machine and appliance needed by the Clayworker.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

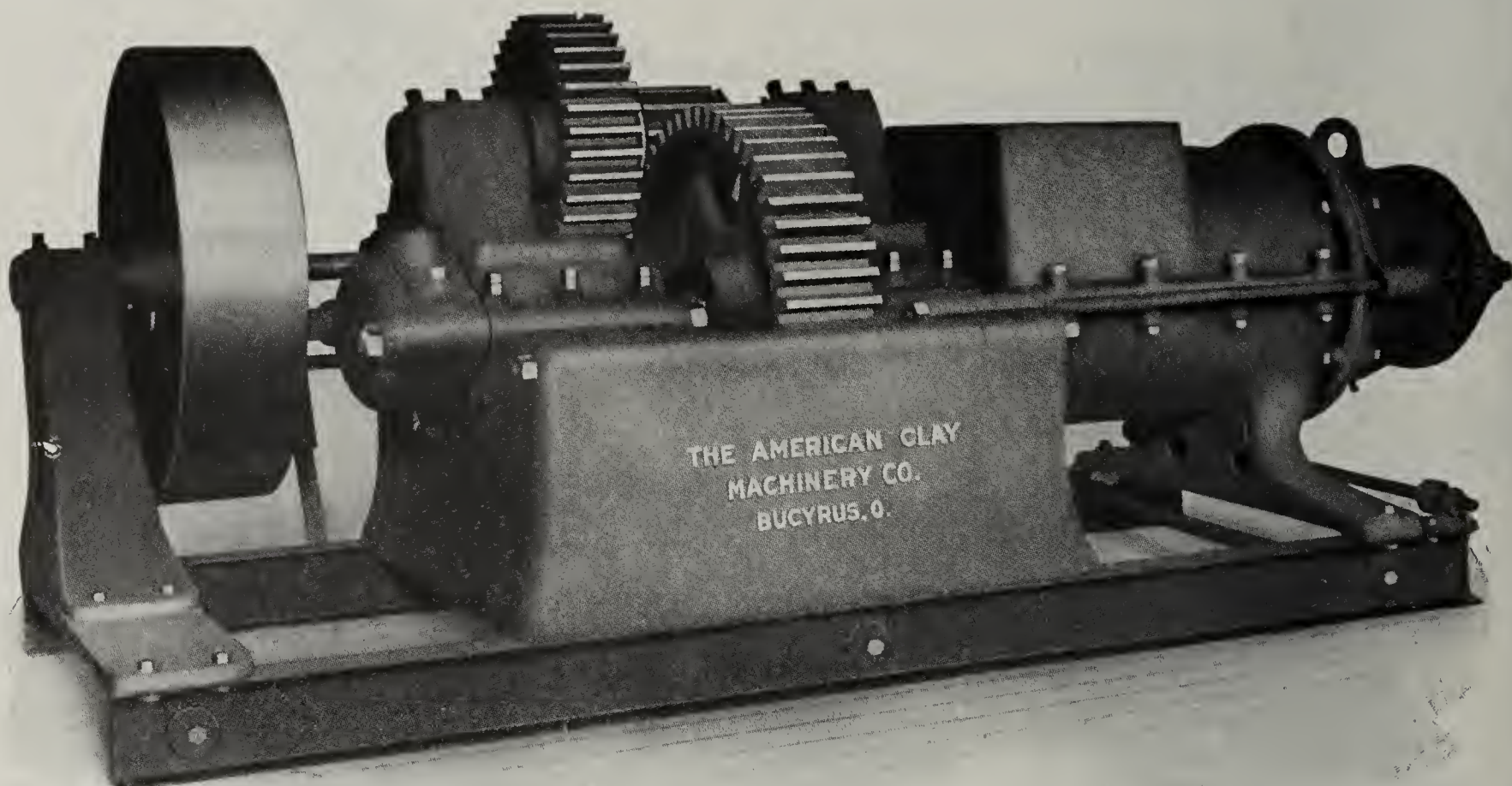
"A Quality Above All Others in Clayworking Machinery."

FILLS EVERY PROMISE

When we designed and built the first No. 65 Auger Machine, a little over a year ago, we felt confident it would be a most dependable machine; one with a capacity beyond anything else, and a quality able to back such a capacity. The experience of all of the users of the No. 65 amply proves that our expectations were well founded and our confidence not misplaced. It is a machine you can depend upon, as proof of which we quote from several users:

The Denny-Renton Clay and Coal Co., Seattle, says: "We are much pleased with the No. 65. The machine made 108,000 brick per day almost from the start, that being the limit of our represses. When we have our additional repress installed, we will make 144,000 brick per day."

The Coffeyville Shale Brick Co., Coffeyville, Kansas, says: "The No. 65 Auger Machine has made 16,408,000



The No. 65 Auger Brick Machine.

brick in 174 working days, and we are sure it is capable of turning out 125,000 brick each day of ten hours. It is very light running, requiring less power than any machine we know. We are more than pleased with the No. 65."

The Marion Brick Works, Montezuma, Ind., says: "The No. 65 Auger Machine has done more than you claim for it. It turns out building brick at the rate of 250,000 per day of nine hours."

What this machine is doing for others ought to be an indication of what it will do for you. We will refer you to users of the No. 65 on request.

We build every machine and appliance for the manufacture of every class of clay products by every process. Being the largest manufacturers of clayworking machinery in the world, we can offer the buyer advantages worth consideration.

We build several dozen of other styles of auger machines for various purposes.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

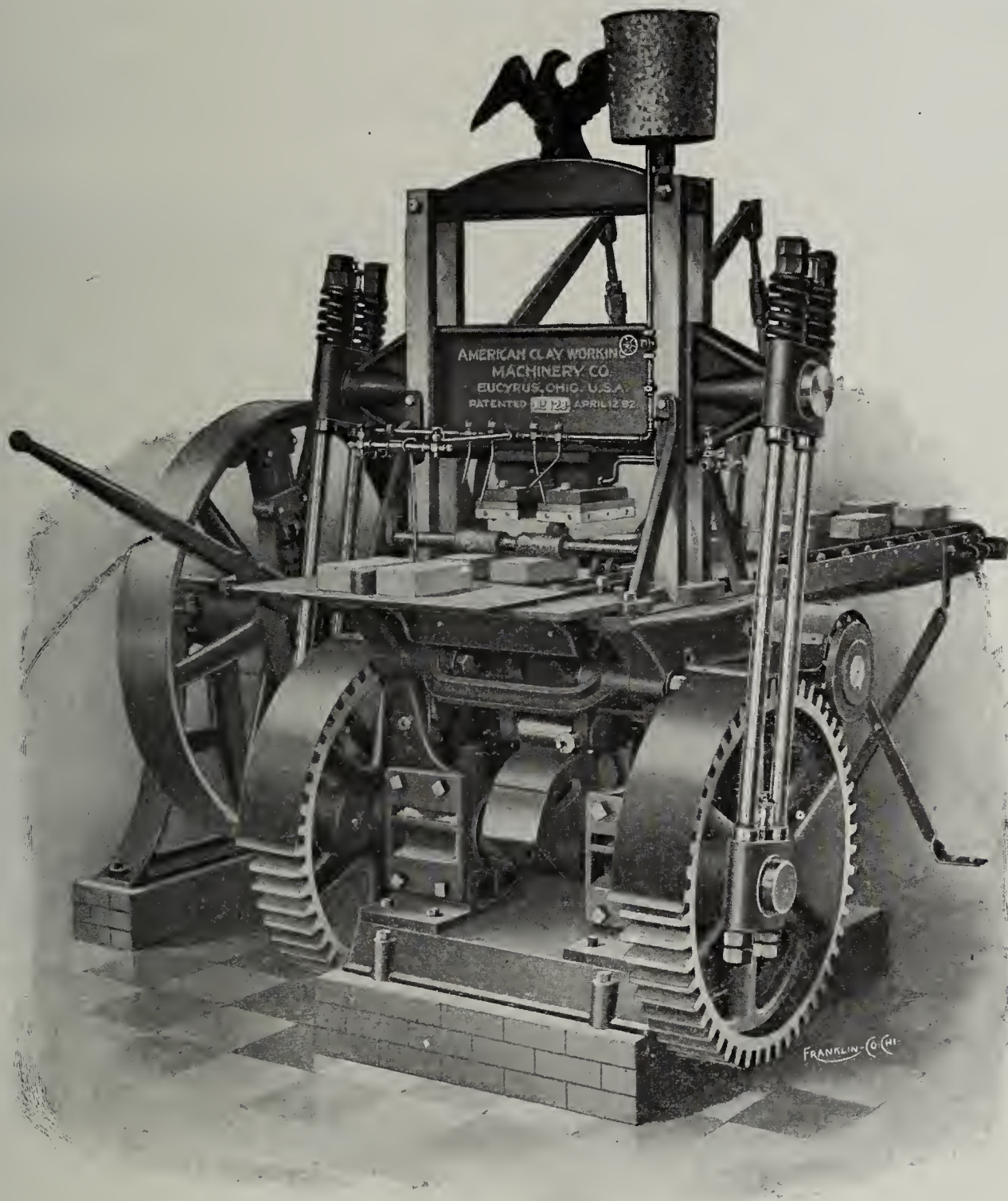
Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

PAVING BRICK PRESS

The paved street cause is often injured by inferior brick. If every Paving Brick were up to the quality that could be attained by the use of an Eagle Repress, brick streets would be more popular than they are today. The life of the brick street is in the quality of its construction and the quality of the material. We cannot answer for the proper building of the street, but we can answer for the proper pressing of any street paver.

There is no press built which will do the quantity and quality of work that has been turned out by the Eagle Repress. It leads because of the principle of its construction,



the quality of material and workmanship. Any paving brick manufacturer can save money as well as make it by using this best-of-all Represses.

Full particulars for the asking. We manufacture every machine and appliance used to make clay products by all processes.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

THE KEYSTONE OF SUCCESS IN Steam Pipe Rack Dryers

We have a number of vital patents on the Steam Pipe Rack Dryer which are the Keystones of Success in the operation of this type of dryer so far as efficiency and economy are concerned. Those who are using our improved dryer are loud in its praise. It is at once a model of neatness, comfort, light and convenience and in its operation will distribute the heat to a better advantage

and at less cost than any other dryer of the kind on the market. This dryer has been selected by those careful to investigate and has won out in competition with all others. One user says: "We have used your dryer long enough to convince us that its success is complete and its operation will be a decided economy.



Brick made one day are set in the kiln next day uniformly dry throughout entire holding capacity of dryer, which means a considerable saving in burning. We dry with exhaust steam during day and finish with 5 to 10 lbs. live steam during night. Cost of drying with our hot air dryer was 65 cents per thousand. With your dryer it is 25 cents. We believe you have the best dryer on the market."

Let us figure with you on one of these dryers or any other Clayworking Machinery or appliances.

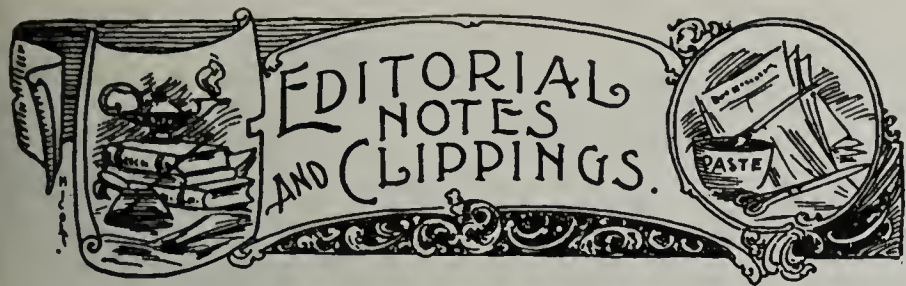
Send for Pipe Rack Dryer Catalogue Just Out.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.



A new brick plant has been erected at Laurel Dale, W. Va., by the Reading Quarry Company.

Hockman, Warner & Beck will establish a brick plant at Waynesboro, Pa., in the very near future.

A. Von Spreckelson, of Indianapolis, has under way the construction of a \$10,000 drain tile plant at Manchester, Tenn.

J. R. Pittman, of Atlanta, Ga., has purchased a large tract of land at Piedmont, Ala., on which he will erect a large shale brick plant.

W. G. Bush & Co., of Nashville, Tenn., have under way plans for improvements which will increase the capacity of their plant very materially.

The Hillsboro Brick and Tile Company will enlarge their plant at Hillsboro, Ill., in order to enable them to meet the increased demand for their brick.

The plant of the Laurel Brick and Tile Company, at Laurel, Miss., was burned to the ground October 21. The insurance of \$10,000, it is said, will cover about half the loss.

The Reliance Brick Company has been incorporated by J. W. Bostwick, of Roxborough, Pa.; B. Moorhead and T. B. Harned, Jr., of Philadelphia, with \$250,000 capital stock.

The Rio Delta Clay Products Company, of San Benito, Texas, has been incorporated with \$100,000 capital stock. The incorporators are Sam Householder, W. D. Carpenter and E. W. Watts.

The Ft. Wayne Tile Company is the name of the new concern recently incorporated to manufacture hollow clay ware at Ft. Wayne, Ind. The directors of the company are Paul Koehler, Frank Kintz, J. H. Koehler, William Wirtfield and Henry Braun.

The Richard Murray Brick Company, of Berlin, Conn., has filed certificates of incorporation with the secretary of state. The amount of capital stock subscribed for is \$50,000. The incorporators are Johanna M. Murray, Richard B. Murray and Katherine P. Murray.

The Kingston Brick and Tile Company, of Kingston, Ontario, Can., recently purchased a large tract of land just outside of that city, on which they will erect a modern brick plant, which will have an annual capacity of 4,000,000 brick. A. Neal is the manager of the new concern.

The Coffeyville Brick Company, of Coffeyville, Kas., recently booked a contract to furnish brick for the new \$35,000,000 Union Depot at Kansas City. This order will go a good ways toward keeping their plants at Independence, Coffeyville and Cherryvale busy during the winter months.

The Malvern Clay Company, of Malvern, Ohio, has recently been incorporated with \$100,000 capital stock. The incorporators are Edmund C. Baxter and Oscar Allison, of Chester, W. Va.; Geo. W. Henning, of Canton, Ohio; Walter R. Elson, of Massillon, Ohio, and Geo. C. Ross, of Malvern, Ohio.

The Enterprise Brick Company, of Wrenshall, Minn., has closed down its plant after a most successful season's run. The company turned out about 10,000,000 brick, very few of which are now on hand. Many improvements will be made at the plant during the winter season, including the installation of the sand mold machine.

A short time since the property of the Beaverton (Ore.) Clay Manufacturing Company was placed in the hands of W. F. Meyers as receiver. For several weeks the workmen had not been paid for their services. Receiver Meyers has settled with them all and expects to have the plant in full working order again now soon turning out brick and drain tile.

The plant of the United Brick Company, at Conneaut, Ohio, is being rushed to its utmost capacity. Several new kilns are now in the course of construction, which will enable the company to increase its capacity. At the present time the company is working on a large order for bricks for several highways in New York near Buffalo, which keeps them running

full handed to supply the brick as fast as they are wanted by the contractor.

J. C. McDonald & Son, 15 McGraw building, Detroit, Mich., are in the market for an oil burning apparatus for brick kilns.

The plant of the Butte Sewer Pipe and Tile Company, at Butte, Mont., was damaged to the extent of \$200 by fire, which started from an overheated kiln.

Alex. V. Carpenter has sold his interest in the Traer Brick and Tile factory at Traer, Iowa, to his partner, Henry Sirrine. Mr. Sirrine will take charge of the plant in the spring.

The Cayuga Brick and Coal Co.'s plant at Cayuga, Ind., has been purchased by the S. S. Puckett Company, of Petoskey, Mich., and the plant will be operated on a much larger scale than heretofore.

The Ruby Coal Mine and Brick Company is the name of the new concern recently incorporated to establish a brick plant at Featherstone, Okla. The plant will have a capacity of 40,000 brick per day and the work on same will be begun at once.

John Herold owner of a small pottery plant at Golden, Colo., contemplates starting a larger pottery at Denver. His plant at Golden is prosperous, but in his opinion the demand for his product can be met to better advantage with a factory at Denver as a chief distributing point.

Francis N. Burdick, a pioneer brick manufacturer of Racine, Wis., died on November 7. Mr. Burdick had been a resident of Racine for sixty years, had operated a brick yard for fifty-two years and was well and favorably known. He was a leading member of the Wisconsin Clay Manufacturers' Association.

J. V. Humphries has instituted suit against the Mexico Brick and Fire Clay Company, of Mexico, Mo., for \$5,000 personal damages. He claims that while employed as a laborer for the company and helping tear down a scaffold around a smokestack another employe threw down some heavy timber, which struck him and injured him badly.

The Wilson Brick Company, of Hartford, Conn., contemplates installation of apparatus for burning their brick with oil instead of fuel as heretofore, and F. H. Young, the manager of the Wilson Brick Company, has been investigating the matter for some time, visiting brick plants where oil has been used, with the result that it will supplant all orders at the Wilson plant.

Mr. Wheeler has brought suit against the Sioux City Paving Brick Company, of Sioux City, Iowa, for \$35,000 damages for the loss of a leg while working for the company. Wheeler was working about the machinery and his leg was caught in an unprotected shaft and so mangled that it had to be amputated. The company avers that the accident was caused by Wheeler's carelessness, and they will accordingly contest the suit.

A perpetual injunction restraining the Utah Fire Clay Company, Salt Lake City, Utah, from creating alleged nuisance is asked for in a suit filed in the district court by Sarah J. Pass. The complaint asks that the injunction enjoin defendant from operating its brick works in a manner that will create dust and offensive smells cause buildings to vibrate and make loud and unusual noises. Besides the injunction the complainant asks for \$2,000 damages. This, she says, has been the amount of deterioration to her property on account of the presence of the brick manufactory.

A loss of \$1,000 was caused recently at the brickyard of Frederick Stocker, at East Saugus, Mass., by a fire which started in the kiln sheds. The roofs of several of the buildings caught fire a time or two during the conflagration, but the fire company was able to keep the fire under control, though no water was thrown on the burning kiln sheds for fear of spoiling the brick. This brickyard is one of the oldest in the New England States and Mr. Stocker has made brick of the present style for over fifty years. This is the first serious fire he has had for more than thirty years.

The readjustment of conditions along the Hudson river through the organization of the Greater New York Brick Company has resulted in considerable discussion regarding the quantity of brick available after the season closed. The new method of control began with a curtailment of the season sufficient to make a good deal of difference in the output. When the announcement was made that the yards would close earlier than usual there was consternation among the people who

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

use brick. They thought prices would be advanced arbitrarily and that they would have to pay a much larger sum for their stock.

The Swiger Brick Company will establish a brick plant of 30,000 daily capacity at Fairmont, W. Va. The plant will cost in the neighborhood of \$30,000.

Frederick L. Armstrong, president of the Armstrong Brick Company, of Morristown, N. J., was injured recently when an automobile skidded and crashed into his buggy.

John P. Hutchinson, of Bordentown, N. J., has been appointed receiver for the Phoenix Pottery Company, near Bordentown. The plant has been idle for some weeks.

A serious fire occurred October 31 at the brick plant of the Stiles & Reynolds Company, at Berlin, Conn., entailing a loss of several thousand dollars. The fire is believed to have been caused by defective electric wiring.

The Keokuk (Iowa) Brick and Tile Company has filed articles of incorporation. The incorporators are Frank W. Swan, Wm. F. Scott, Paul S. Peckstein, Frank L. Griffey, P. S. Hentel and J. N. D. Dickinson, and the capital stock is given at \$50,000.

Victor Zuber, of Portland, Ore.; John Perry, Leo Schnurr and Anson Crutchfield, of Bandon, Ore., all of whom are practical brickmakers, have organized the Bandon Clay Products Company, with a capital of \$25,000, and will erect a plant for the manufacture of brick and tile at Bandon.

The Keizer Brick Machine and Manufacturing Company has been formed in Winnipeg, Manitoba, with a capital of \$200,000. The directors are Mayor Evans, J. W. Horne, D. A. Keizer, J. B. Stephens and others. Mr. Keizer is the inventor of the machine, which has a capacity of 21,600 pressed brick per hour.

The Streator Paving Brick Company, of Streator, Ill., is rebuilding its machine house. The structure will be of fire-proofing construction, the roof to be laid on iron truss-work. A 250 horsepower Corliss engine will be installed and also additional brick machinery will be put in in addition to its three new kilns they are building.

The Ludowici Celadon Company, of New Lexington, Ohio, has been making very extensive additions to their already large factory. Their roofing tile market has so far increased that their present capacity will not meet the requirements of their trade. Their product goes to the markets in the United States and Canada and to many parts of Europe.

The Hollendale Brick and Tile Company of Hollendale, Wis., has been sold to the Northern Minnesota Dairy Farm Land Company, of Madison, Wis., in exchange for a large tract of land in northern Minnesota. It is understood that the deal involved more than \$100,000. The new owners of the brick and tile concern, just as soon as possible, will place the plant at Hollendale in operation. Present plans are that various improvements will be made and the output increased.

The Athens Pottery Company has been formed with headquarters at Athens, Texas. It has a capital stock of \$100,000, and besides owning and operating a large pottery plant at Athens it has taken over the pottery factory of the Winfield Pottery Company near Winfield, Texas. Its plant at Athens has just been acquired from P. E. Miller, the consideration being \$89,600. Mr. Miller still retains a large interest in the company. The other stockholders are J. C. Hogue and J. E. Miller. The company will make extensive improvements and enlargements, it is stated, and when its plans are carried into effect it will be one of the largest pottery manufacturers in the South. The clays in the vicinity of Athens and Winfield have long been known for their excellence for the manufacture of pottery.

The Hydraulic Pressed Brick Company, of Menomonie, Wis., with 100 employes, has filed notice with the Wisconsin Industrial Commission, which administers the new Wisconsin workmen's compensation law, that it will go in under the new act. Manufacturers in all lines have gone in under the law, although many are holding back until the Wisconsin Supreme Court has given a decision in the test case brought by manufacturers of Milwaukee to determine the constitutionality of the new act. Arguments in the case were started before the court on November 1 and a decision is expected soon after the opening of the new year. The plaintiffs in the case are basing their suit on the ground that the law does not allow the employe to get into the courts and places too much power with the Industrial Commission. Manufacturers

are decidedly in favor of the law, but they are anxious to know whether or not it will be upheld in the courts.

The Bolivar Face Brick Company, of Bolivar, Pa., has filed notice of an increase of capital stock from \$50,000 to \$250,000 and an issue of bonds to the amount of \$130,000.

The Shaw Kiln Company has recently been incorporated at Atlanta, Ga., with a capital of \$500,000. T. B. Felder, Mrs. F. Shaw and others are interested. The company is now planning the establishment of a large brick and tile manufacturing plant near Atlanta.

According to the complaint the premises of the complainant are within 150 feet of the brick plant. It is alleged that the cinders, smoke, gas, dust, dirt, offensive smells and noxious fumes coming from the plant produce material discomfort, great inconvenience and constant annoyance for the plaintiff.

The plant of the Volant Brick Company, Volant, Pa., which was destroyed by fire recently, will be ready for operation about the first of December. A permanent brick building is being erected over the boiler house and temporary buildings have been erected for the rest of the plant. These buildings will be replaced by brick ones next summer.

The friends of E. R. Buckley, for three years with the Wisconsin Geological Survey, during which time he served as secretary of the Wisconsin Clayworkers' Association, and for seven years director of the Missouri Bureau of Geology and Mines, will be pleased to know that he has opened an office as a consulting mining geologist and engineer in Chicago. Mr. Buckley has many friends among the clayworkers of the country and he writes that the latch-string hangs out for all at his new quarters 1364 People's Gas building.

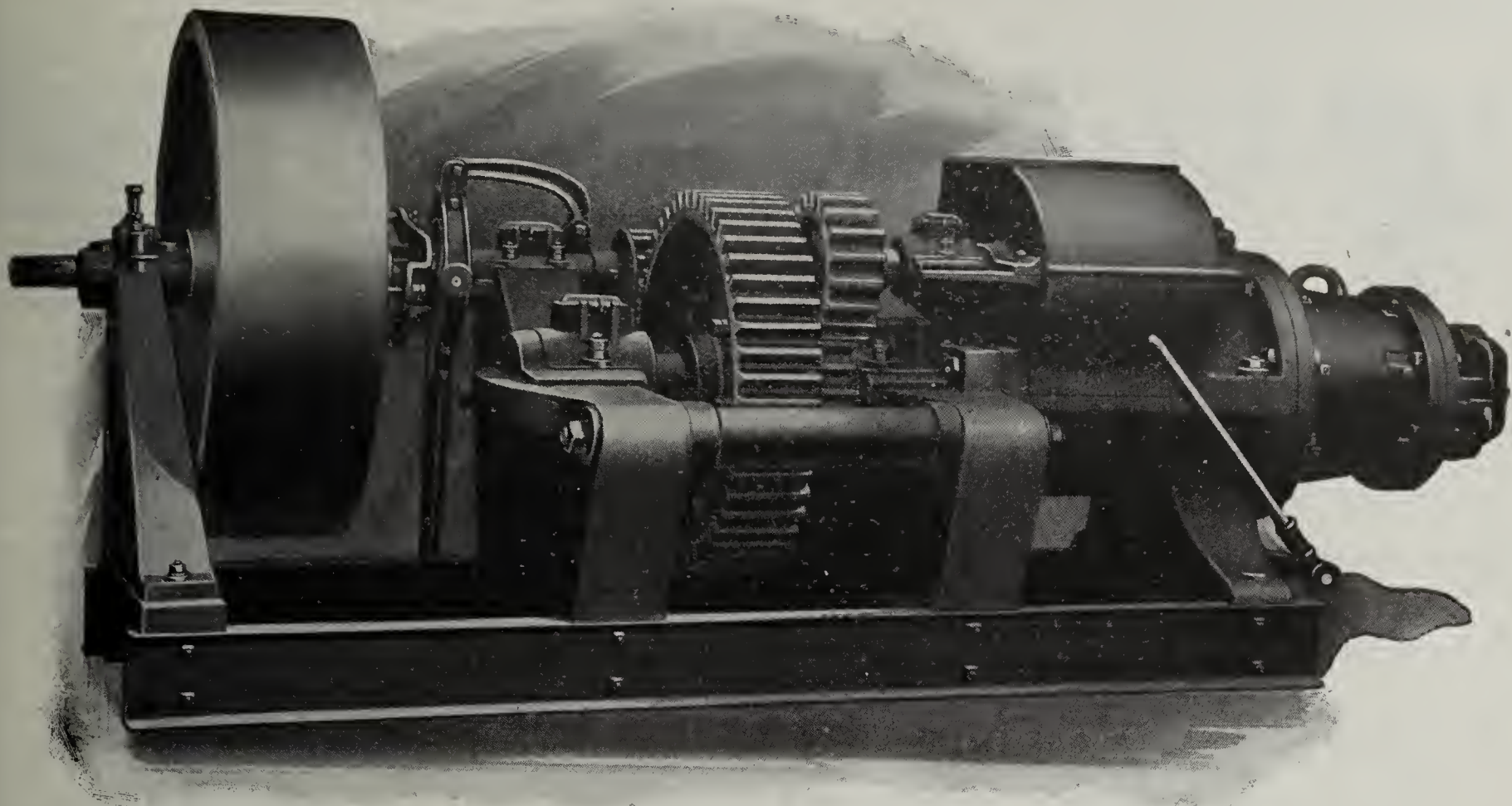
The Taplin-Rice-Clerkin Company, of Akron, Ohio, write that they are completely deluged with orders, and their plant is running full blast day and night. The question with them now is not so much soliciting orders as being able to turn out on time the orders that are coming in. They have recently shipped sewer pipe and tile machinery to the following firms: The Marshalltown (Iowa) Vitified Pipe and Tile Company, the Denver (Colo.) Sewer Pipe Company, the Reliance Brick and Tile Company, of Belle Plaine, Iowa, and the Standard Brick and Tile Company, of Portland, Ore.

George J. Schwarz, of the firm of Ricketson & Schwarz, one of the best known firms in Milwaukee dealing in brick, tile and building materials in general, was a member of a party of Milwaukeeans which sailed from New York November 8 on the Cunard liner *Lusitania* for Liverpool. Most of the members of the party will make the trip abroad a business one, and Mr. Schwarz will make it a point to visit some of the leading brick and clayworking establishments of Europe. The Ricketson & Schwarz concern is sales agent for the Purington Paving Brick Company of Galesburg, Ill.

The New Brick Company, of Mechanicville, N. Y., recently filed articles of incorporation certifying to a capital stock of \$100,000. The directors of the company are William Duffney, Sr.; Melville L. Welling, Herbert O. Bailey, Norman W. Kelso, William D. Tweedy, Fred E. Partridge and Thomas F. Hickey. The company will take over the plant of the Mechanicville Brick Company and manufacture brick on a larger scale than ever before. The plant includes ninety acres of land and was originally owned by the Ferris Brick Company, which was later reorganized under the name of the Mechanicville Brick Company, which has now been absorbed by this new incorporation.

Louis N. Rancke, for many years manager of the Baltimore Retort and Fire Brick Company, of Baltimore, Md., and more recently connected with the gas engineering department of the Laclede-Christy Clay Products Company, of St. Louis, took charge of the plant of the Vulcan Fire Brick Company at Baltimore late in August and has put in the time since then remodeling same, and now has the plant in first-class condition, with an initial capacity of 20,000 fire brick per day, and an equal amount of building and hollow block and drain tile. In a recent letter Mr. Rancke says:

"We have been exploiting the clay beds, and find that we have large quantities of very highly refractory clays, and further have a very suitable clay for the manufacture of different varieties of building brick, hollow blocks, drain tile and all sorts of things. We further have a large deposit of infusorial earth, called American kieselguhr, which is an excellent non-conductor, and is less than one-half the weight of any clay goods, and has a large field for development, so that all together we have advanced so far as to have our fire brick tested in actual usage, and find they are equal to any and superior to most of the brands that come into this market."



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 592-595.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE MONTH OF OCTOBER in the building trades was not anything to brag of, but still a considerable activity in the construction of apartment houses leaves the situation by no means dull. The local architects are busy, and if one-tenth of the work on the boards materializes, things will take a turn for the better very shortly. Now that ground for the

Panama-Pacific International Exposition has been formally broken by President Taft, it will not be a great while before actual work on the big fair will be commenced. There is no time to lose in this matter, for a stupendous amount of construction work will necessarily have to be done in the next four years. As yet no exceptionally large private building enterprise has been launched, though a number are under consideration.

The United Materials Company report that they are behind with their orders, and do not expect to have enough material for prompt delivery until December. This company has been awarded several large contracts for pressed brick, to be furnished by the Los Angeles Pressed Brick Company, and common brick made by the Port Costa brick works, of Los Angeles, for which they have the local selling agency.

Howard Frost, vice-president of the Los Angeles Pressed Brick Company, visited this city last week in the interest of his products.

Jacob Beck, of the Port Costa brick works, has come up from his home in Los Angeles for a visit to the plant. He states that business in the south is unusually good for this time of the year.

Gladding, McBean & Co. are busy. The largest contract they have received lately is for white mat enamel terra cotta for the new L. C. Smith building at Seattle, Wash. This building will be the tallest in the west. It is to have forty-two stories.

The Steiger Terra Cotta and Pottery Works have nothing to complain of in the way of present business. They were recently awarded the contract to furnish architectural terra cotta and pressed brick for the new Girls' High School at the corner of Geary and Scott streets, and the contract for the same materials for the German Home Association, whose building will be erected at Polk and Turk streets. Fred H. Meyer is the architect of this building.

The Carquinez Brick and Tile Company is placing all its products as fast as it can produce them. This company is operating at full capacity and has a number of large contracts under consideration.

Preliminary plans are said to have been drawn for a big pottery and china plant to be erected in the near future at Domingues, a small place near Los Angeles. The proposed plant is to cost \$60,000, according to the report, and is to be built by the China Manufacturing Company, of Los Angeles. The capital stock of this company, which is a new concern, is \$300,000.

The Golden Gate Brick Company, with C. F. Pratt, the manager, as host, entertained the officers and drill team of California Commandery No. 1, at a most enjoyable bulls' head dinner recently at Antioch, Cal., where the company's plant is located. Five bulls' heads were served up after the manner originated by the Indians, and also a dozen chickens. The viands were roasted by C. F. Pratt and his brother, L. H. Pratt, who are said to be experts in aboriginal cookery.

A handsome residence built of hollow tile construction, is just being completed for Mrs. S. E. Newbury, on the slope of the Arroya Seco at Arbor street, Los Angeles. The house is a model of its kind and, considering the cost was only \$12,000, is a most satisfactory and up-to-date dwelling.

The Pacific Sewer Pipe Company, of Los Angeles, which

practically controls the sewer pipe industry in the southern part of the state, is planning to install another big plant near Los Angeles, at a cost of about \$30,000. The company now has five plants in operation in southern California, and recently built an addition to its factory No. 3 at Corona, Cal. It is reported that the new plant will have about twenty sewer pipe kilns.

The Willows brickyard, which commenced the manufacture of common brick at Willows, Cal., a little over a year ago, and was shut down after turning out material for a few local buildings, will probably be started up again next spring, if not sooner. The plant has been idle since late last fall, but arrangements are now being made to organize a corporation under the name of the Home Brick Company, with the object of buying the works. The principal difficulty in the past has been lack of capital rather than scarcity of business, and as a number of prominent business men have become interested in the project it is expected that the company will meet with success. There is a good demand for brick within easy shipping distance of the plant, as indicated by the fact that material has been shipped in in considerable quantities from other parts of the Sacramento valley.

The first carload of paving brick to be turned out by the plant of the Oakland Paving Brick Company, at Niles, Cal., was sent out last week. The plant has been operating off and on for some time, but heretofore most of the material has been required for the completion of the works, and until recently no attempt was made to produce pavers. In celebration of the commencement of work on a commercial scale, the company presented Harry South, superintendent of the plant, with a case of champagne, which was consumed with appropriate sentiments by Mr. South and his associates at the works.

SUNSET.

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**IS NOT—AN EXTRAVAGANCE
IT IS—AN ECONOMY**

That is Why

TWENTY-SIX HUNDRED

**Leading Brick and Clay Plants
Are Now Using the SAWYER Belt.**

**For BUCKET ELEVATING
SHALE—CRUSHED STONE
AND SAND=LIME CONVEYING
PUG=MILLS—PULVERIZERS
WET AND DRY PANS
DISINTEGRATORS—and**

**All Machinery used in the Manufacture
of Brick—Tile—Sewer Pipe—Pottery
Paving and other Clay Products.**

ESTIMATES CHEERFULLY FURNISHED.

Write Your Wants and Troubles to

Department of Engineering

SAWYER BELTING COMPANY

CLEVELAND, OHIO

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.



THE WINTER building outlook at Memphis is fair. A good deal of work is being finished up at Nashville. Arkansas, Tennessee and Kentucky towns visited by THE CLAY-WORKER's correspondent shows a reasonable amount of activity—the building is about normal. It is noted that a good deal of work is going on at the very small country places.

The Bluff City Brick and Tile Company, of Memphis, has been incorporated with a capital stock of \$40,000 by P. J. Lunati, J. J. Bassi, C. J. Casretia, H. E. Douglas and B. E. Moses.

Contract for the construction of the thirty-inch brick sewer to be laid at Fourteenth and Lillian streets, Nashville, running westward to connect with the sewer between Eleventh and Fourteenth streets, has been awarded by the board of public works to J. T. Southgate, of Nashville. The sewer is about 600 feet long.

George C. Norton, of the firm of Asmus & Norton, architects, Nashville, takes an optimistic view of industrial conditions in Nashville, from the architects' and builders' standpoint. "We are working a full force and have several important contracts in contemplation," Mr. Norton said. The firm is just completing for C. R. Clements, State street, a modern American house of red pressed brick. They are remodeling the Thompson building, Third avenue, North, to be occupied by H. G. Hill.

Attorney J. J. Willett, of Anniston, Ala., is authority for the statement that a \$1,000,000 brick and tile plant is to be located at Reed's mill, on the Etowah-Calhoun county line, ten miles from Gadsden, Ala. The shale and clay found around Reed's mill will be used in the manufacture of the brick and tile. F. B. Fisk, of New York, is one of the parties interested in the new concern.

Following an illness of two weeks from organic heart trouble, Wm. George Bush, for many years one of the leading brick manufacturers and contractors of Nashville and the south, died at the home of his son-in-law, T. L. Herbert, Saturday, the 28th of October. Mr. Bush was in his eighty-fourth year. His rise in the business world was rapid and evinced marked ability and untiring energy. He came to Nashville ten years prior to the outbreak of the civil war, working as a bricklayer's apprentice. He soon saw an opportunity for himself and began the manufacture of brick, being remarkably successful. Fifteen years ago he retired from active business life, the name of the firm of W. G. Bush & Co. at that time being widely known throughout this entire section. During the civil war, he served under Gen. Forrest. At the close of the war, he returned to Nashville and resumed the manufacture of brick. At the time of his death the deceased was a director in the Nashville Trust Company, and had also served as a director of the American National Bank. He is survived by several children, among them a daughter, Mrs. T. L. Herbert, and a brother, F. I. Bush, who are known in the builders' supply trade. Mr. Bush's funeral service was conducted under the direction of the Frank Cheatham bivouac.

Isaac Reese, of Memphis, has purchased from the Commonwealth Realty Company, fifty feet of land on Calhoun avenue, opposite the new union depot, at a price of \$23,000. It is understood that Mr. Reese contemplates the erection of a large hotel on the same.

Considerable brick work is being done at Centreville, Tenn. Jas. S. Beardsley, of the board of prison commissioners, has let the contract for two more brick business houses to be completed by January 1 next. The foundation has been let for Coble & Peeler's drug store and for the big brick building of Woolard & Barnwell.

The new union depot, to be occupied by all other railroads entering Memphis, is practically completed. The cost has been close to \$4,000,000. The face brick in this building were furnished by the Sibley-Menge Brick Company, of Birmingham, Ala.; the brick and terra cotta contract was done by Kiel & Dawes, of St. Louis; the interior of the waiting

room is faced with rookwood, from the Rookwood Factory Company, Cincinnati, Ohio; the ceiling terra cotta was furnished by the Atlantic Terra Cotta Company, of New York; the hollow tile and floor arches was furnished by the National Fireproofing Company. The tile contract work was done by the Hegan Manufacturing Company, of Louisville; the roof material is from Ludwici Tile Company; structural steel is by Noelke-Richards, of Indianapolis. The exterior of the building is of limestone. The general contract was had by Murch Brothers Construction Company, of Memphis and St. Louis.

Work will begin in the near future on the new passenger station at Memphis of the Illinois Central Company. It will stand at the corner of Main street and Calhoun avenue. A. S. Baldwin, the chief engineer of the company, was here a short time ago and laid out the plans. The station will cost about \$100,000.

Clemons Brothers, the well-known furniture dealers of Chattanooga, Tenn., plan to erect a four-story brick building for their furniture store at Chattanooga. Plans have been drawn by Architect John L. Snoddy. The cost will be \$8,400.

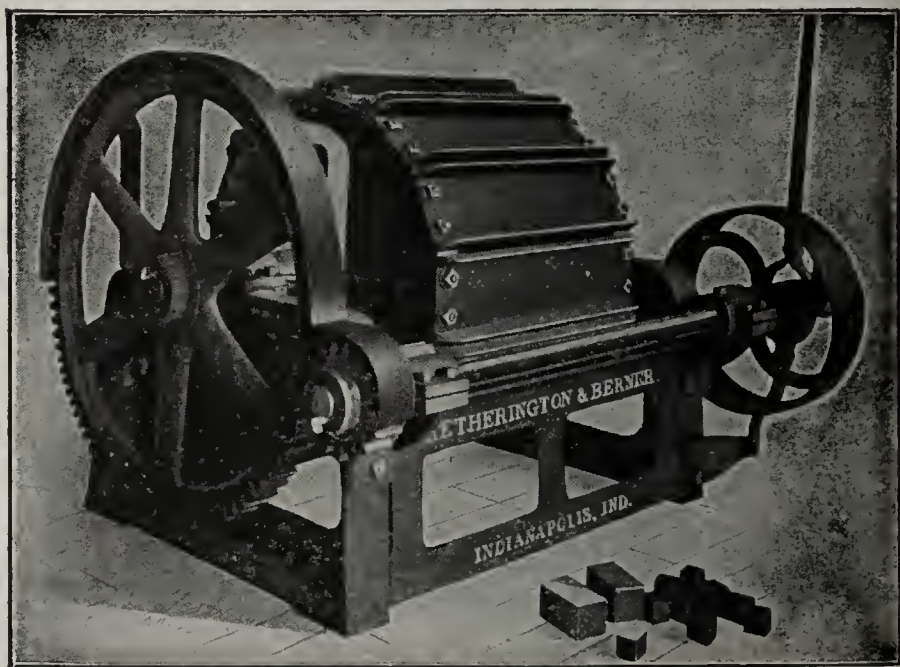
The John D. Key Brick Company, at Chattanooga, report a very good trade on brick. They have recently furnished the face brick for the Lupton residence, the First Presbyterian Church, the Davenport building, Highland Park school and Grand Hotel. They handle only impervious fire flush and Astrakan face brick.

The Helena Brick Company, at Helena, Ark., has been having a good fall trade on brick.

The Reynolds Construction Company, of Greenville, Miss., is building an electric power plant at Helena, Ark., and has completed the Nicholas Hotel, at Helena. Greenville Brick Company brick were used on the same. DIXIE.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.



Barrett's PAVING PITCH



'Chillicothe Street, Portsmouth, Ohio, Filled With Barrett's Paving Pitch in 1895.

Why the Monolithic Theory is Unsound

Although engineering experience favors the use of paving pitch as a filler for brick pavements, some engineers believe in cement, acting on the following theory:

"That the cement makes a monolith of the pavement, thus preserving evenness of contour." A monolith they argue is an ideal pavement, therefore use cement filler.

There are other considerations, however, which become evident after a cement-filled pavement has been laid a few years. An earth foundation settles in the course of time, and a cement-filled pavement fails to sink with it. In consequence, an air space is left between the brick and its foundation which can be detected by the change in the noise made as vehicles pass over it. These air spaces or arches grow larger, and finally the pavement collapses, making a long, dangerous crack, running for yards across the pavement, which is very difficult to repair satisfactorily.

Bricks expand in hot weather and contract in cold. The rigid cement bed which is pro-

vided resists this process, and the expansion joints that are usually resorted to keep the pavement from bulging in hot weather, are inefficient and unsatisfactory. Even with expansion joints, expansion and contraction frequently tear a cement filled pavement.

A brick pavement ought not to be a monolith at all. It should have power to expand and contract. The right way to get such a pavement is to use Barrett's Paving Pitch as a filler for all the joints. This makes every joint an expansion joint. The protection against water is perfect. The pavement will be quiet. It can be easily repaired after excavations without loss of the brick; the street can be immediately used after the brick is laid. The softness of the filler gives a grooved footing, and the method of application is so easy that there is small danger of unsatisfactory work.

Booklet showing some of the wonderful records made with pitch filled pavements will be sent free on request.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cincinnati Cleveland
Pittsburgh Minneapolis Kansas City New Orleans Seattle London, England

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DRYING

The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.



JOHN C. BOSS COMPANY

Write for catalog.

BURNING

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.

Try it.



JOHN C. BOSS COMPANY

ELKHART, IND.

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE.

Forty horsepower gasoline engine, Ohio Motor Company make. Practically new.

STEADMAN & ROBINSON CO.,
10 1 c Green Ridge, N. Y.

FOR SALE.

Seven-foot Duplex wet pan, American Clay Machinery Company's make. First class order.

N. Y. ARCHITECTURAL TERRA
COTTA CO.
10 2 d Long Island City, N. Y.

FOR SALE.

Six piano wire screens, used only a short time. In good shape; cheap. Address BOX 10-IRON,
10 3 c Care Clay-Worker.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address BOX 6-B. T. CO.,
6 tf d Care Clay-Worker.

FOR SALE OR LEASE.

Dry press brick plant with first class machinery throughout. Only plant in city of 110,000 population. Plant in operation, brick selling for from \$9 to \$15 per thousand. Demand for entire output. For further particulars address C. E. WILLIAMS,
Ogden and Carter Ave.,
9 ti d San Antonio, Texas.

FOR SALE.

A complete brick plant, capacity, 40,000 brick per day. Will sell entire for \$5,000 or the two Duplex driers, holding 30,000 brick each, for \$3,500, or one drier for \$2,000. All in good working order. Come and see it. THE SCHMITT BRICK CO.,
Hanford and Ann St.,
10 3 cm Columbus, Ohio.

FOR SALE.

A first class tile factory to be removed. Reset it and it is ready to run. Factory is complete and a going concern. Can make tile from four to thirty inches in diameter. Capacity, \$100,000 per annum output. Not necessary to build or operate to present capacity. Profits are prodigious, Central and Southern Illinois and many other localities good. Particulars from EDGAR M. HEAFER TILE CO.,
11 4 cm Bloomington, Ill.

TILE AND POTTERY PLANT.

We offer an attractive proposition in six-kiln tile plant. Address
CHAMBER OF COMMERCE,
11 2 dm Hamilton, Ohio.

FOR SALE—Brick and tile machine with dies and cut-off table, \$200; cost \$800. Iron stack 35 ft., opening 33 in., \$20.00. BOX 40,
11 1 cm South Park, Ohio.

FOR SALE.

Will sell at a bargain one Freese No. 16 rotating automatic cutter with 20 feet separating belt. In good condition, having been used to cut fine face brick, but has been replaced by a larger capacity. Will cut 4,000 brick per hour. STRAITSVILLE IMPERVIOUS
BRICK CO.
11 1 c New Straitsville, Ohio.

BRICK PLANT FOR SALE.

A modern brick plant located in Maryland, with a capacity of 15,000 brick per day. Four acres of finest clay. Two kilns of 90 and 200 thousand capacity. First class condition. Will be sold for \$3,000, one-half cash. Convenient time for balance. Address BOX 11-K.,
11 1 c Care Clay-Worker.

FOR SALE.

Brick plant, 123 acres of clay and shale, some fire clay and coal. Capacity, 44,000. Canton, Ohio, in center of paving brick district. One of the best propositions in the territory. Railroad siding. Will sell plant as it stands. Hollow block building, two houses, machinery and equipment. Splendid opportunity for paving and face brick manufacturer. For terms of sale, address, T. TURNBULL, JR.,
835 Western Ave., N. S.,
11 3 cm Pittsburgh, Pa.

BRICK MACHINERY FOR SALE.

190-ft. section Jeffrey No. 110 chain pan conveyor, two 7-ft. and one 9-ft. Penfield dry pans, Penfield No. 20-A plunger brick machine, Penfield sewer pipe press, Raymond Columbia steam repress, 13 Carnell hand represses, 237 double six-deck brick cars (33-in. gauge) for Sharer dryer, 7 transfer cars, 4 turntables, portable track, 100-lights Colt's acetylene gas machine, two 80-h. p. Fitchburg boilers, pulleys, shafting, etc. THE POWHATAN CLAY MFG. CO.
11 4 d Richmond, Va.

FOR SALE, LEASE OR MANAGEMENT.

A modern brick plant, fully equipped, with inexhaustible deposits of shale and fire clay, plenty of coal to burn the product; making paving brick and front brick; favorable inducements to buy a controlling interest or all on easy terms, or to lease for a term of years, or to manage with cash investment. A good chance to the right man. Owners having other business requiring all their time and attention. Address HERBERT,
11 2 d Care Clay-Worker.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa.
DE WITT BRICK & TILE CO.,
11 8 c DeWitt, Ia.

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. Address
BOX 10—BOSTON,
10 3 cm Care Clay-Worker.

WANTED.

Position with a first-class concern, by a thorough brickyard man, with long practical experience and technical knowledge. First-class references. Address, BOX 164,
11 1 c Clay-Worker.

STEAM DRY PAN FOR SALE CHEAP

Practically new; only 60 days' use; 60 inches wide by 55 feet long; 3-inch steam space; pan good for 100-pound pressure; has drag chain, complete, to stir and drag the material over the pan. This pan is suitable for drying clays, shales, brick and minerals. Will sell cheap.

TAMMS SILICA CO., Tamms, Illinois.

FOR SALE.

One 60 h. p. Boiler. One 45 h. p. Engine. One 3 roll Griffin Mill, grinds hardest rock to any mesh wanted; condition absolutely guaranteed. Will sell cheap to quick buyer. Further information upon application.

HANCOCK SHALE BRICK CO.
10 3 cm Hancock Md.

BRICKYARD ENGINEERING.

GEO. W. HEALD.

(Lately with Illinois Brick Co., Chicago.)

Brick plants designed or remodeled.
216 Fisher Bldg., Chicago, Ill.

FOR SALE \$12,500

Large acreage of tested Brick Clay.

Location: Forty-five miles east of New Orleans, fronting half mile on main line of L. & N. R. R., and on tide water bayou.

Chambers Brothers Company tested on one of their End-cut Auger Brick Machines, 9-foot continuous strata, including top soil, reporting that the clay tested produced good building brick, with deep red color, and that on this material their machine would give its full rated capacity.

A body of good brick clay in that alluvial and sandy section amounts to a practical monopoly. Address MONT EYRIE ORCHARDS,
Blount Springs, Ala.

Classified Advertisements.

FOR SALE

FOR SALE.

Large deposit of kaolin situated in Jackson county, New Jersey.

PAUL S. ROSS,
11 1 cm Hallstead, Pa.

FOR SALE.

New forty-thousand capacity brick and tile plant. Good location, great demand. Will take brick.

COOK REALTY CO.,
11 1 c Ontario, Ore.

FOR SALE—One No. 2 "D" gyratory Gates crusher. Cost \$600.00 three years ago. Have no further use for same. Make us an offer.

ROCHESTER COMPOSITE BRICK
BRICK CO.,
11 1 d 64 Clinton Ave., N.,
Rochester, N. Y.

FOR SALE.

New Centennial brick and hollow ware machine, Madden & Co. hollow ware and brick machine, transfer cars, hollow tile-cutting table, hollow block or conduit cutting table, semi-automatic cutting table, 11 ft. off-bearing table, 10 ft. pug mill, 9 ft. dry pan, clay elevator, 115 double deck dryer cars, mine friction hoist, wagon scales, 3,000 ft. 12-inch T rail. Full equipment shafting, hangers, pulleys, belting, mine cars, etc. Must be moved at once regardless of price.

BRAZIL WRECKING CO.,
11 tf d Brazil, Ind.

WANTED, ETC.

WANTED.

Williams Pulverizer, in good condition. Address BOX 11—F.,
11 1 d Care Clay-Worker.

WANTED.

Experienced up and down draft kiln burner for common and colored brick. Address BOX 11—PROGRESS,
11 1 d Care Clay-worker.

WANTED—For the Northwest, about January 1, 1912, capable superintendent to take charge of new plant manufacturing wire-cut brick, fireproofing and hollow building block. Must be thoroughly versed in all lines of manufacture, and understand fully waste heat dryer, and continuous kilns. Give age, references, experience and salary expected. Only a first-class man required. A man that has and can make good. A splendid opening for the right man. BOX 11—A. E. N.,
11 2 d Care Clay-Worker.

WANTED.

Soft mud brick machine for either horse or steam power.

LOCKARD BRICK CO.,
11 1 cm Meridiam, Miss.

WANTED.

Good dry press man in south. Steady work. Fine climate. State wages, give references in first letter. Address

BOX 11—C.,
11 1 c Care Clay-Worker.

WANTED.

A good all around man to take full management of a pottery plant in the west. Must be practical in all branches of manufacture. State experience and salary expected. Address

BOX 11—POTTERY,
11 1 d Care Clay-Worker.

WANTED.

Steady man to run Bonnot brick machine and take entire charge of making and pressing brick. Do own repairs. Good wages. Steady employment and chance for advancement.

MEXICO BRICK & FIRE CLAY CO.,
11 1 d Mexico, Mo.

WANTED.

A clay pulverizer. Must be in good condition. Give name of manufacturer; state capacity of machine, how long in use, and quote lowest spot cash price. Address

BOX 10-K,
10 tf d Care Clay-Worker.

WANTED.

Position as manager of paving or building brick plant. Experienced as ceramic and mechanical engineer in both American and European methods. Know how to handle men. Prefer to go with new plant. Able to build modern and economical plant and kilns. Address

BOX 11—C. J. B.,
11 1 cm Care Clay-Worker.

ATTENTION—CLAYWORKERS.

Hope we can make this case clear. Several parties, none experienced, have money in hollow block clay plant. Have plenty of clay. All orders can get out and access to three railroads. Good plant but needs little more money. Parties owning majority stock have interests of own to look after, being mostly professional men, and to right experienced party with capital enough to become interested in management a good proposition will be made. Shipping 50 cars month and can get orders for 100. Fine ware specified by most architects. Ought to make \$25,000 per year. Address BOX 11—M.,
11 1 dm Care Clay-Worker.

WANTED—The undersigned desires communication with parties looking for a good location for brick plant. Address

BUSINESS MEN'S ASSOCIATION,
9 3 cm Jackson, Ohio.

WANTED—Position as superintendent or manager by one skilled in every detail of brick manufacture. The best of references. Address

BOX 11—L. I. H.,
11 tf d Care Clay-Worker.

WANT TO INVEST.

Having disposed of a profitable Ohio clay industry, am open to invest from fifteen to twenty-five thousand dollars in another west of Mississippi river. Address

BOX 11—J. D.,
11 1 c Care Clay-Worker.

WANTED—An experienced fire and face brick salesman to take charge of plant just starting up in West Virginia. Must be a live wire. One with some capital to invest preferred. Good place for the right man. Address

T. E. BASHAM,
823 Paul Jones Bldg.,
11 1 dm Louisville, Ky.

SUPERINTENDENT WANTED.

A good position open for a capable and reliable brick yard superintendent of stiff mud plant, making paving blocks and face brick of both fire clay and shale; a man who can become financially interested preferred but capability and reliability are first qualifications that will be considered; send recommendations references and full information. Address

E. B.
11 2 d Care Clay-Worker.

WANTED—POSITION.

Manager or superintendent of brick or tile plant where parties desire the services of an up-to-date practical man. Understand the business from clay pit to office. Thirty years' experience in erecting and operating largest plants in the country. Practical engineer and machinist, understand burning any kind of kiln, up or down draft, using wood, coal, oil or gas for fuel with best results. Understand all kinds of brick and tile machinery, can make plans, erect complete plant and kilns. Make any kind of brick, soft mud, stiff mud, wire-cut, vitrified paving, dry press, face and ornamental brick. Handle all kinds of labor, and know what a day's work is and how to get it. Am strictly sober. Will give 60 to 90 days' trial to demonstrate what I can do. Address

BOX 11—W. D. G.,
11 2 d Care Clay-Worker.

Classified Advertisements—Continued.

WANTED

To correspond with someone having the capacity for developing and managing a brick and tile making business. Must have some capital to put into the development of a going concern. Clay and shale in unlimited quantity and of best quality. Located at Littleton, S. C., sixteen miles from Columbia, on one of the main lines of the Southern Railway. Unlimited demand for the product at remunerative prices. Address **WM. H. LYLES, Columbia, S. C.**

**For Sale
New Automatic Cutter
NEVER USED.**

One new Automatic Side-Cut Horizontal Cutter made by the American Clay Machinery Company, Style "F." Not suitable for cutting our Wire-Cut-Lug Blocks.

Will sell cheap for spot cash.

Dunn Wire-Cut-Lug Brick Co.
Conneaut, Ohio.

MANAGER WANTED

For press brick plant, must be competent of taking full charge. A very attractive proposition can be made to fully competent man with from three to five thousand dollars to invest. Apply

Edrans Brandon Press Brick Co.,
Brandon. Manitoba, Canada.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
965 Adams Express Bldg.,
10 tf d Chicago, Ill.

**WESTERN AND PACIFIC COAST
CLAYWORKERS ATTENTION**

Clayworks engineering. Plans for common, face and paving brick, sewer pipe and pottery plants; for dryers; for up-draft, down-draft, continuous and other kilns. Clay deposits examined and tested. Machinery installed and operations supervised. Clayworkers' appliances, such as Engelhard pyrometers, Bristol recorders, draft gauges, watchman's clocks and others.

GEIJSBEEK ENGINEERING COMPANY,
Blake-McFall Bldg. Portland, Oregon.

REBUILT ENGINES AND BOILERS.

ENGINES—CORLISS: 18x42 Lane & Bodley; 18x36 Ohio heavy duty, 16x42 Allis; 12x30 Lane & Bodley.

ENGINES—AUTOMATIC: 14½ x 24 Buckeye, 11x16x12 Buffalo Compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 10x12 Valley, 8x14 Noyes.

ENGINES—THROTTLING: 18x24 Atlas, 14x18 Sinkers-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x13 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

BOILERS—STATIONARY: 72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x12, etc.

BOILERS—FIRE BOX: 100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h.p., etc.

BOILERS—VERTICAL: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 h.p., etc.

HEATERS—All sizes, open and closed.

PUMPS: All sizes, single and duplex.

ELECTRICAL: 30 k.w. generator, direct connected to 8x10 Skinner engine; 20 k.w. generator, direct connected to 8x10 Economic engine; 18 k.w. belted generator.

MISCELLANEOUS: Saw mills, lathe mills, edgers, cutoff saws, re-saws, blowers, exhaust fans, tanks, etc.

Write for list. Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS AND JET PUMPS. Send for circular.

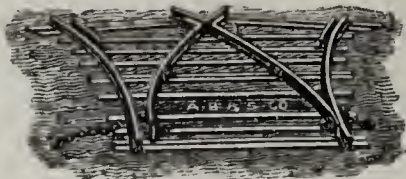
THE RANDLE MACHINERY CO.,
1735 Powers St. Cincinnati, Ohio.

See additional ads under Table of Contents.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

P. MITTLER,
Robbins, Tenn.

**SWITCHES FOR SALE.**

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.
THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

**Elevator Buckets**

We carry in stock at all times a large supply of Elevator Buckets, including Caldwell, Avery, Salem, Regular Riveted and various styles of Malleable Iron.

All sizes and gauges for handling different materials.

Special Buckets made to order.

Send for Catalog No. 34.

H. W. Caldwell & Son Co.

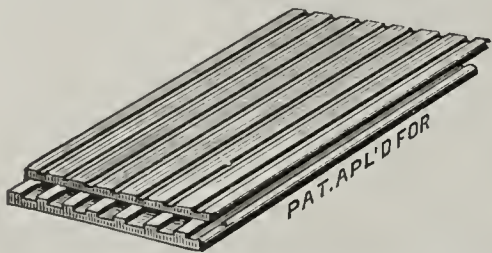
17th St. and Western Ave.

CHICAGO, ILL.

NEW YORK: Fulton Bldg.

Hudson Terminal, 50 Church St.

See additional ads under Table of Contents.

Roofing Tile Machinery.

Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,
1436 Macklind Avenue, on Frisco Tracks,
ST. LOUIS, MO.

YOU CAN'T FADE 'EM!

none like them
Cement, etc. Red, Brown, Purple and Black.

RICKETSON'S MINERAL PAINT WORKS,
MILWAUKEE, WIS.

RICKETSON'S PURE MINERAL COLORS

The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use

CARBONATE OF BARYTES

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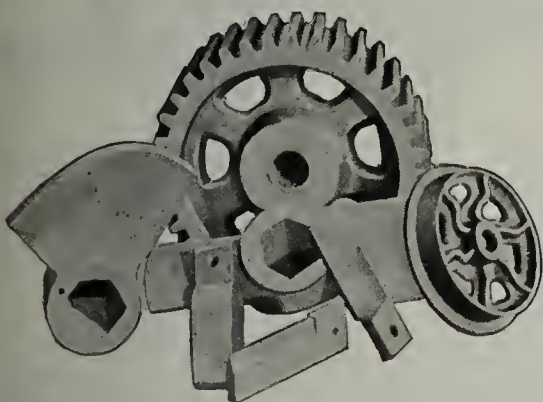
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THE RECOGNIZED STANDARD OVER 50 YEARS.

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Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent
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Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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or anything pertaining
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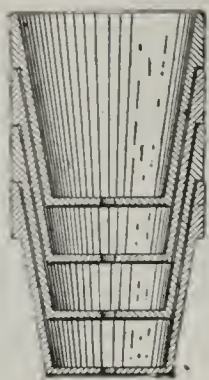
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County and State Rights For Sale.

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Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

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Double Up and Down Draft Kiln.

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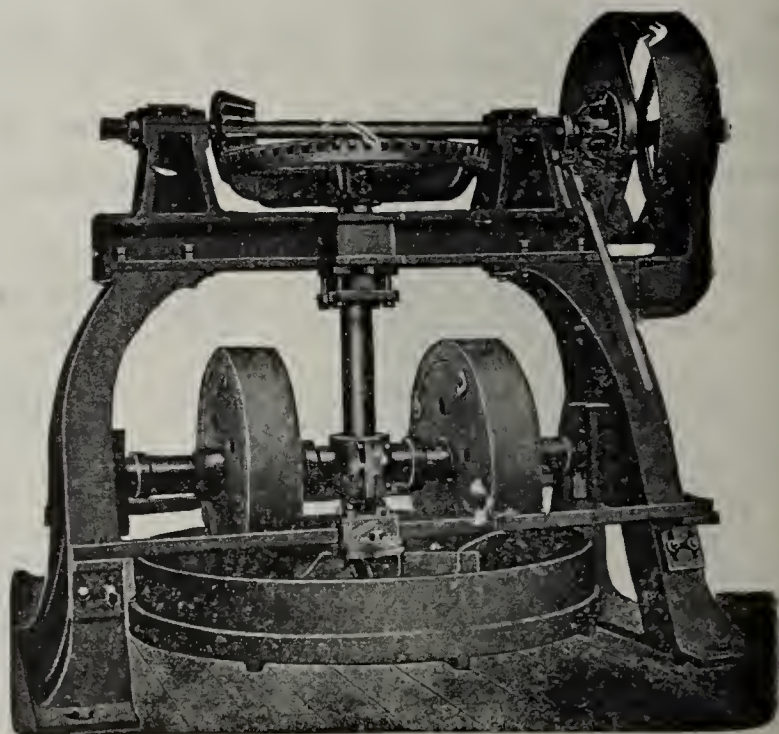
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Rock and Ore Crushers.

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kind of Clay or Material to be
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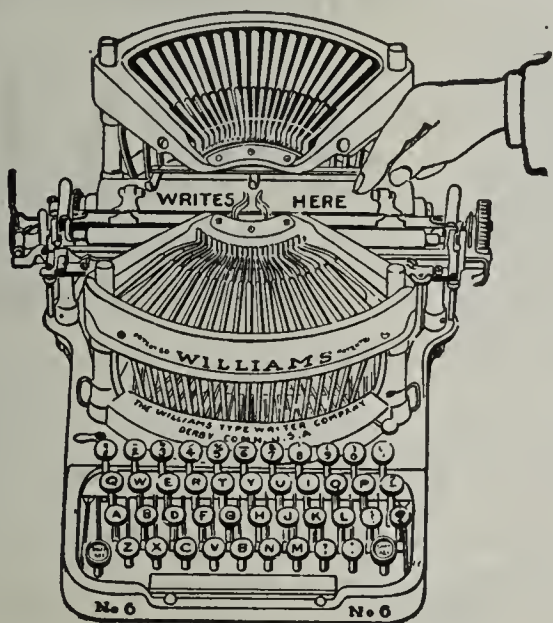
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Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

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The Williams is sold under a positive guarantee and on easy terms.

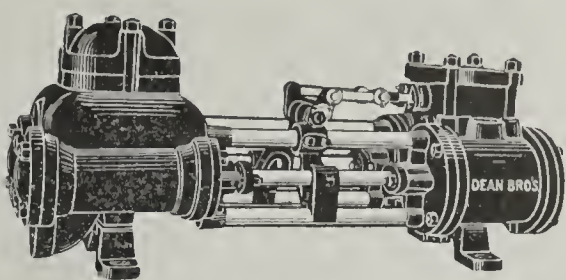
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Old Machines Taken in Trade.



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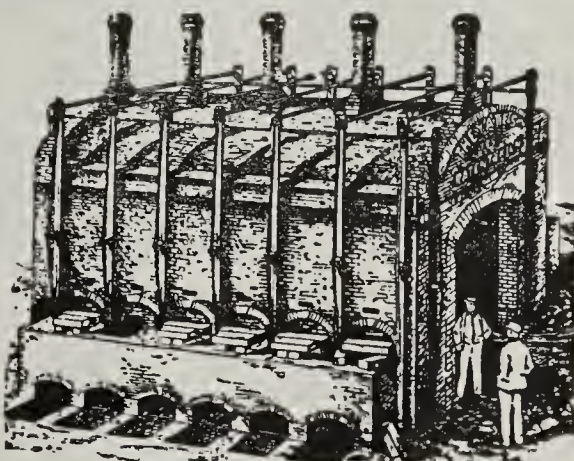
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The Yates Patent Down-draft Kiln.
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That

They are burning clay goods with oil in coal fields—where coal is cheapest,

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They are watersmoking with oil the most delicate pottery and highest grades of face brick.

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Manufacturers of
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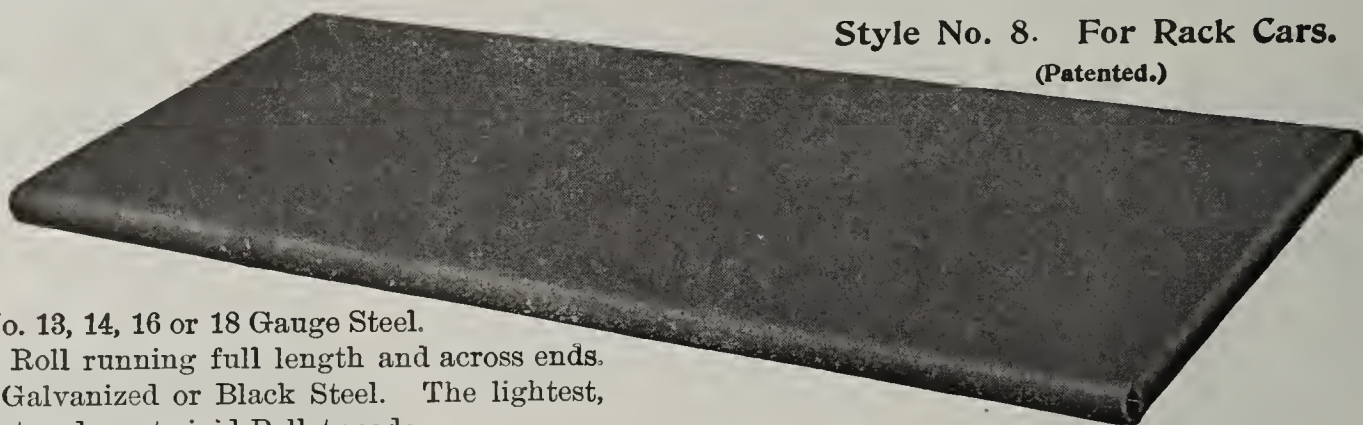
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Style No. 8. For Rack Cars.

(Patented.)

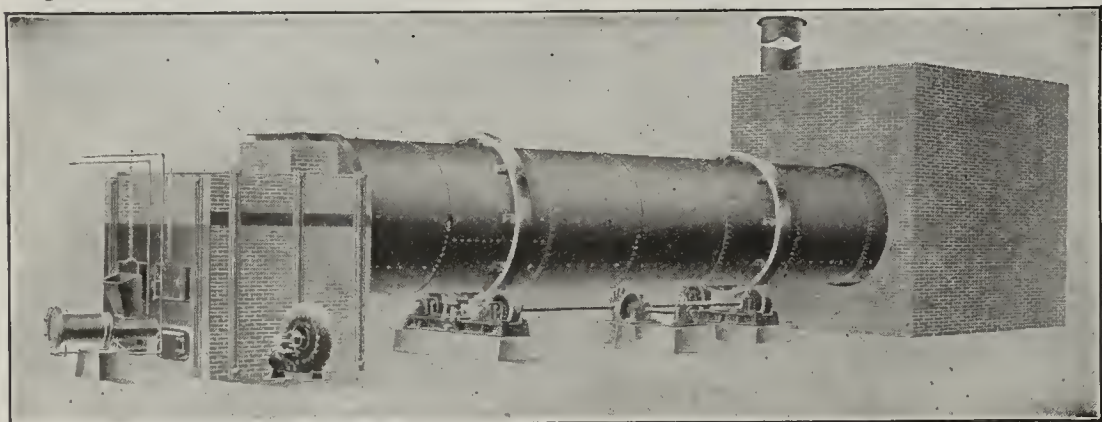


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Economical, Efficient,
Great Capacity.

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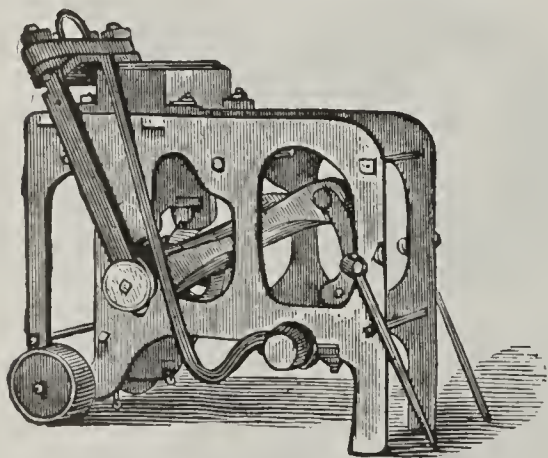
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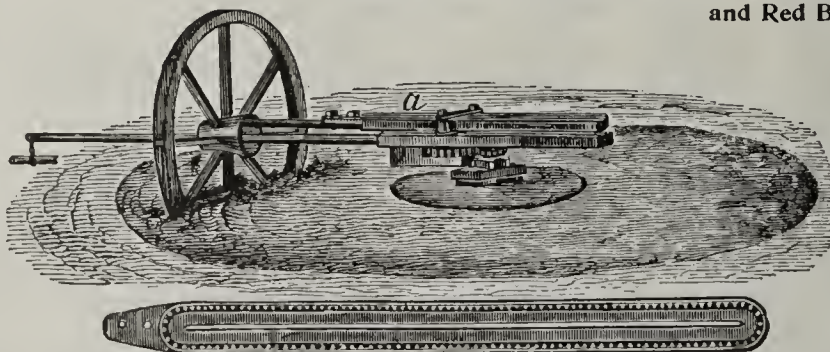
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By FRANK B. GILBRETH.

Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

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❑ HAVE YOU ever investigated the possibilities of a MOREHEAD STEAM TRAP INSTALLATION for draining steam lines and feeding boilers?

❑ Unless you have, you are not making the most of this big factor for success in the operation of your steam plant.

❑ In every part of the country will be found a MOREHEAD INSTALLATION convenient for your inspection. In most cases you will find that the MOREHEAD TRAP has replaced the STEAM PUMP for feeding the boilers.

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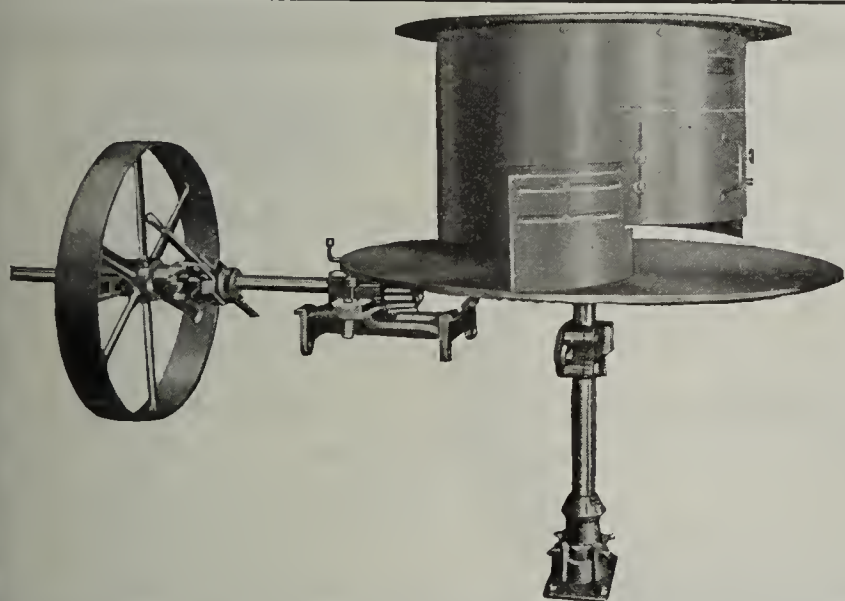
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Clay, Sand-Lime and other mixtures
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Construction of Continuous Ring Kilns of various systems for all kinds of clay products.

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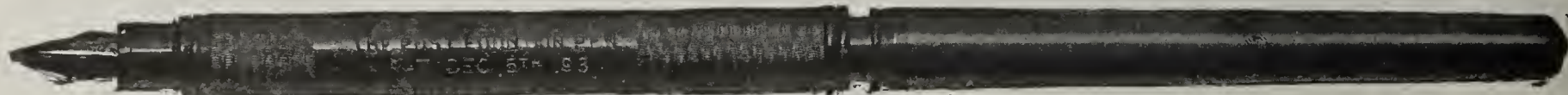
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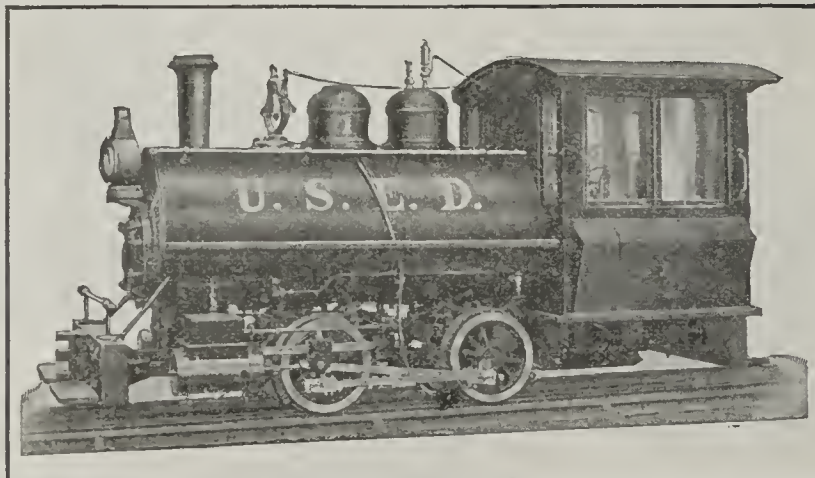
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Small Size Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

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in the old rut; its just as cheap to build **good** kilns as **poor** ones AND A GOOD KILN IS THE MOST SATISFACTORY THING ON ANY CLAYWORKING PLANT.

The Improved Flue System Kiln

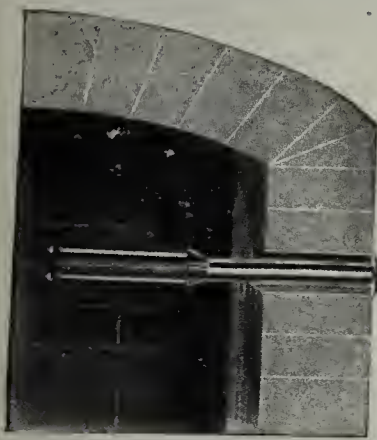
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For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

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This edge of the

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The rest of the belt will remain red as before, and every roll of belting will continue to bear our brand **THE GANDY BELT** and our trademark, a coil of belt and a bale of cotton laid across it, printed upon the belt at intervals throughout the entire length of the roll, the same as heretofore.

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Look for the belt with the Green Edge.

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WARES WE HAVE
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WE MANUFACTURE
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WE ARE ENGINEERS
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MODERN CLAY- WORKING ENGINEERS

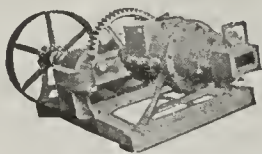
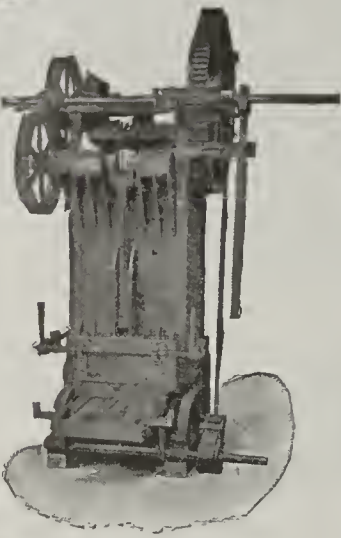
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BRICK MAK- ING PLANTS

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Steam Power
50 Thousand
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We Build the
Most Complete
Line of Yard
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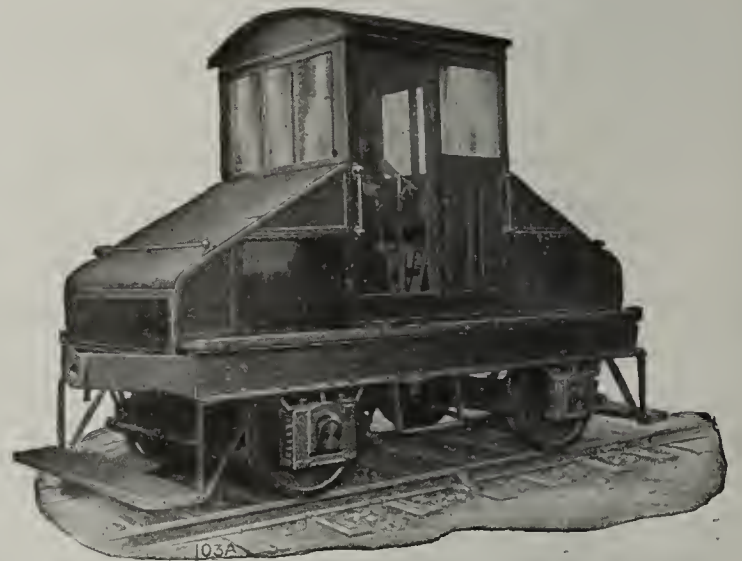


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Milwaukee Locomotives are built for all gauges of track and in sizes from 2½ to 100 tons. They are always ready for instant use, are very efficient and economical to operate. Reduce haulage costs to the minimum, as their operation is much cheaper than animal haulage.

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CASH

To insure insertion in current issue, copy
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Address

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Indianapolis.

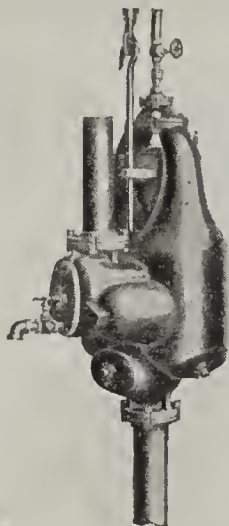
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Duty 23,000,000 Foot Pounds

Tests have shown that a Pulsometer will develop a duty of over 23,000,000 foot pounds per 100 pounds of coal. Of course, this is not equal to the duty of a modern water works engine, but we don't recom-

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Some engineers seem to have the idea that the Pulsometer is a most wasteful type of pump. This isn't true, as the above and other tests will show.

Don't forget that the Pulsometer is a *condensing unit* and in its special field is in a class by itself. It needs practically no attention, requires no lubrication, requires no foundation, and, as it has no rubbing surfaces to wear out, maintenance is practically nil. Furthermore, it is lighter than any other pump for a given capacity and costs less.

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Pulsometer Steam Pump Co.

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Chicago Office: 223-231 North Jefferson Street.

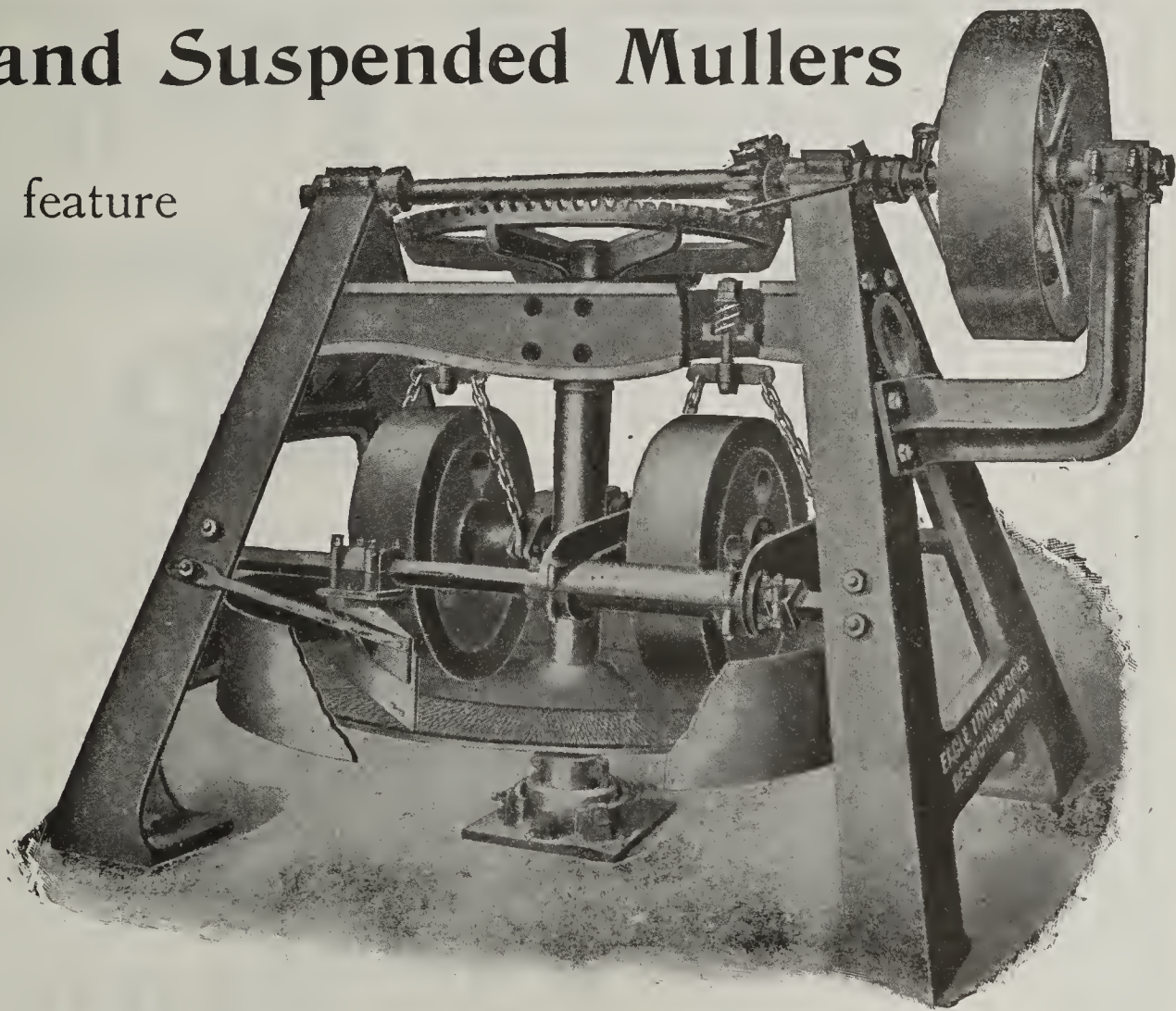
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the distinguishing feature
of our

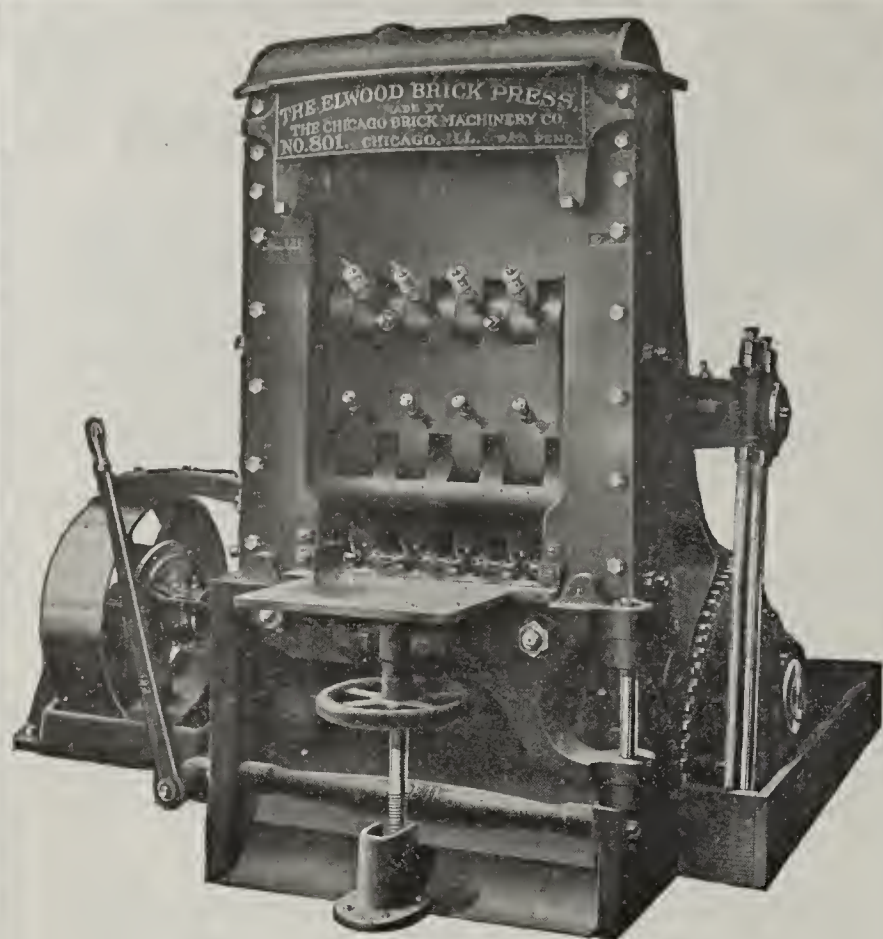
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Suitable to burn all grades of clay products.

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Cheapest in construction. Easiest to understand, and most agreeable to operate. Perfectly free from any nuisance. Most efficient fuel economizers; 160 to 275 lbs. of slack coal or an equal amount of oil, wood, natural or producer gas will burn a thousand brick. Specially adapted for utilizing waste heat for drying purposes and watersmoking.

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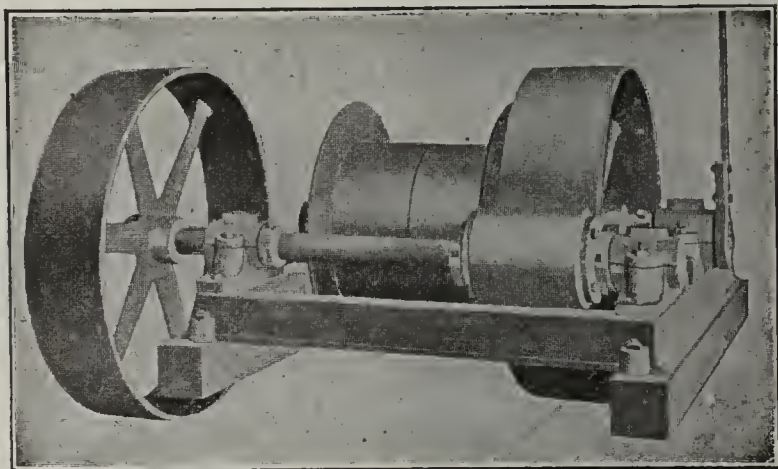
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Cheapness in construction. Easy to understand and operate. Perfectly free from any nuisance. We save more than one-half the fuel and half the labor used on other Kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

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MARION REVOLVING SHOVELS are three sizes, with dipper capacities of $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{4}$ cubic yards. One man can operate them, and they can be mounted on either railroad or traction wheels.

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Buhrer's Shortened Kilns are the most suitable for burning ordinary and enameled goods, lime and cement.

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The Buhrer Fan increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

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Clay Testing is done in a thorough way. Write for illustrated pamphlet.

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(Signed) J. WAHLEN.



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The Clay Products Exposition will be the opportunity of recent years to find buyers for your product. Architects, Contractors and Builders from all parts of the United States are taking the liveliest interest in the Exposition. They all want to see what the Clay Products people have to offer, and they will arrive in the Coliseum in March to be shown. These are the people most manufacturers would like to see and talk to, and the Exposition will afford the opportunity. It becomes important that displays of clay products which are creditable to the trade are shown in an attractive way. You should see that your best selling samples are there, and that they are backed by your best selling talk. A weakness anywhere along the line would be an unfortunate mistake. This is your opportunity to get business, Mr Clayworker, so get busy. If you think you already have a pretty fair business you can either improve its volume or quality at the Exposition, and you can also prevent some other manufacturer getting a part of it away from you.

You Cannot Afford to Stay Out—This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in a suitable exhibit space for the inspection of

100,000 PAIRS OF EYES.

Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

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Worth its Weight in Gold to Every Factory Superintendent and Foreman.

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3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
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ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
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This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

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THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

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The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

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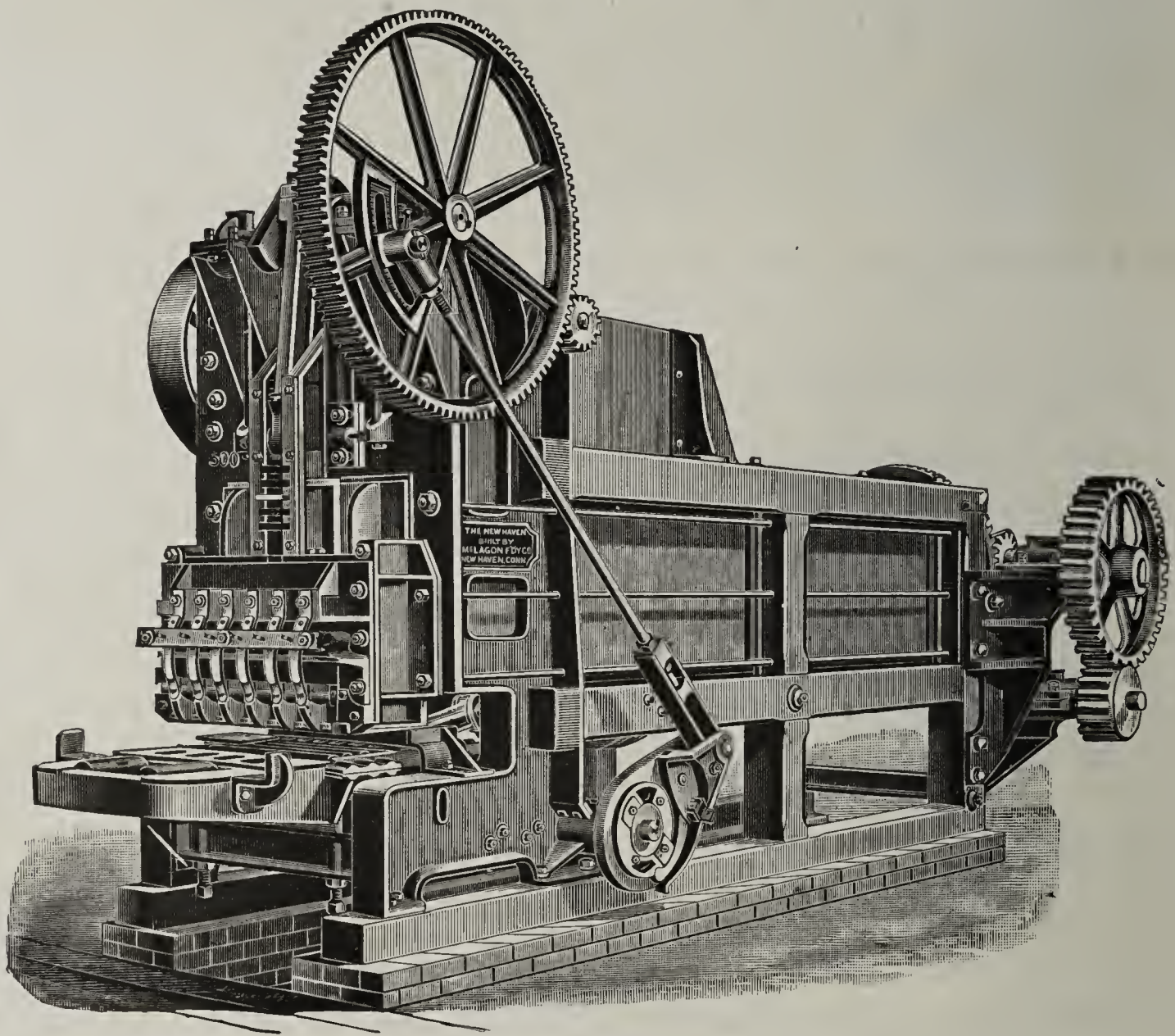
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The following quotation from the letter of the manager of the L. I. and F. I. Brick Co., Sag Harbor, L. I., N. Y., tells the story of a Horizontal Brick Machine purchased by them May, 1891, twenty years ago.

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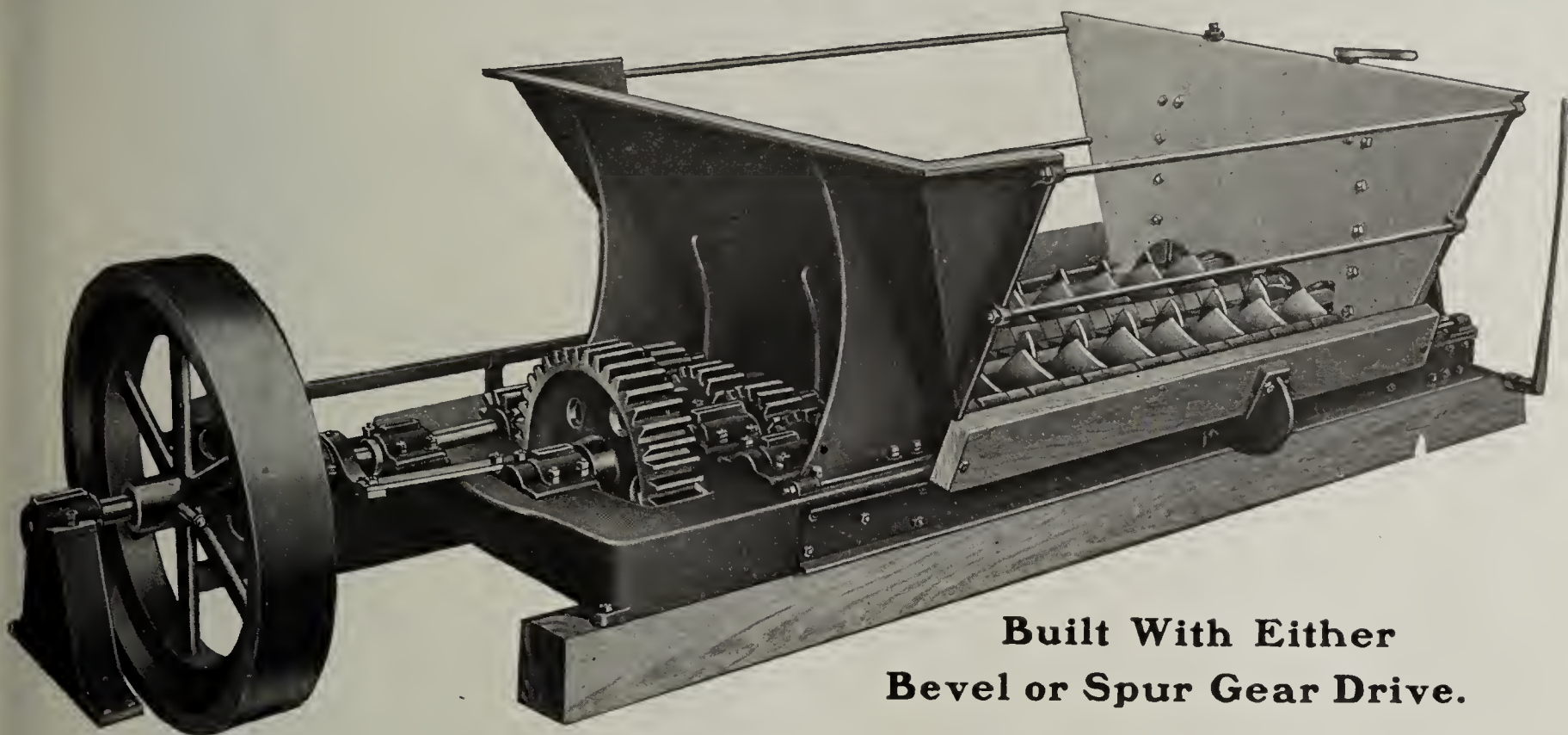
We build only **SOFT MUD BRICK MACHINES** and we build them so well that first cost is last cost. The New Haven machines are the least expensive machines to operate because they **WORK EVERY DAY.**

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NEW HAVEN, CONN.

THE ARBUCKLE GRANULATING CLAY FEEDER.

A Great Addition to the MADDEN Line.

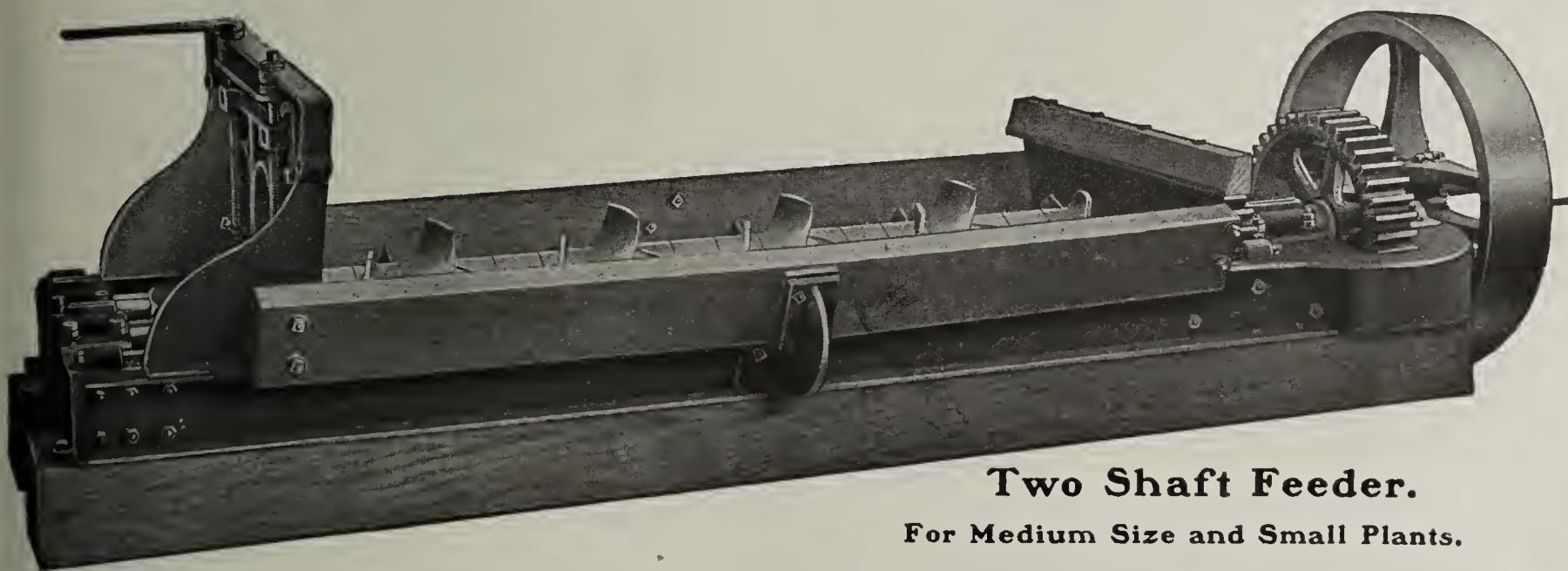


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This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



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For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 10,000 to 12,000 four-inch tile per day, or 15,000 to 18,000 brick, and will pug the clay up in fine shape.

Note the heavy Gears, Granulating Knives. Hopper can be built up to any height, and it will feed the clay just as you want it.

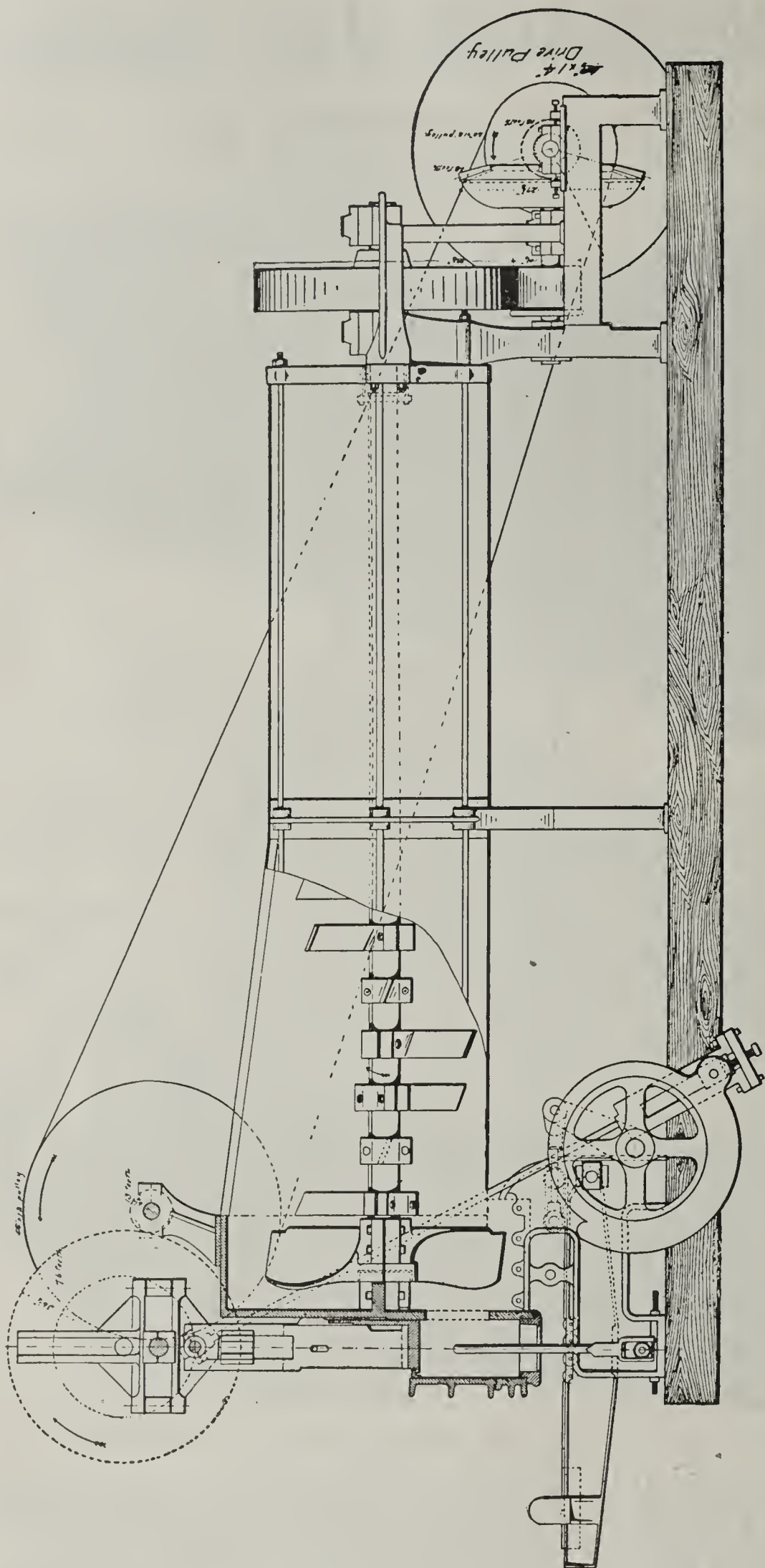
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ARBUCKLE & CO., Rushville, Ind.

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Sectional View of the Potts All Iron Horizontal Brick Machine

Showing in detail the construction of this famous Brick Machine.

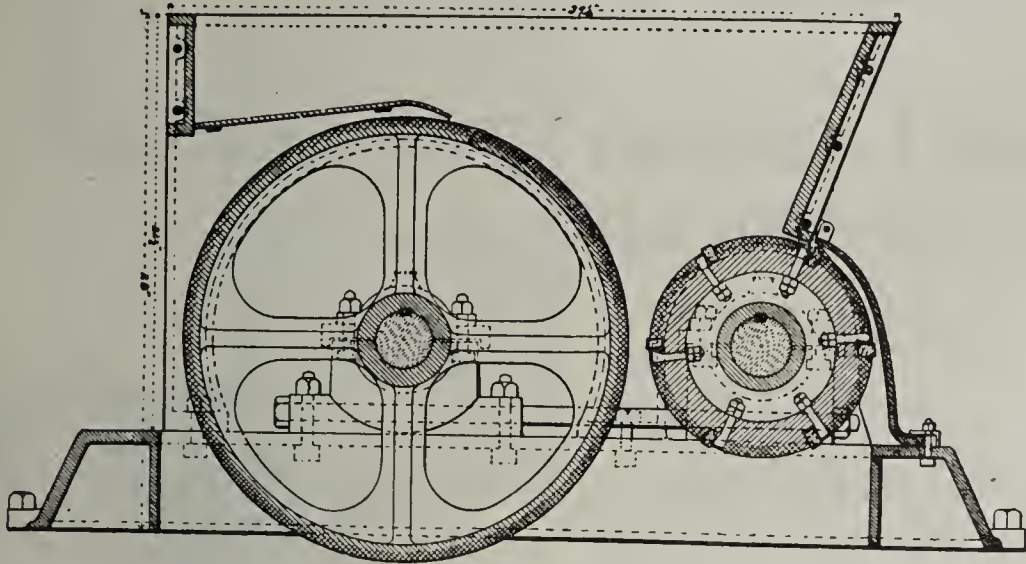
Note the size and weight of casting, size and weight of all gears, the long bearings and their protection from the clay.

Now is the time to make your improvements, getting ready for the coming season. If the machine you have used the past season has not been satisfactory, let us tell you about this one. You can make no mistake in purchasing a **POTTS HORIZONTAL**, the machine which holds the record over all on the Hudson River for **QUANTITY** and **QUALITY**. This is a machine to be depended upon to make a given number of brick every day.

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Drawings Showing Detailed Construction of the FAMOUS POTTS DISINTEGRATOR



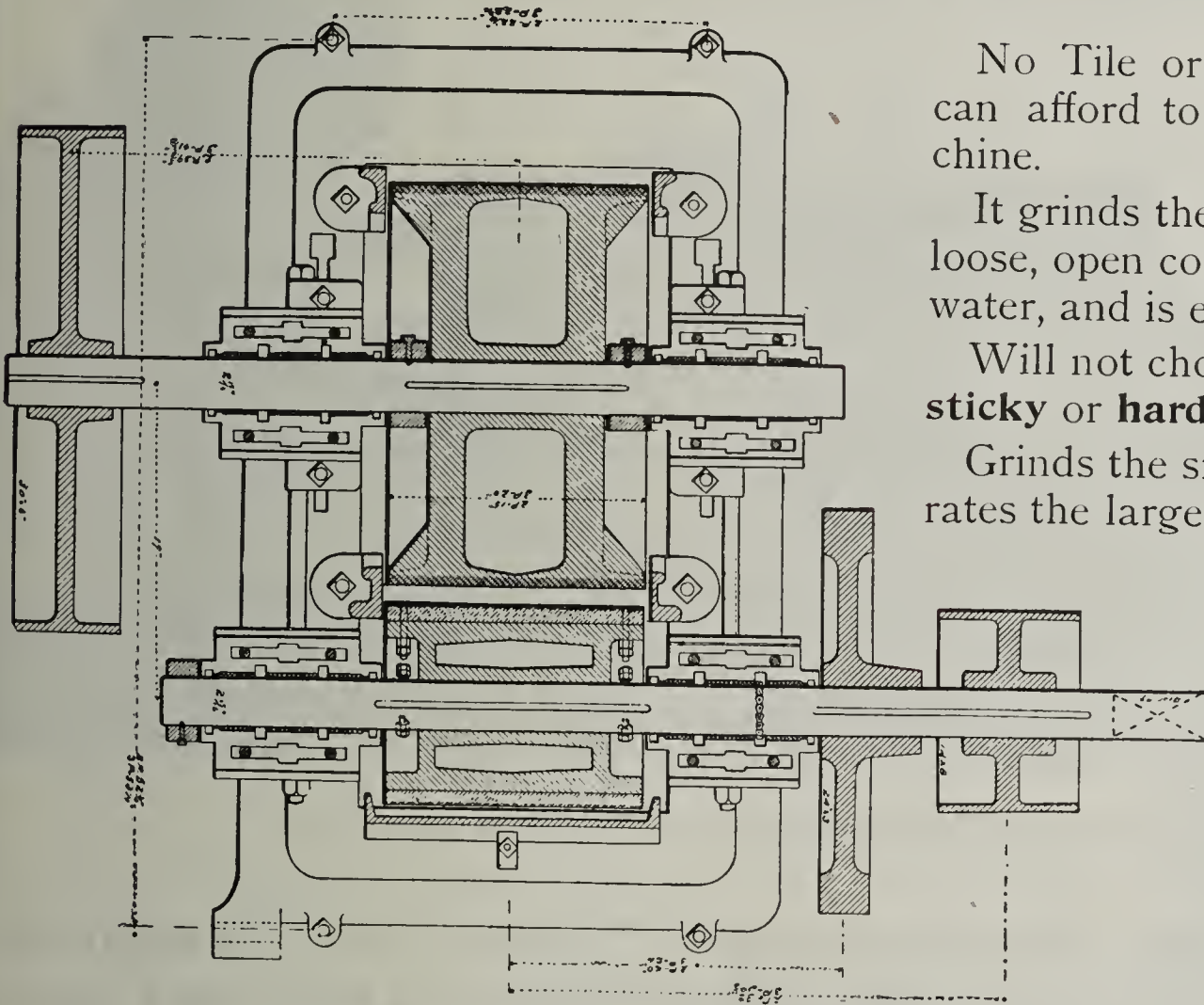
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Nothing cheap or flimsy in the construction. It is a machine fully equal to do all claimed for it.



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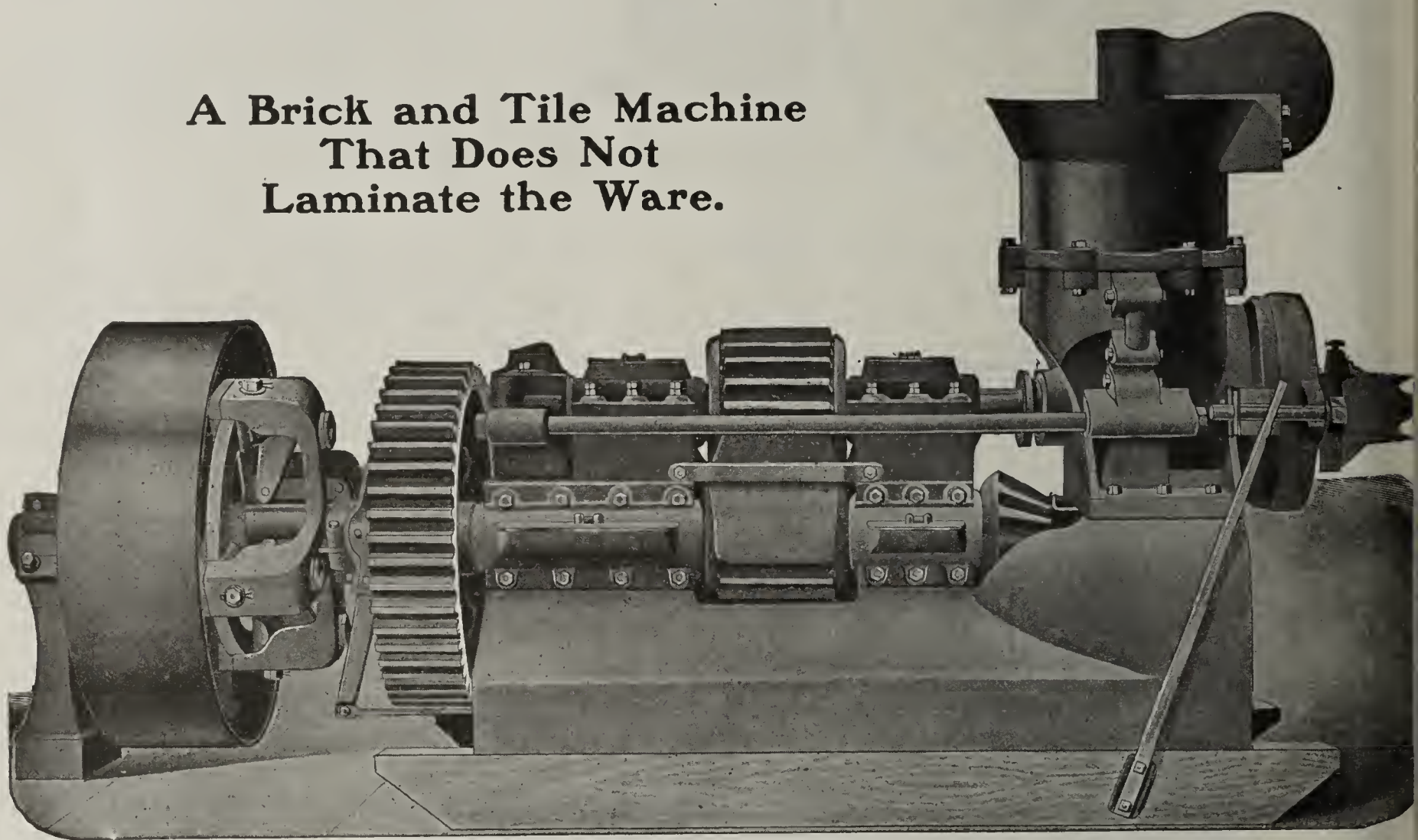
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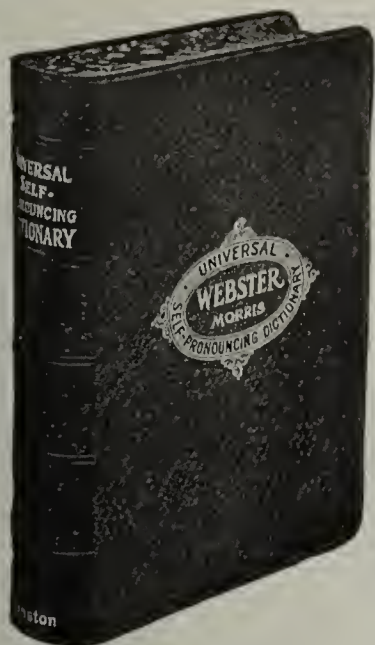
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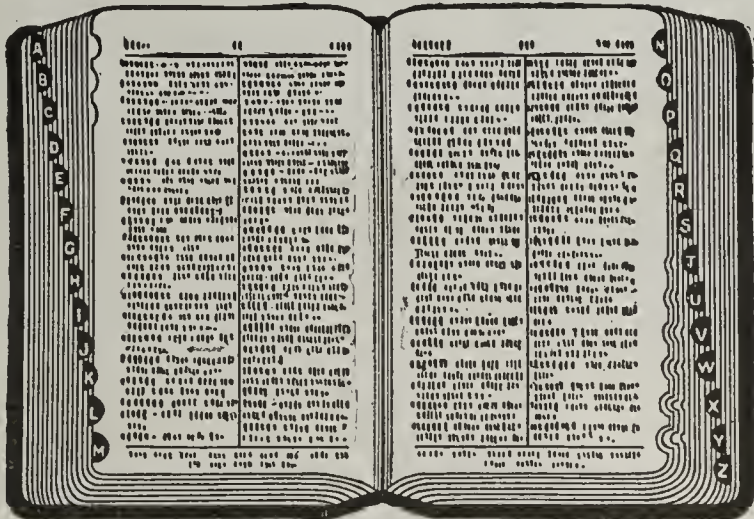
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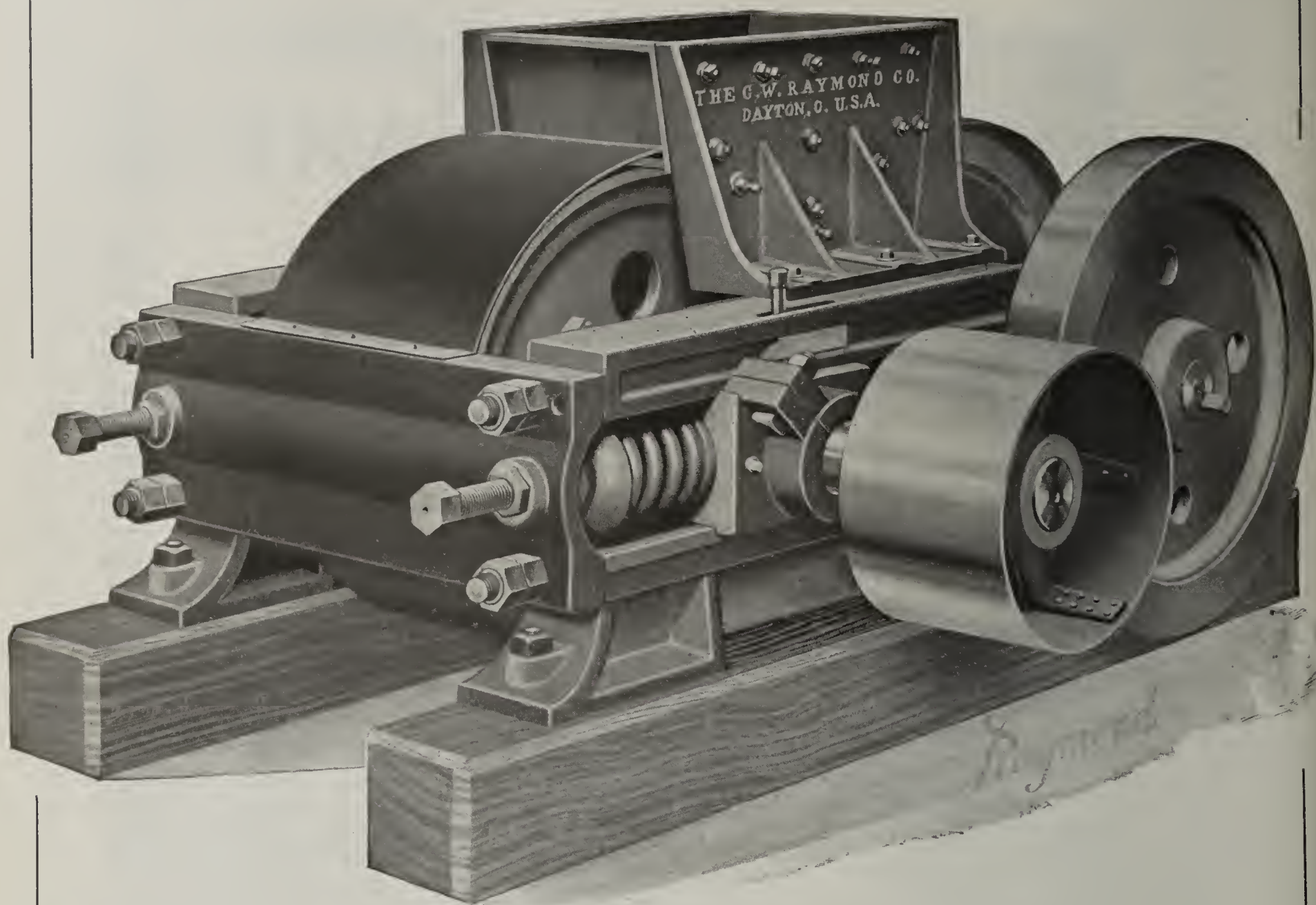
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A new form of construction in smooth roll crushers, which abounds in intensely practical points.

The fast roll is held rigid in the framework while only the slow speed roll is adjustable, which allows the impact to be taken against a solid frame. This framework is held together by heavy through-going bolts, equalizing the strain on the entire structure.

The adjustable roll is relieved by heavy springs which allow the passage of foreign substances should any happen to get into the material unnoticed.

The bearings are equipped with oil reservoirs holding sufficient lubricant for a considerable time.

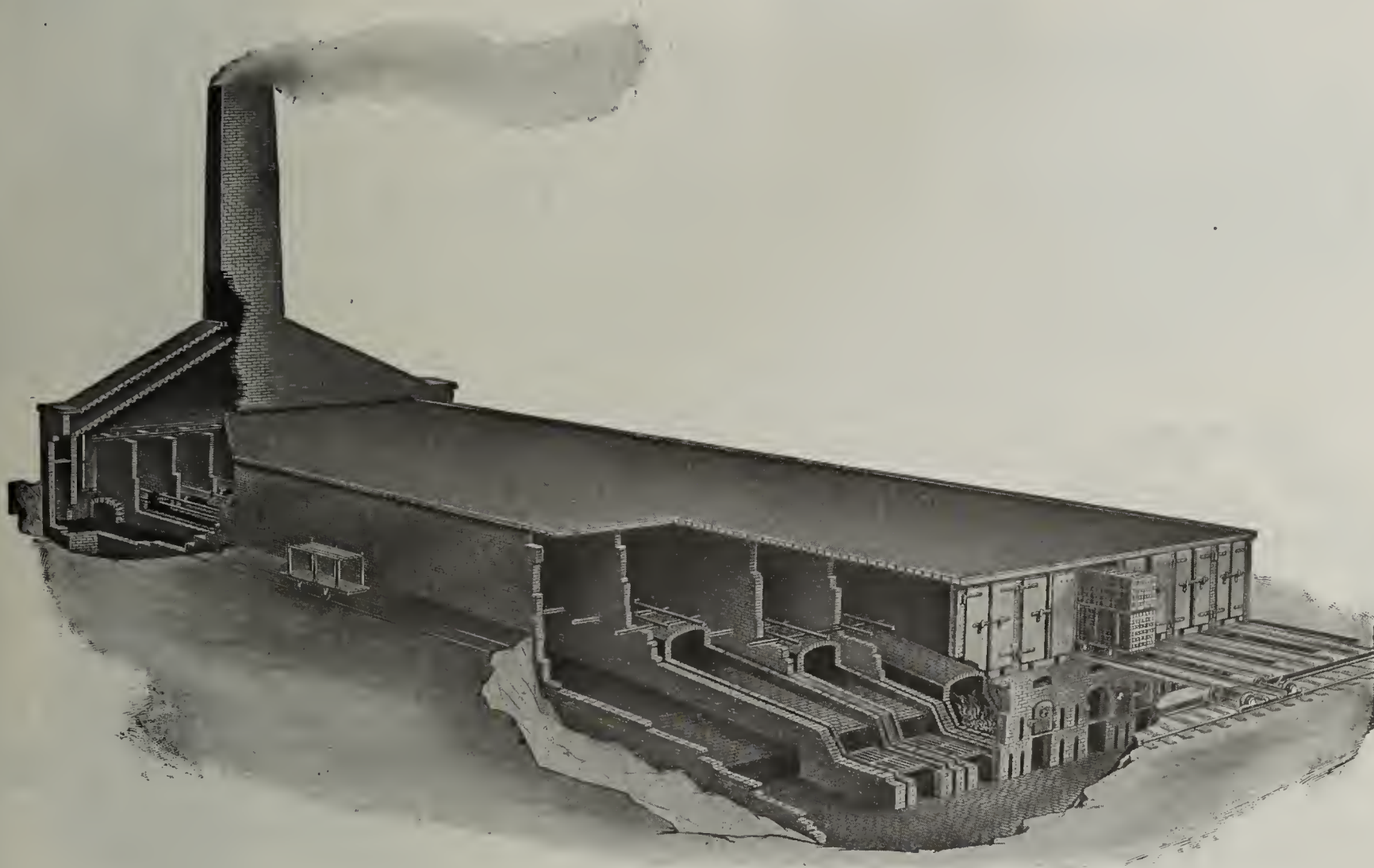
The scraper device is new. Write for Exhibit 2115 which explains in full detail.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The Raymond Radiated Heat Dryer



Are You Having Drying Troubles?

The Raymond Systems of drying clay products have been a boon to the clayworker with drying troubles.

Our Raymond Radiated Heat Dryer is simplicity itself—no fan or engine troubles—temperature and air circulation in each tunnel under absolute and separate control. Ware only in contact with pure air. Cars never in contact with gases or acids. Fuel cost per ton of dried ware less than in any other dryer.

The tenderest clays can be dried without injury, and the same successful results are obtained with every description of clay ware.

Exhibit sheets covering our Drying Systems sent upon request.

THE C. W. RAYMOND CO.

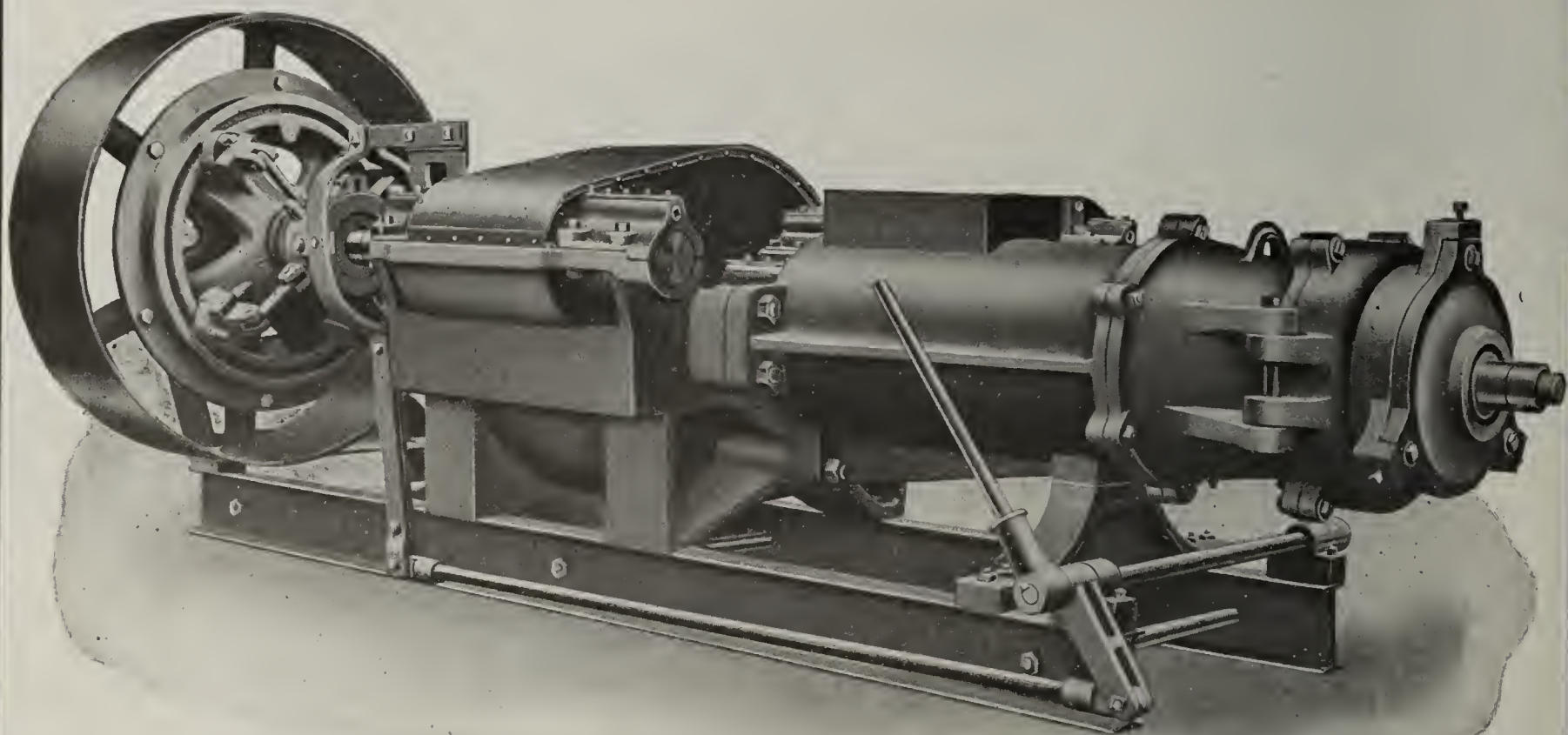
*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.



The Brewer No. 88 Horizontal DRAIN TILE MACHINE

A high grade, high speed, heavy duty pattern, new enough to be up to the minute, but old enough to have shown what it can do.



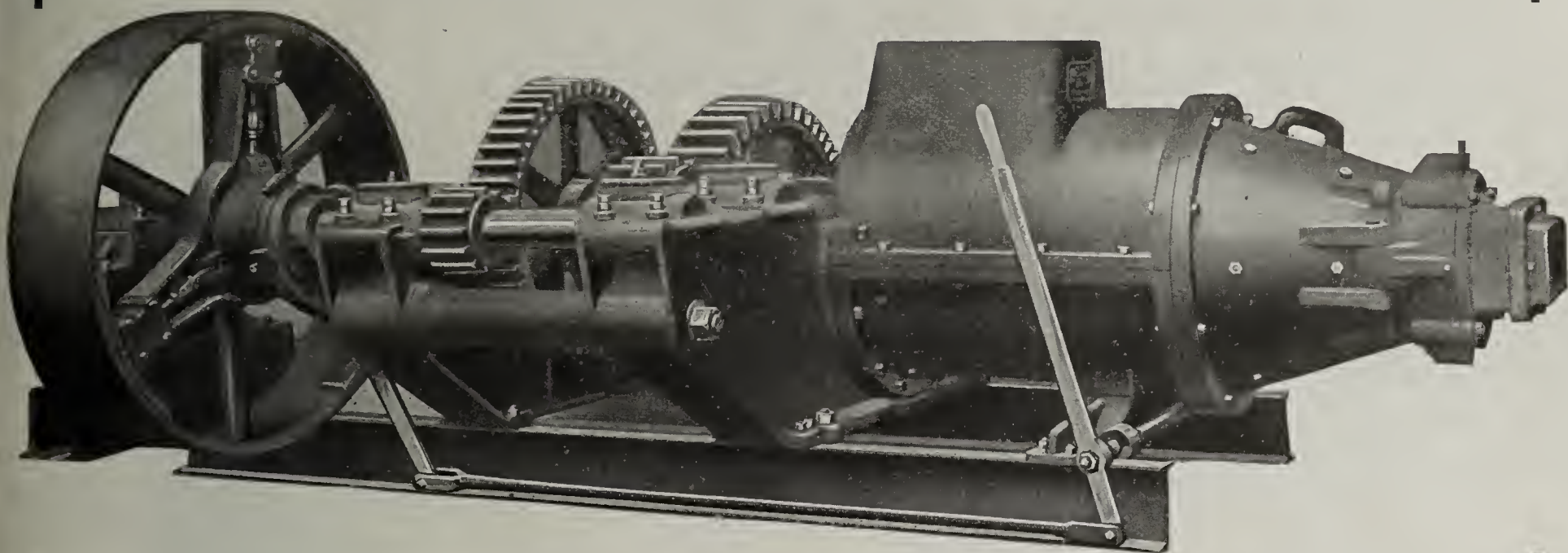
Here Are a Few Construction Points:

- Cut gears, covered and running in oil.
- Gear frame cast in one piece.
- Cylinder cast in one piece.
- Hammered steel shafts. Self-oiling bearings.
- Sectional lined screw case. Heavy 29-in. disc clutch.
- Tool steel bushed dies.

Ask for complete catalog, references and prices.

H. BREWER & COMPANY, Tecumseh, Mich.

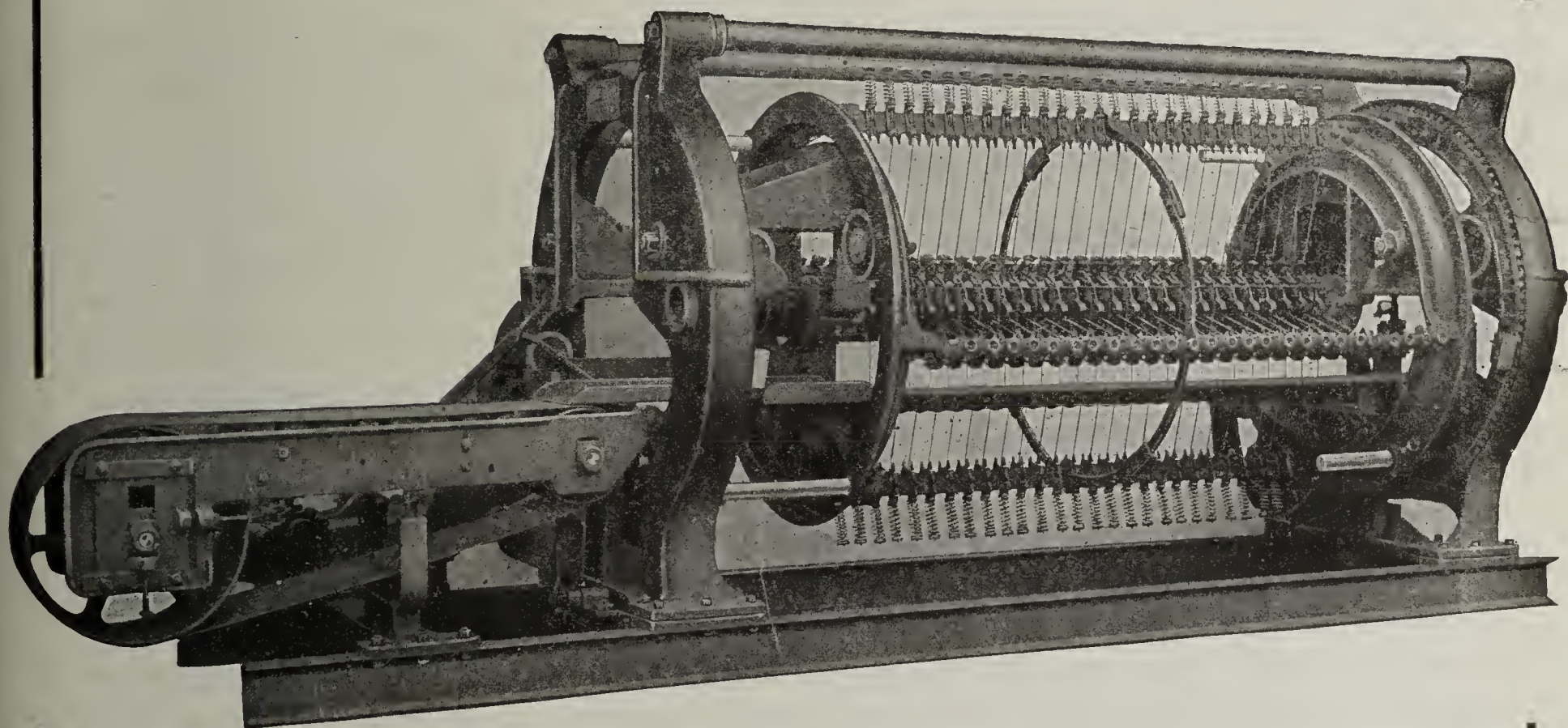
Bonnot Machinery for Satisfactory Service



No. 10 Auger Machine. Capacity 50,000 to 75,000 Brick in 10 Hours.

GET OUR CATALOG.

ASK THOSE WHO USE THEM.



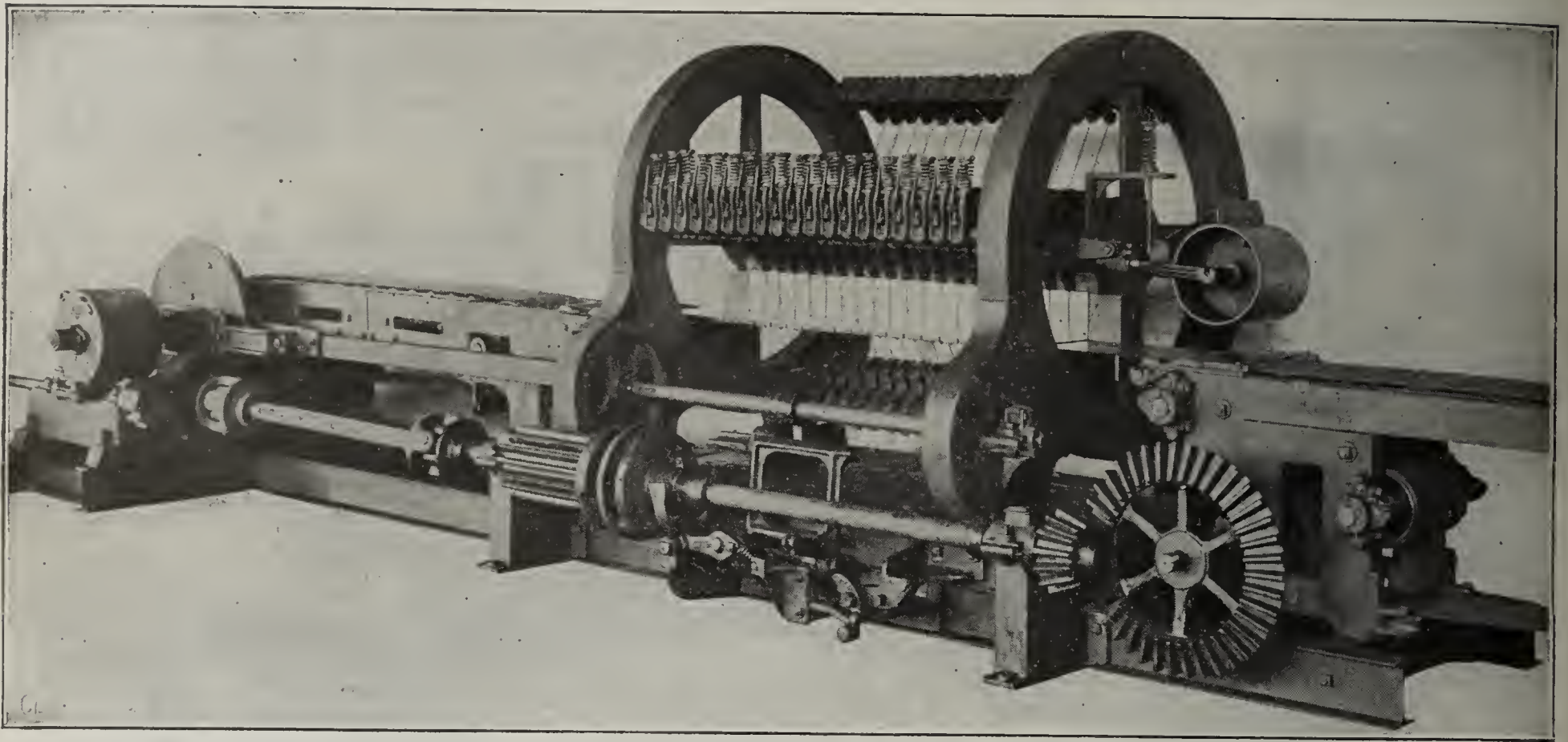
Only Rotary Automatic Cutting Table With Cutting Frame Next to Die of Machine.
Capacity 100,000 Brick in 10 Hours.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

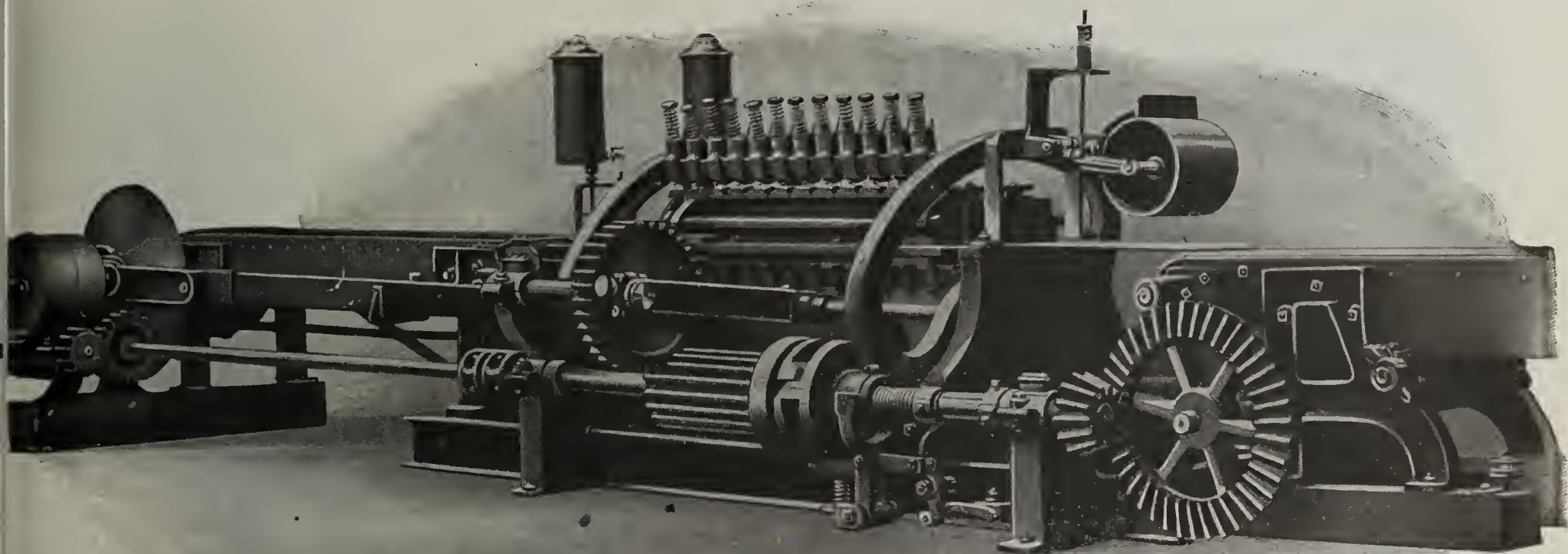
The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

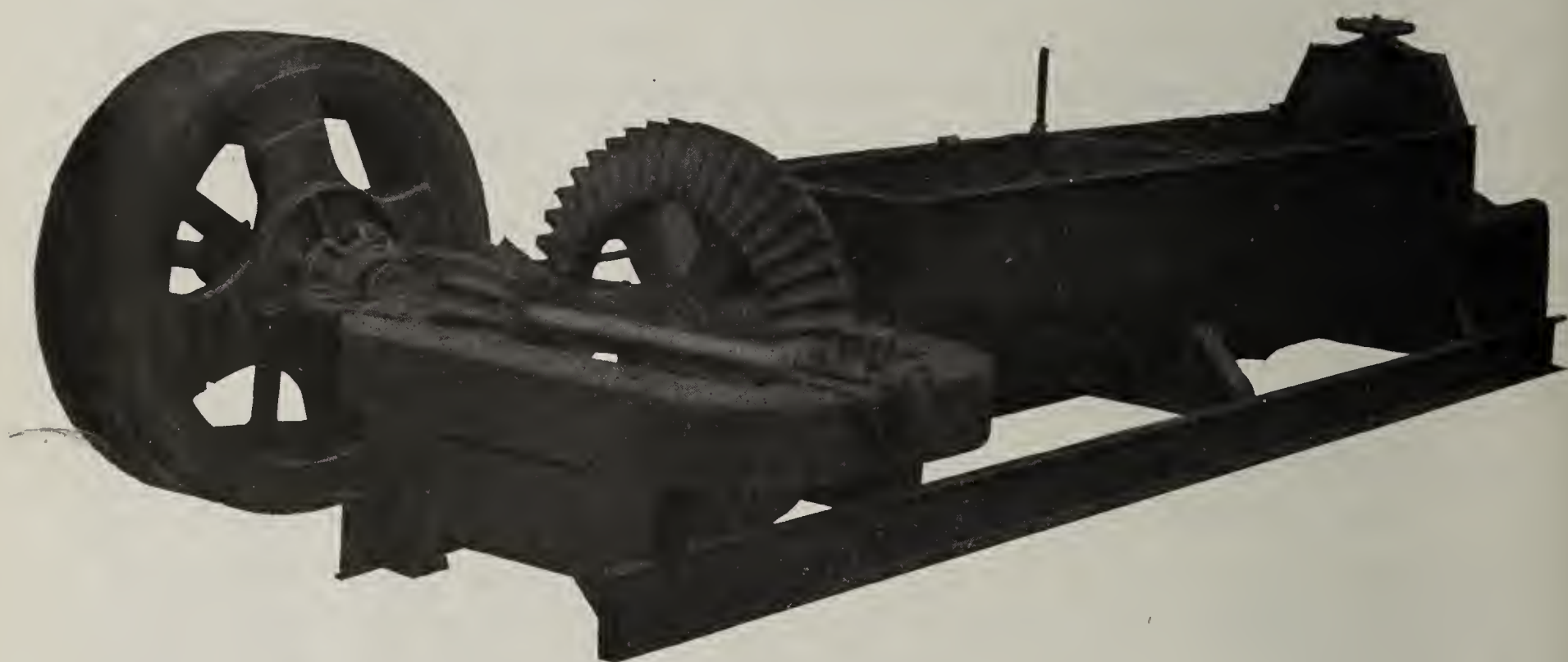
Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

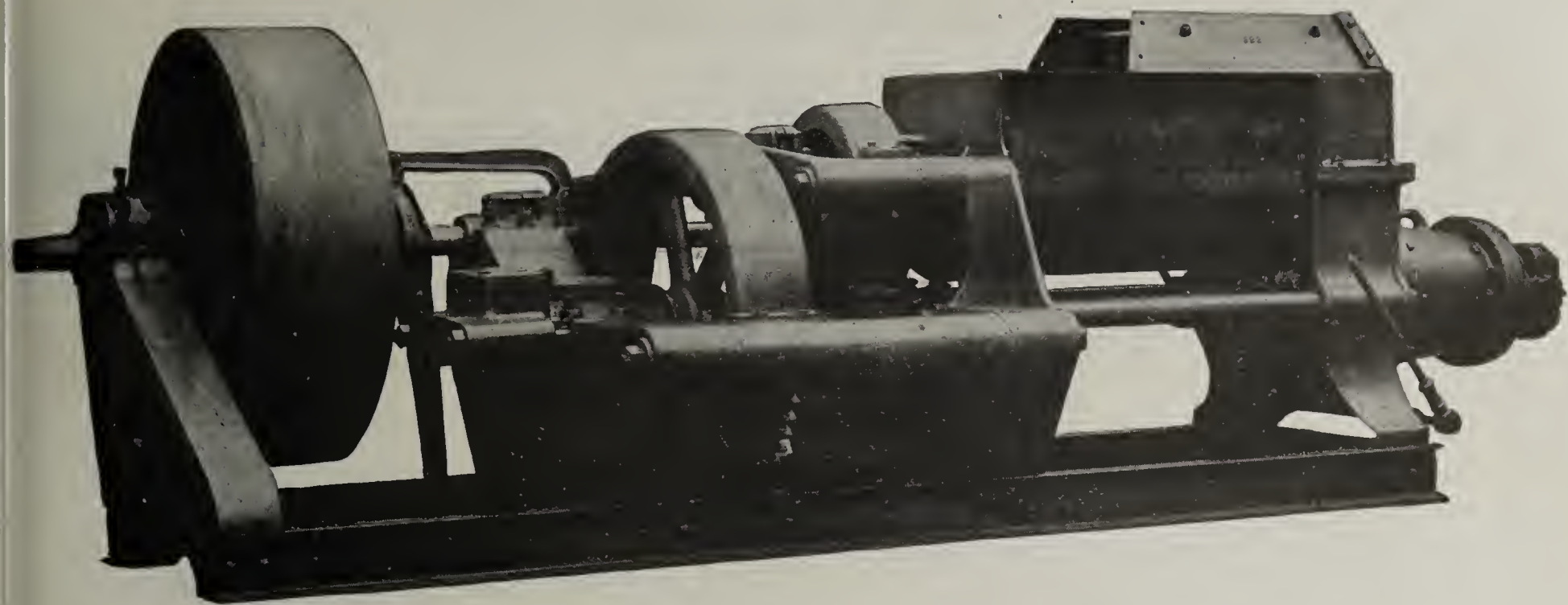


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.

Money in Sewer Pipe

THERE is lots of opportunity both in the United States and Canada for profitable sewer pipe plants. Others are making money in this business, and the use of high-grade clay pipe is constantly increasing.

There is no use going into the sewer pipe business, however, unless your plant is equipped properly with the kind of machinery which will make it successful.

Successful sewer pipe plants all over the country are equipped with the

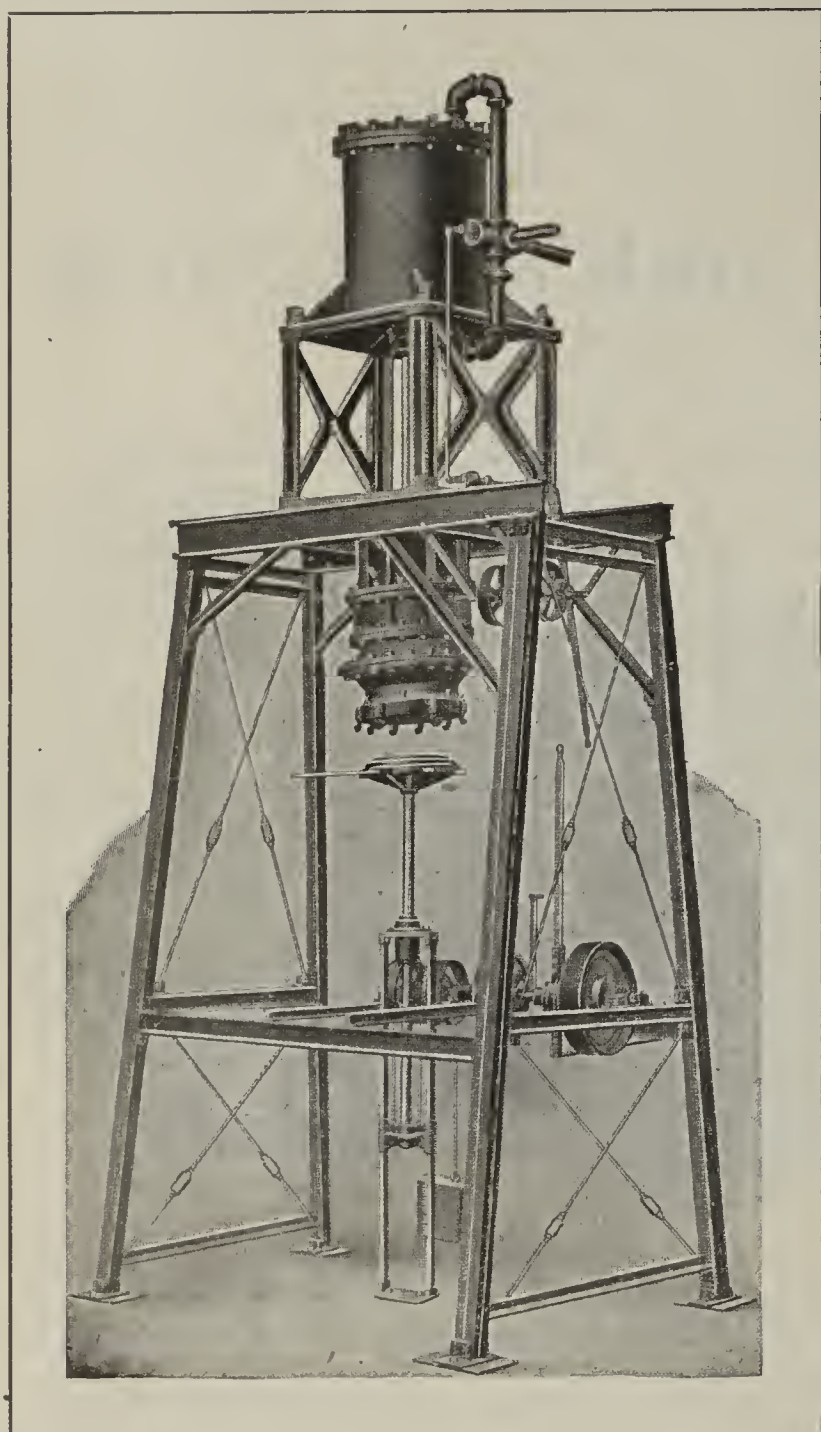
Stevenson Press

This press is generally acknowledged to be the best steam power press for the manufacture of sewer pipe in the world. You can make no mistake when you equip with Stevenson machinery.

We give particular attention to the equipment of plants for the manufacture of large size drain tile.

And we would be glad to correspond with you, giving you the benefit of our experience on this subject.

Take time by the forelock and begin your figuring on improvements now.



THE STEVENSON CO.
WELLSVILLE, OHIO

For Sixty
Years
The Name

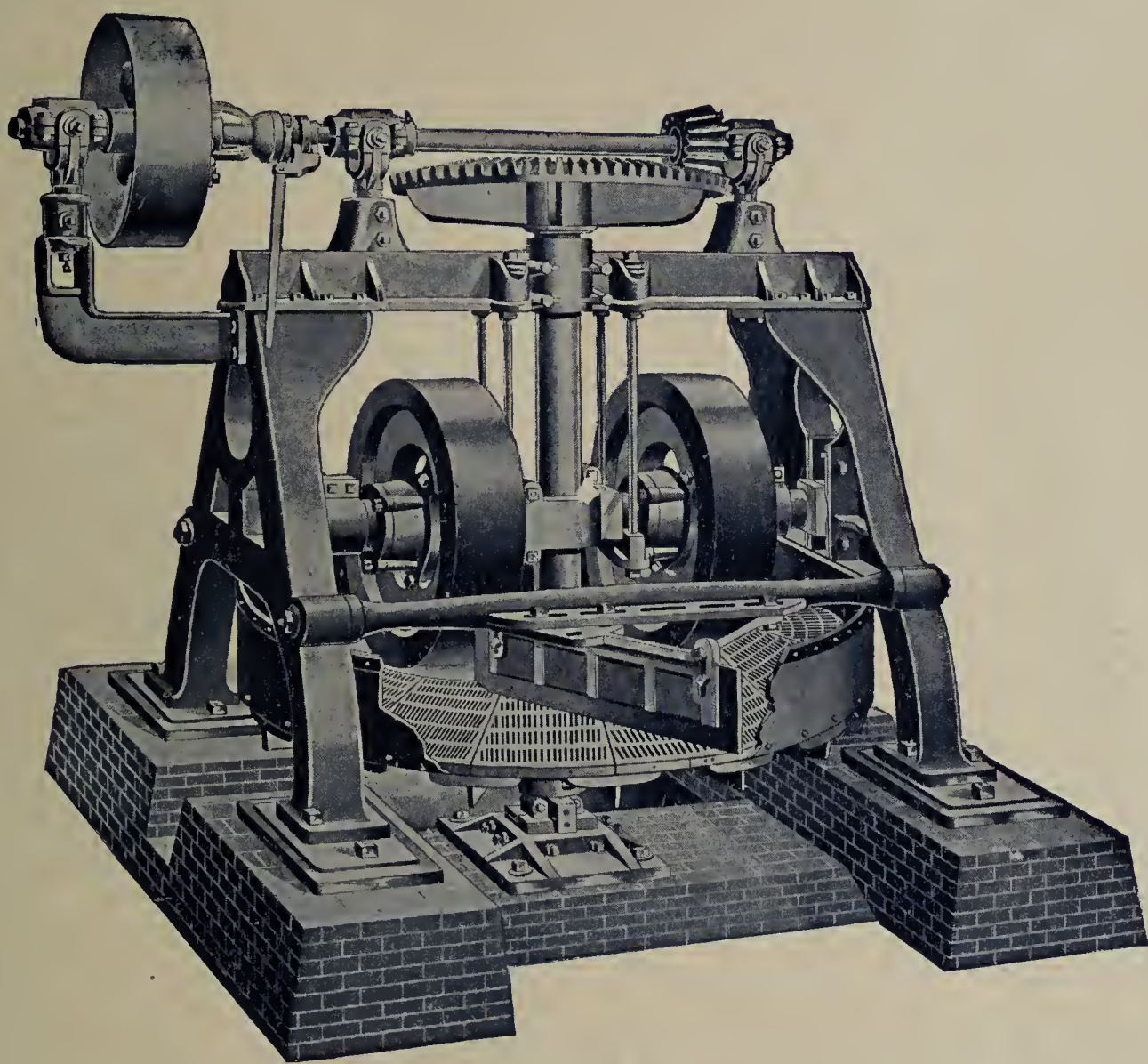
Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

Twenty-four
of October,
in clay.

Frost

Dry and Wet Pans sold during month
1911, and all of them to experienced workers



We shipped over twelve thousand horsepower in boilers during the
same month and also many engines.

Write for Special Bulletins and Specifications.

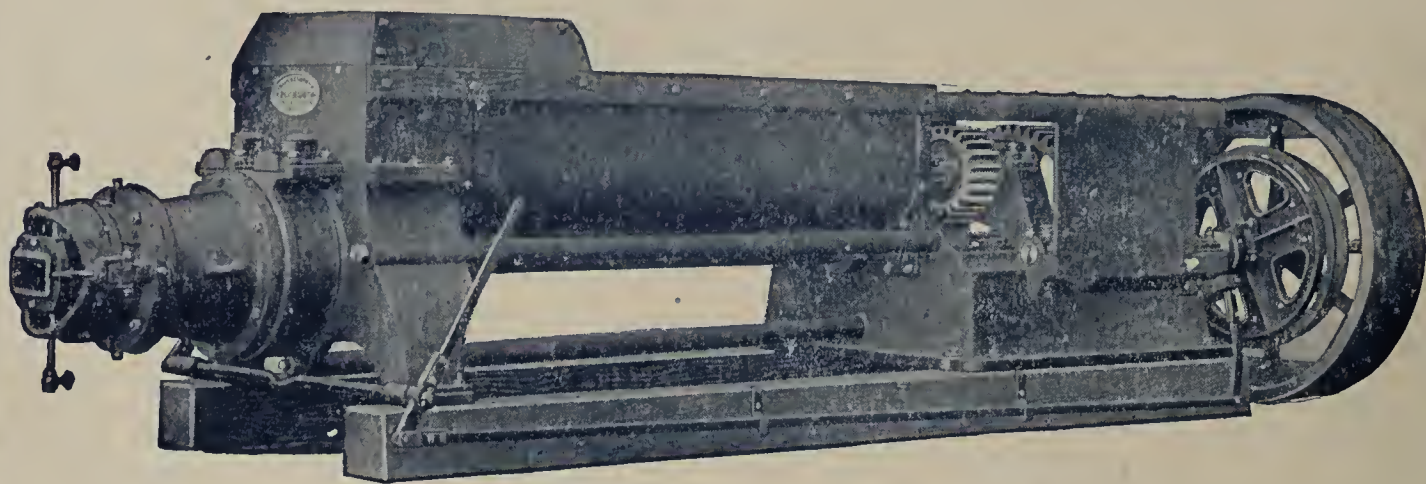
The *Frost* Manufacturing Co.

Works at
GALESBURG, ILL.

CHICAGO OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

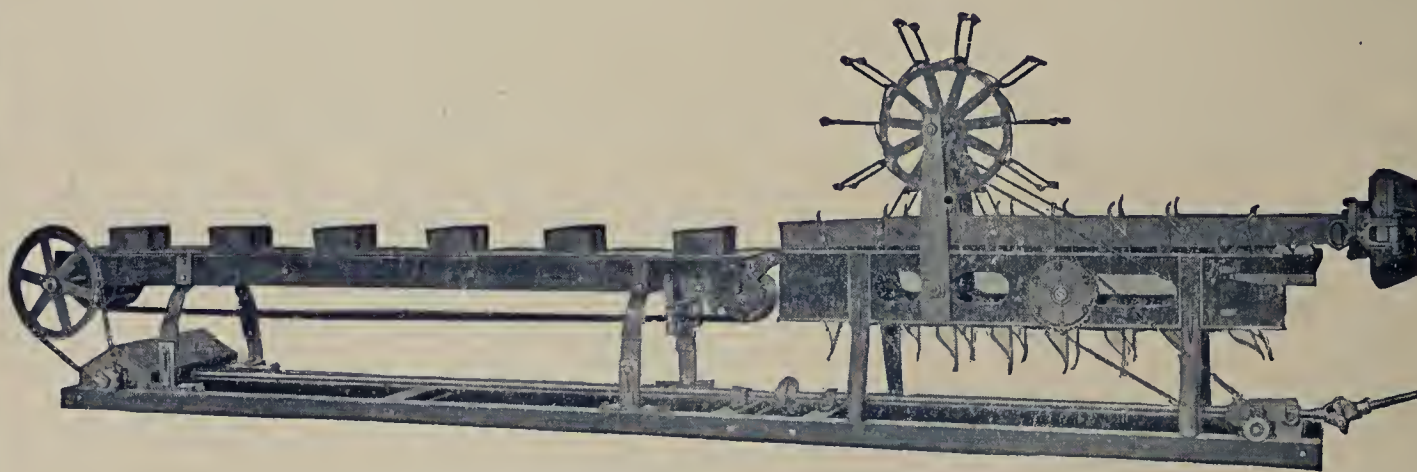
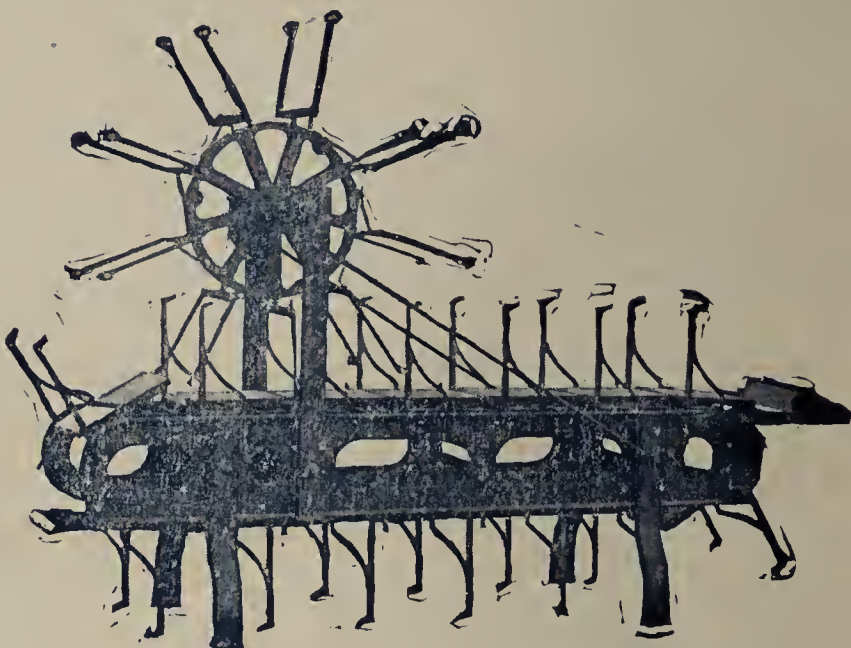
Mention THE CLAY-WORKER.

Two Interesting Pages for Manufacturer



The Fate "Premier" Machine. Too well known to need any description. The best Block or Fire Proofing machine made anywhere by anybody.

The standard Bensing Automatic Tile Table, arranged for cutting Hollow Blocks in sizes from $9\frac{1}{2} \times 4\frac{3}{8}$, but it will cut any block not larger than 10×12 inches. Can be built to cut any length from $12\frac{1}{4}$ to 14 inches.

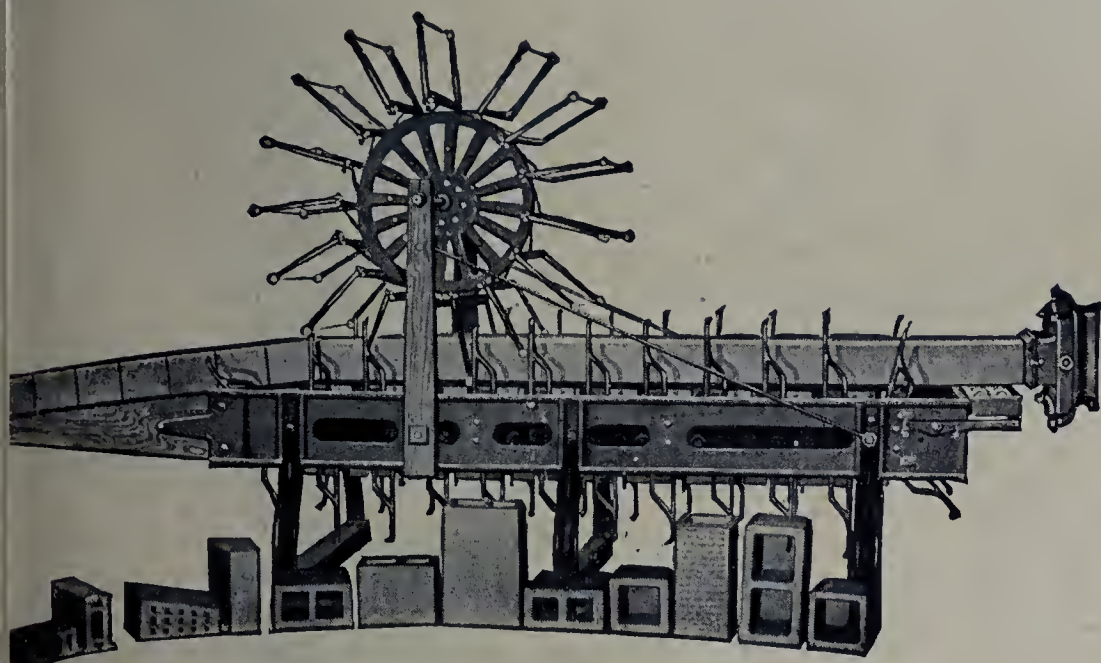


Bensing's End Cut Brick Table, cutting hollow end cut brick. Is equipped with belt delivery and friction device, and is especially adapted for this work.

The J. D. FATE COMPANY,

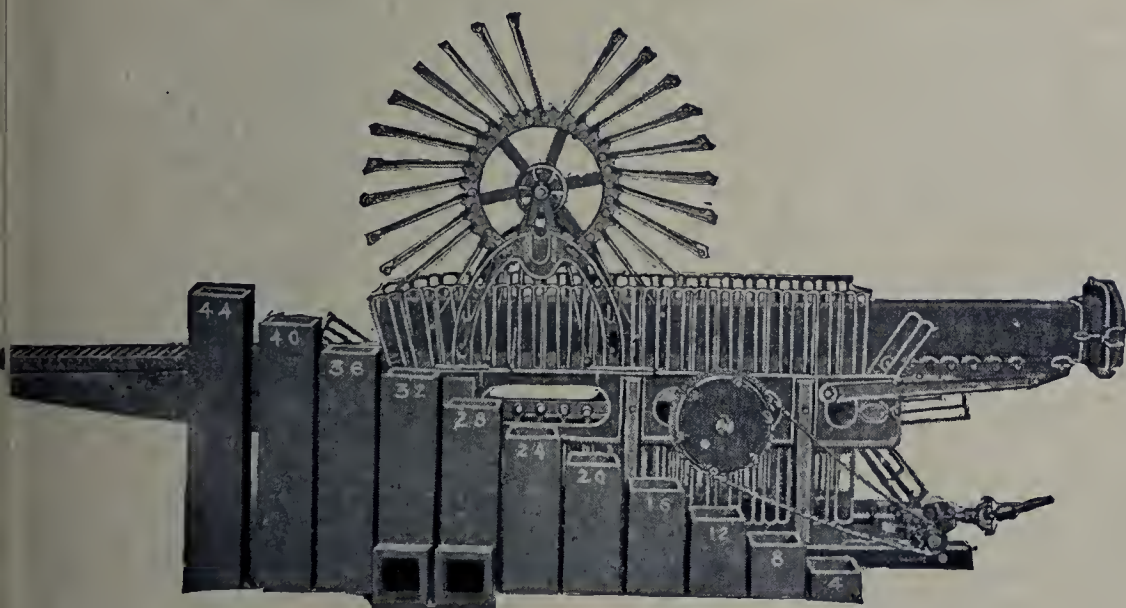
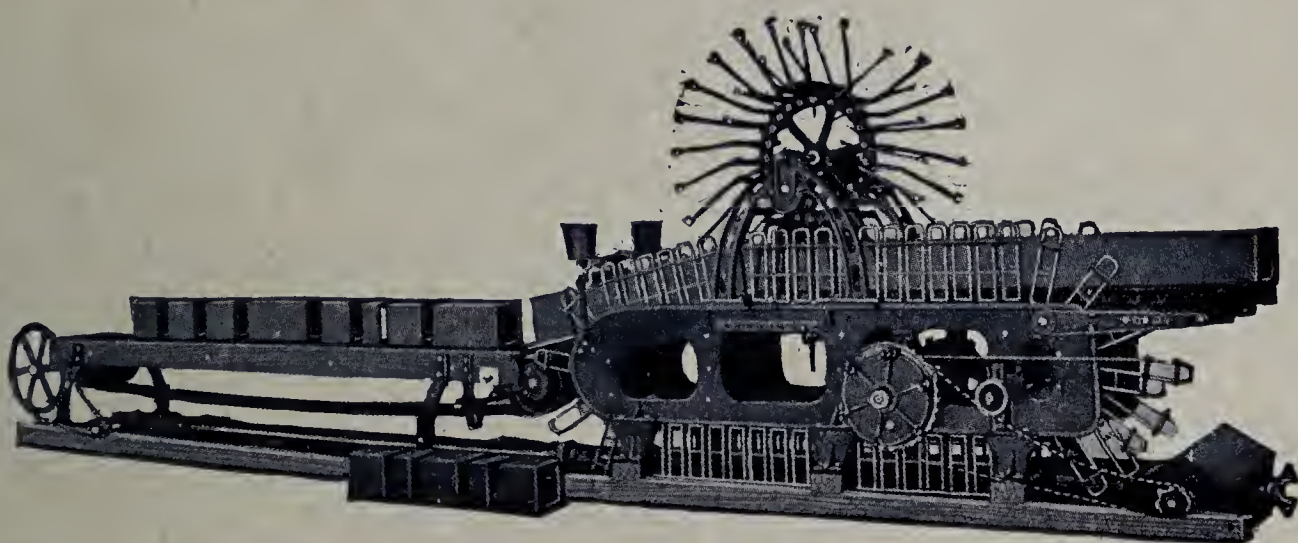
Manufacturers Equipment Co.

All Types of Hollow Building Ware.



This is a special Bensing Automatic Table for large Hollow Blocks. It will handle blocks as large as 18 inches wide by 9 inches high. The length of cut can be anything desired, from 9 inches to 18 inches. Fitted with roller rack delivery.

Bensing Automatic Table for cutting Hollow Blocks, Face Blocks or Hollow Fire Roofing. It will handle blocks 11 inches high by 12 inches wide, and will cut in multiples. It has belt delivery.



This Bensing Automatic Table has roller rack delivery and friction driving device. Can be built for any multiple, and will handle blocks 11 inches high by 13 inches wide.

Plymouth, Richland Co., Ohio
on, Ohio, Sales Agents

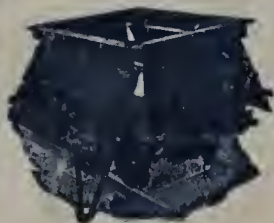
Isn't This a Fair Proposition?

Let the Screen Pay the Cost, That's the
Way We Sell Them.

The **Perfect Clay Screen** will pay the cost of installing in six months. You pay us as the screen earns the money. We know what the results will be, and therefore are willing to give you our iron-clad guarantee. Why put up with unsatisfactory screening methods when we take all the risk.

The **Perfect Clay Screen** improves the product, increases capacity, saves labor and fuel. Do not delay, get a **Perfect Clay Screen** and be happy.

DUNLAP MFG. CO., Bloomington, Ill.

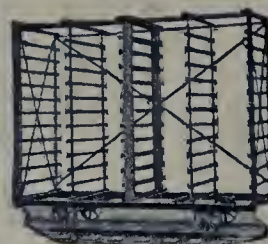


LAKEWOOD

Our Dump cars discharge quickly and cleanly. Nothing is left in car after tilting. Will not jump the track. All steel. Bodies heavy sheet steel. Reinforced corners and angles. No pins or chains to prevent tilting the car.

The quicker you write the sooner you will get information. Do it NOW.
Do not procrastinate.

**OHIO CERAMIC ENGINEERING
CO., Cleveland, Ohio**



LINE



SPECIALS FOR SALE.

Victor Repress, second hand.
Eagle Repress, second hand.
20 Rack Cars.

Branches
1015 First National Bank Bldg.,
Chicago.
1205 Fulton Bldg., Pittsburgh.



The CLAY-WORKER



PUBLISHED BY
T.A. RANDALL & CO. INDIANAPOLIS.

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Pages 609, 610 and 612

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"Detroit"

RETURN TRAPS

insure against sluggish steam dryers. Automatically return every bit of condensation directly to the boiler.

No boiler feed pumps or vacuum system needed where "Detroit" Return Traps are at work. Every tilt means a saving of heat units in the condensation.

Why cool down the condensation to accommodate a pump? Use "Detroit" Return Traps and return direct to the boiler at practically the temperature at which it is condensed.

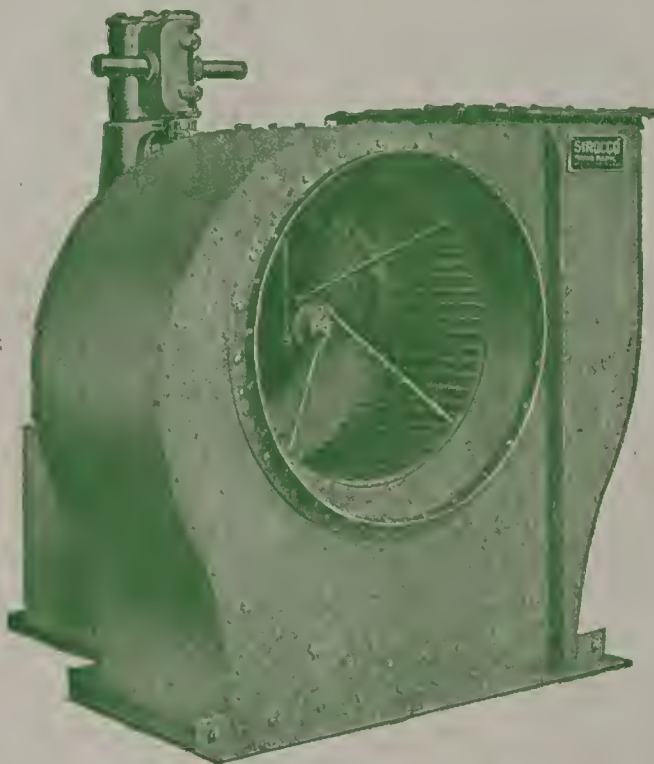
Heating feed water costs money.

"Detroit" Traps benefit the brickmaker. Pumps help the coal dealer.

Trap Book No. 266--C.W. goes into detail.
Yours upon request.



Patented



"Sirocco" Induced Draft Fan.

"Sirocco"

TRADE MARK

Fans for Waste Heat Dryers and Induced Draft on Brick Kilns.

The advantages of "Sirocco" Fans for brickyard work lie in the great power saving quality and low cost of installation.

The speeds of "Sirocco" Fans are suitable for direct connection to reciprocating engines, turbines or electric motors.

"Sirocco" Fans direct connected to "ABC" Vertical Enclosed Self-Oiling Engines make economical steam driven outfits.

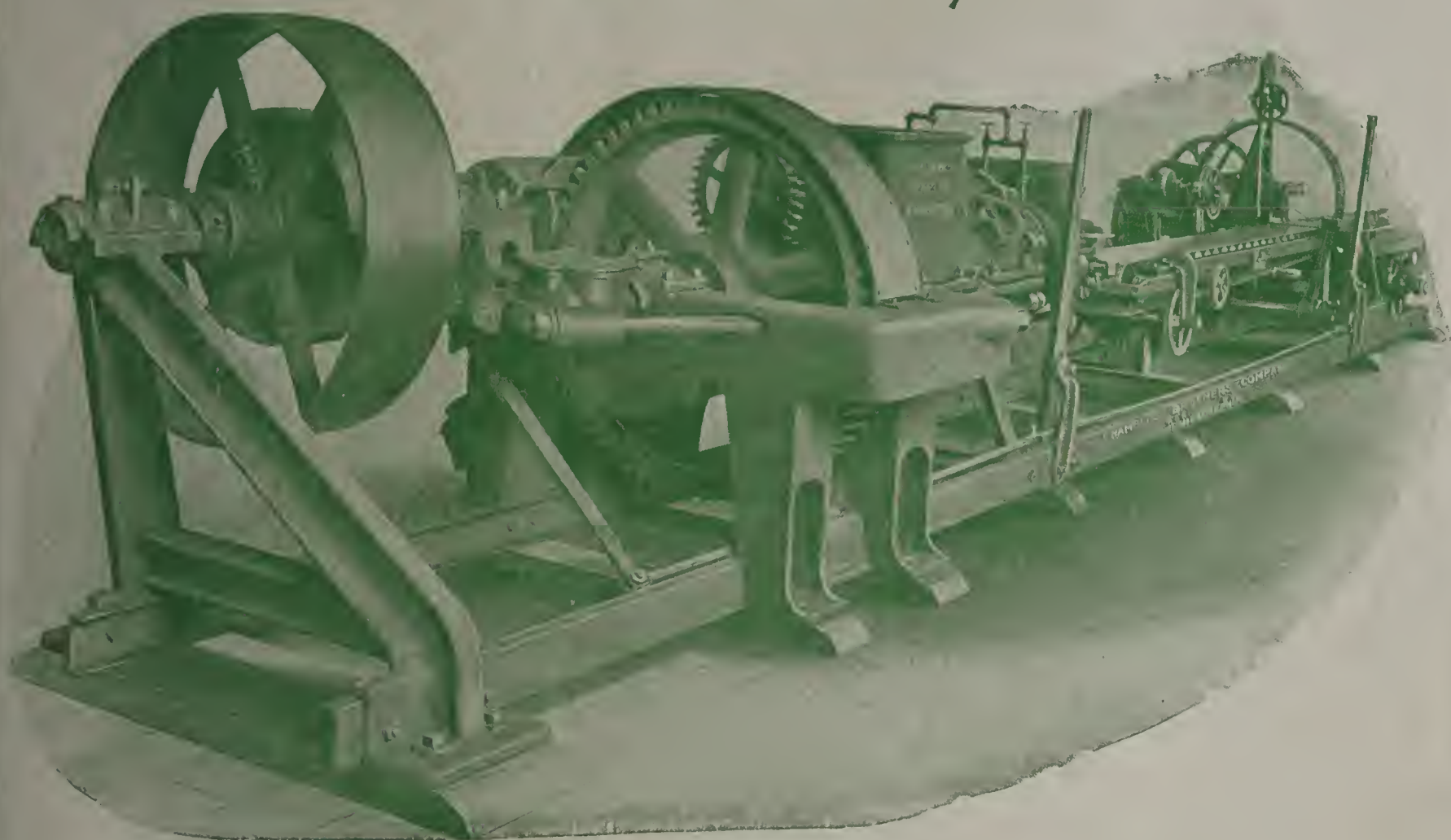
"Sirocco" Bulletin No. 284--C.W. upon request.

A skilled engineering staff awaits the opportunity to assist you in boosting your production and reducing your costs.

AMERICAN BLOWER COMPANY

DETROIT, MICH.
U. S. A.

The Chambers Brickmaking Machinery.



Auger Brick Machines of Various Capacities with
Rotary End-cut and Side-Cut Tables.

Special Machines for Street Paving Block.

Wires for All Styles of Cutting Tables.

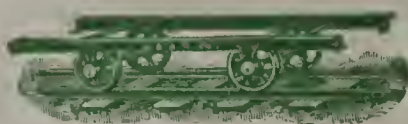
Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use



Cutting Wires For Brick Machines

Chambers Brothers Company,
PHILADELPHIA, PA. CHICAGO, ILL.



RAIL,
SWITCHES,
FROGS.

TURNTABLES,
WHEELS,
AXLES.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Taplin, Rice-Clerkin Co.

The Machinery Folks of Akron, Ohio, U. S. A.

SOME PLANTS WE INSTALLED

"The 'Pioneer' Wet Pan
Is the best known to man."

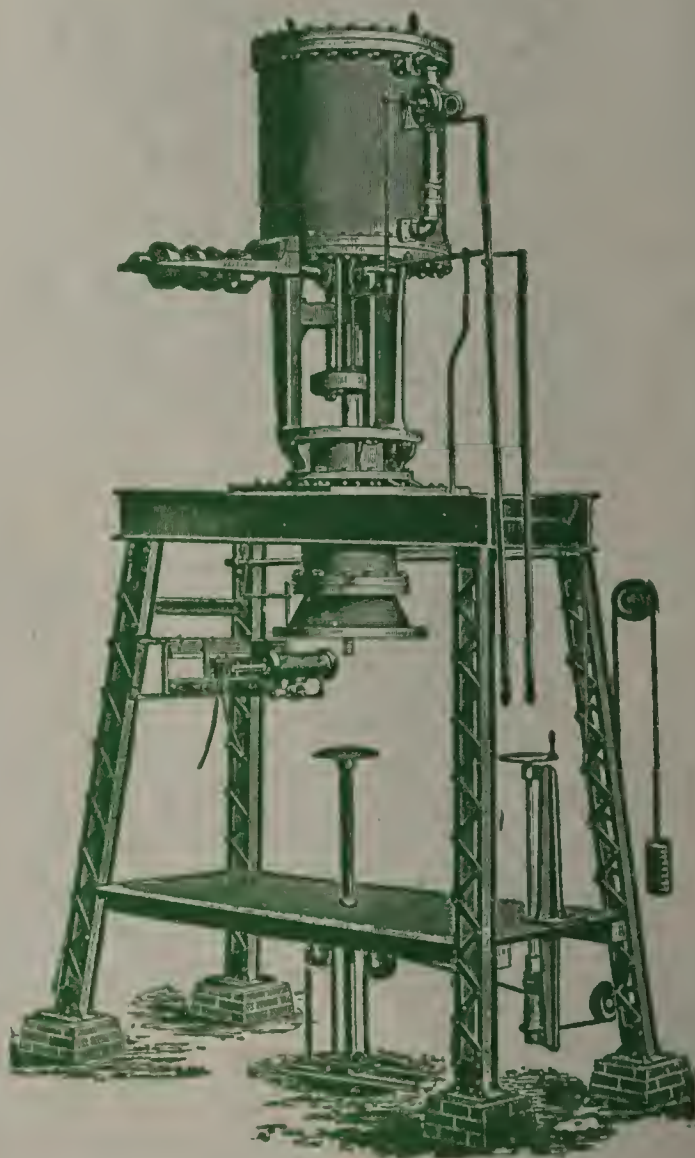
"Pioneer has no Peer."

"Pioneer Machinery is simply the best,
And Used in Clay Products it stands every test;
Durable, high-class, efficient, and true,
It does for its users what others can't do."

"Make things from Clay the
'Pioneer's' way."

"Established Eighteen-Sixty
Five,
But growing fast and much
alive."

Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny, Renton Co., Seattle, Wash.
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Pomona Terra Cotta Co., Pomona, N. C.
Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.
British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 29.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

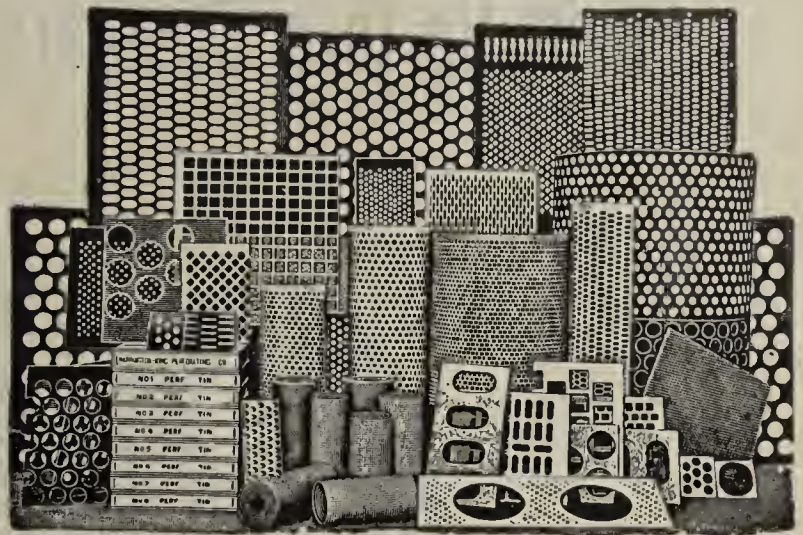
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



SILENT WITNESSES,

yet testifying daily in our behalf, are the

RODGERS WASTE HEAT DRYERS

which you will find in the leading brick plants throughout the country.

Before reaching a decision regarding the dryer to be installed in your plant visit our witnesses, get their testimony and compare with that of others.

The case will then rest in your hands and the verdict, we are confident, will be rendered in our favor.

We dry SATISFACTORILY most of the brick of Western manufacture.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

30 North La Salle St.

CHICAGO.



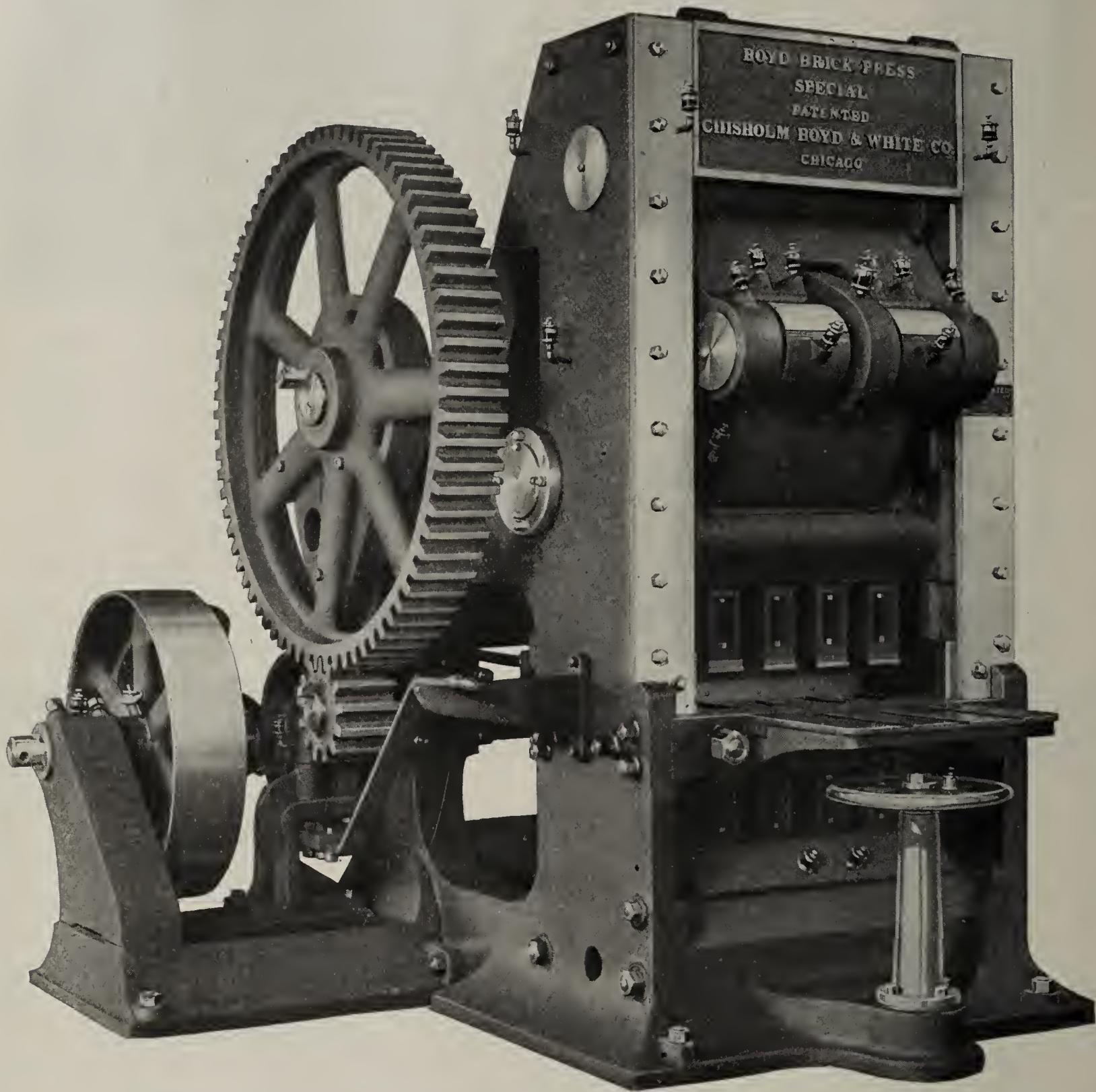
RODGERS



Mention THE CLAY-WORKER.

The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED-PRESSURE—brick lifted in molds under pressure.

PRESSING TIME FACTOR—long duration, 50% of the cycle.

GEARS, SHAFTS, BEARINGS and other parts exceptionally large.

FREE from complicated parts—**ACCESSIBILITY** unequaled.

TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press in Canada

MILTON PRESSED BRICK CO. Limited

DR. ROBERTSON,
President.

J. S. McCANNELL,
Vice-Pres. & Man. Dir.

Manufacturers of High-Grade Pressed Bricks and Terra Cotta Mantels

All quotations are subject to change without notice. All agreements are contingent upon strikes or other delays beyond our control, and all contracts must be approved by the head office.

MILTON, ONT..

Nov. 7th, 1911.

Messrs. Chisholm, Boyd & White Co.,
57th & Wallace Sts.,
Chicago, Ill., U.S.A.

Dear Sirs:-

We are pleased to advise you that the new Four Mold "Special" Boyd Brick Press which we recently purchased from you arrived in good condition and is now making bricks.

We have now six Boyd presses in a row and expect to be in the market for another in the course of a few months. It is now nearly twenty-two years since we installed the first Boyd presses.

We tore out the first one put in to make room for the new Boyd "Special" which is built on a very much stronger scale than the ordinary machine. However, we have still one of these old machines in operation and producing first-class bricks. For a number of years this machine worked night and day.

We might state that we are well satisfied with the Boyd press or we would not be using your machine exclusively.

We are satisfied that we are making the best bricks made in Canada with your machines.

Thanking you for prompt shipment of the last press, we remain

Yours truly,

J.S. Mc/

Milton Pressed Brick Co., Limited.

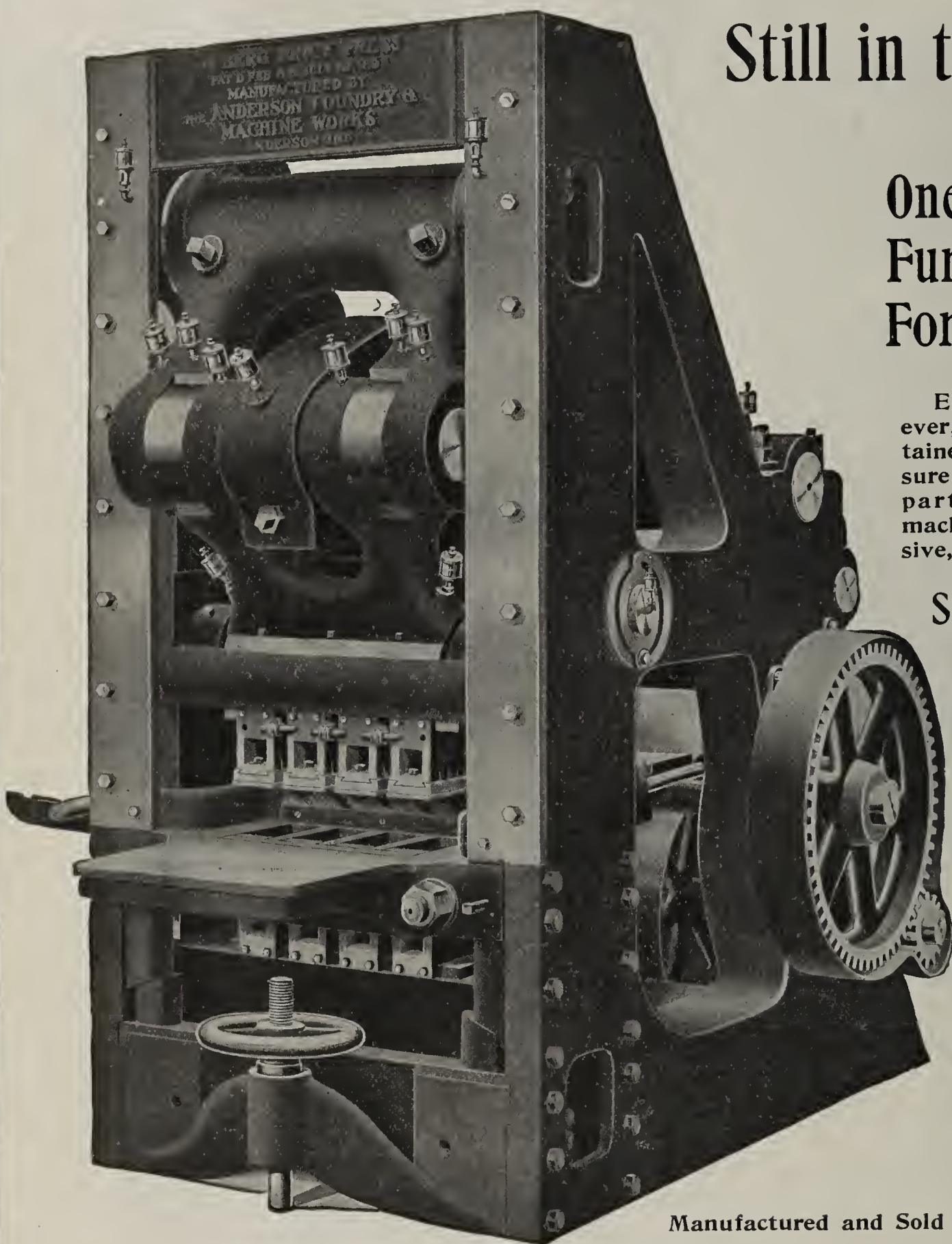
J. S. McCannell
Man'g Director

CHISHOLM, BOYD & WHITE CO.

57th and Wallace Sts., CHICAGO

NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE PIECE.

All Machines
Are
Equipped With

CUT GEARING.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

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Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr. Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
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Potts & Co., C. & A.
Raymond Co., The C. W.
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Main Belting Co.
Sawyer Belting Co.

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Brewer & Co., H.
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Blowers.

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American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

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Arbuckle & Co.
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Morehead Mfg. Co.

Brick (Building).

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Bolivar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
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Brick (Paving).

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Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Vitrified Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Heald, G. W.

Buffing Machine.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dump Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Wallace Mach. & Foundry Co.

Ceramic Engineers.

Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
H. Brewer & Co.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
E. M. Freese & Co.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.

Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Contracting Engineers.

Dennis, F. W.
Haigh, H.
Heald, G. W.
Hoehne, Richard B.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hillenbrand.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick & Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
E. M. Freese & Co.
Manufacturers Equipment Co.
Mittler, P.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Chambers Bros. Co.
E. M. Freese & Co.
Fate Co., The J. D.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Scott-Madden Iron Works Co.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Eastern Brick Machinery Co.
E. M. Freese & Co.
Hensley, J. W.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Co., The J. C.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Electric Shovels.

The Marion Steam Shovel Co.
Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

Electric Instruments.

The Brown Instrument Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Fans.

American Blower Co.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Evens & Howard Fire Brick Co.

Fire Clay.

Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
Evans & Howard Fire Brick Co.

Flower Pot Machinery.

Rockwood Mfg. Co., The

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
Illinois Supply & Con. Co.
Raymond & Co., C. W.
Richardson-Lovejoy Engr. Co.
Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle and Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Co., J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Hoists.

(See Supplies.)

Hoisting Engines.

American Hoist & Derrick Co.

Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Freese & Co., E. M.
Raymond Co., The C. W.

Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
Boss, J. C.
Buhner, Jacob.
Chisholm, Boyd & White Co.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vogt, Anton.
Yates, Alfred.

Kiln Bands.

(See Supplies.)

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Kiln Irons.

(See Supplies.)

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

(See Supplies.)

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.
Milwaukee Locomotive Mfg. Co.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Ill. Supply & Constr. Co.
Tate Jones Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Pans (dry and wet).
(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson and Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King, Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Plows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Rockwood Mfg. Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin Rice Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdry and Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese and Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

American Pulverizer Co.
Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.

Pumps.

Dean Bros. Steam Pump Wks.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Milwaukee Locomotive Mfg. Co.
Ohio Ceramic Engineering Co.
Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Con. Co.
E. M. Freese & Co.
Hetherington and Berner.
Phillips & McLaren Co.

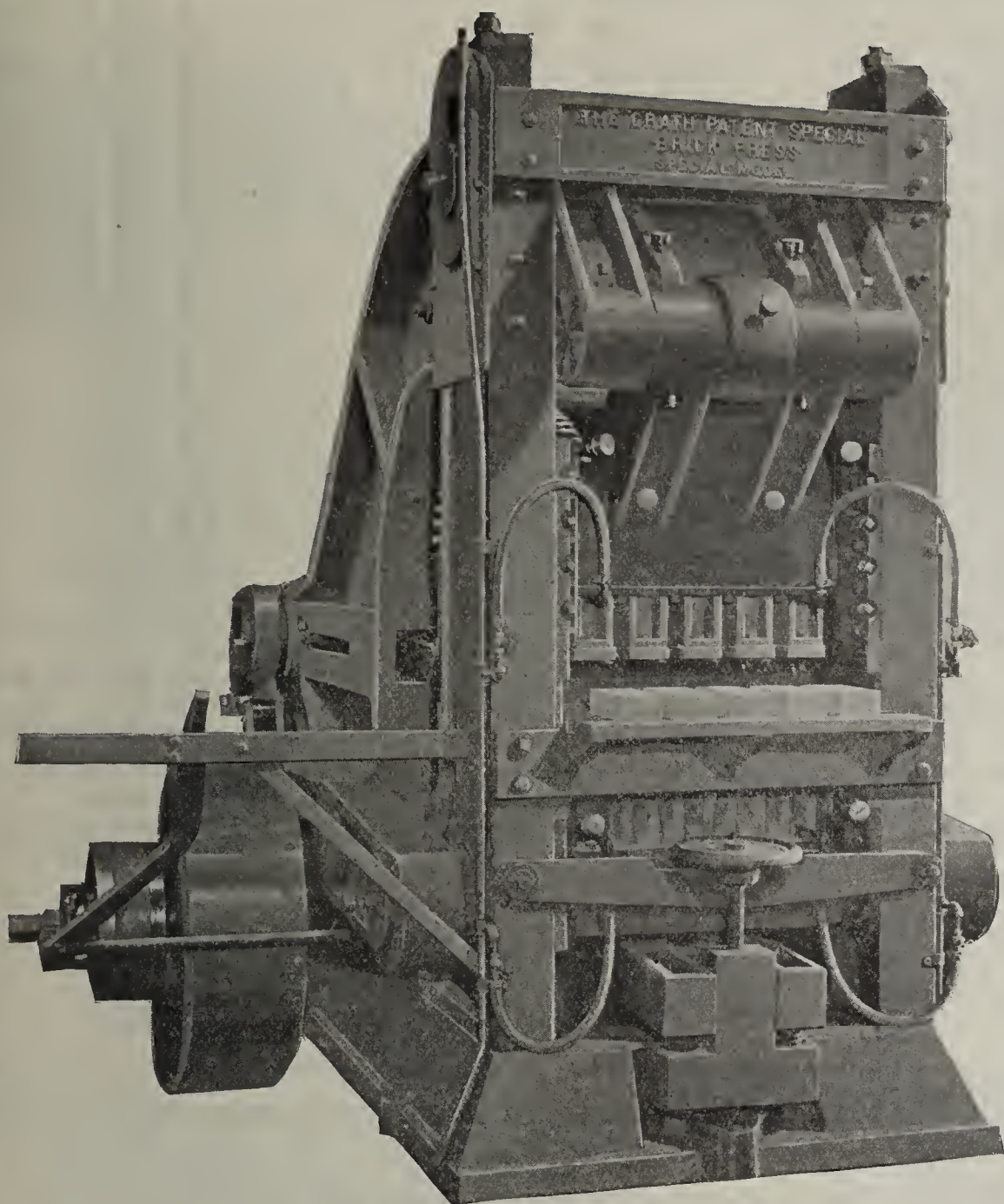
Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.
Fate Co., The J. D.

(Continued on page 612.)



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Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.
Brown Instrument Co.
Ceramic Suppy & Constr. Co.

Revolving Steam Shovels.
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Phillips & McLaren Co.

Roofing Tile Machinery.
American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.

Rope.
(See Supplies.)

Rotary Dryers.
American Clay Machinery Co.

Sand Dryers.
American Clay Machinery Co.
Anderson Fdry. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.
American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm Boyd and White Co.
Fernholtz Brick Machinery Co.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.

Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.
Illinois University.
New Jersey State School.
New York State School.

Scrapers, Flows and Clay Gatherers.
Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott Madden Iron Works.

Screens.
American Clay Machinery Co.
American Pulverizer Co.
Arbuckle & Co.
H. Brewer & Co.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
E. M. Freese & Co.
Harrington & King Perf. Metal Co.
Ill. Supply & Construction Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
The Stevenson Co.

Sewer Pipe.
Evans & Howard Fire Brick Co.

Sewer Pipe Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin Rice Clerkin Co.
Scott Madden Iron Works Co.
Stevenson, Co., The.

Steam Gauges.
(See Supplies.)

Steam Shovels.
American Hoist & Derrick Co.
Marion Steam Shovel Co.
Scott-Madden Iron Works.
Thew Auto. Steam Shovel Co.

Steam Specialties.
Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

Steam Traps.
American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Steel Pallets.
Ohio Galvanizing Co.
Ohio Ceramic Engineering Co.

Supplies.
American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. & W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd and White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin Rice Clerkin Co.
Wallace Machine & Foundry Co.
Wallace Mfg. Co.
Wellington Machinery Co.

Switches.
Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.

Tempering Wheels.
Carnell, Geo.
Raymond Co., The C. W.

Thermometers.
Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.

Tile Machines.
American Clay Machinery Co.
Anderson Fry. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Time Recorders.
Brown Instrument Co.

Tracks and Switches.
(See Rails.)

Transfer Cars and Turn Tables.
(See Supplies.)

Unloading Device for Pans.
American Clay Machinery Co.
Raymond Co., The C. W.

Voltmeters.
The Brown Instrument Co.

Wheels and Axles.
(See Supplies.)

Wheelbarrows.
(See Barrows.)

Wet Pans.
(See Pans.)

Wire.
(See Cutting Wire.)

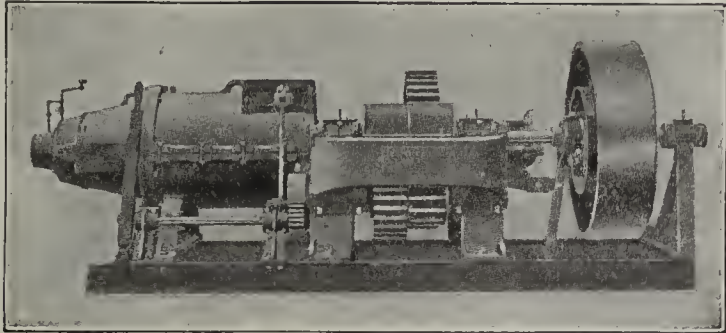
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CLAY=WORKER.....	\$2.00	
Mantel, Tile and Grate		
Monthly.....	1.00	
Current Literature.....	3.00	
Value.....	\$6.00	
		\$4.25

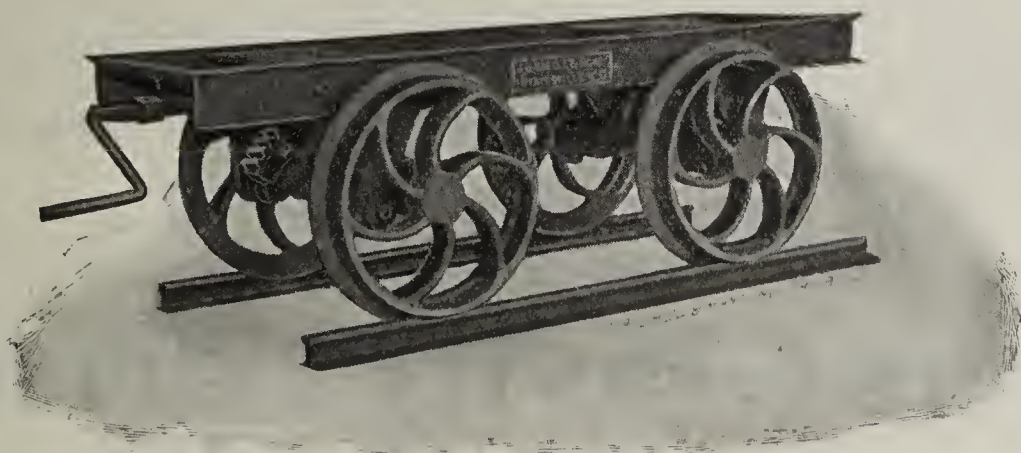
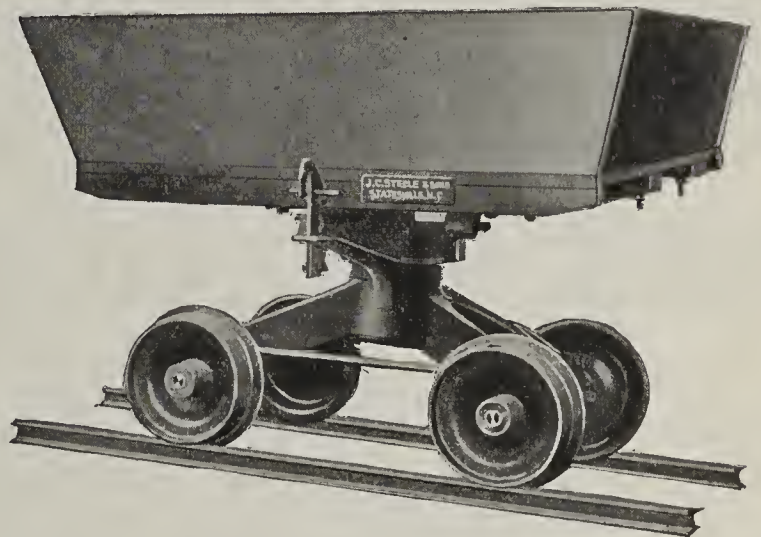
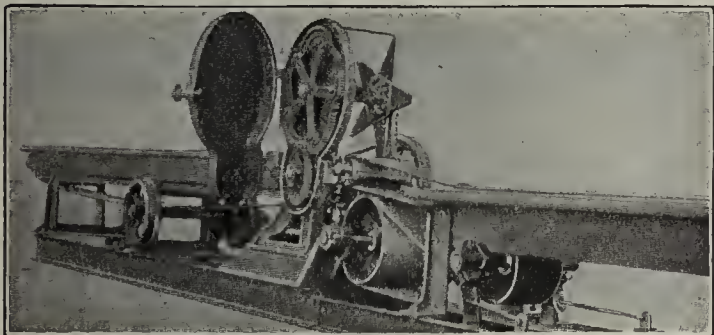
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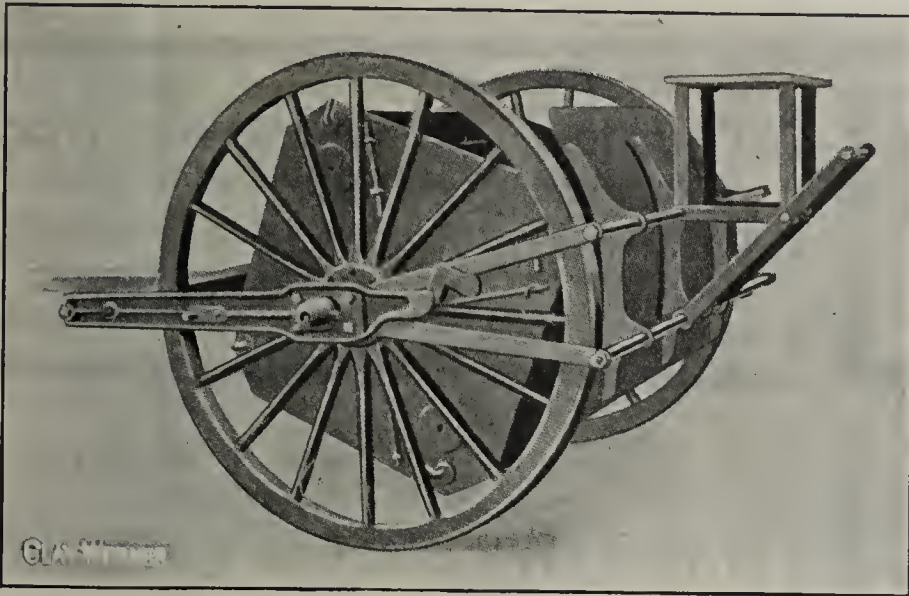
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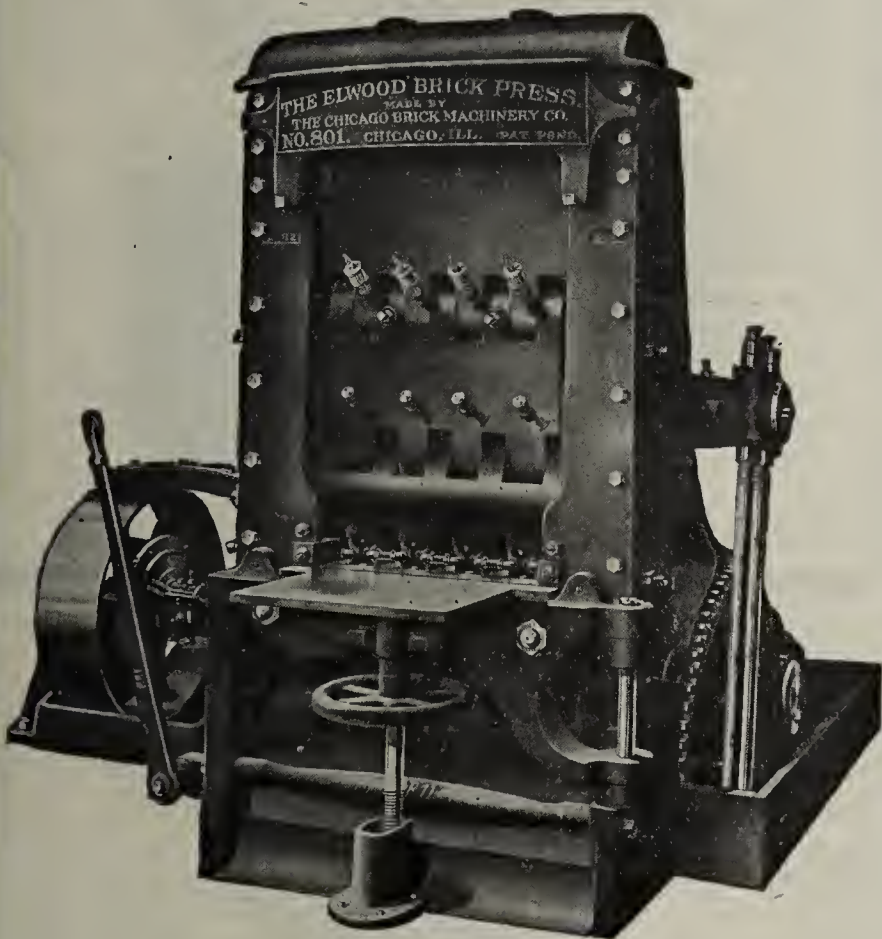
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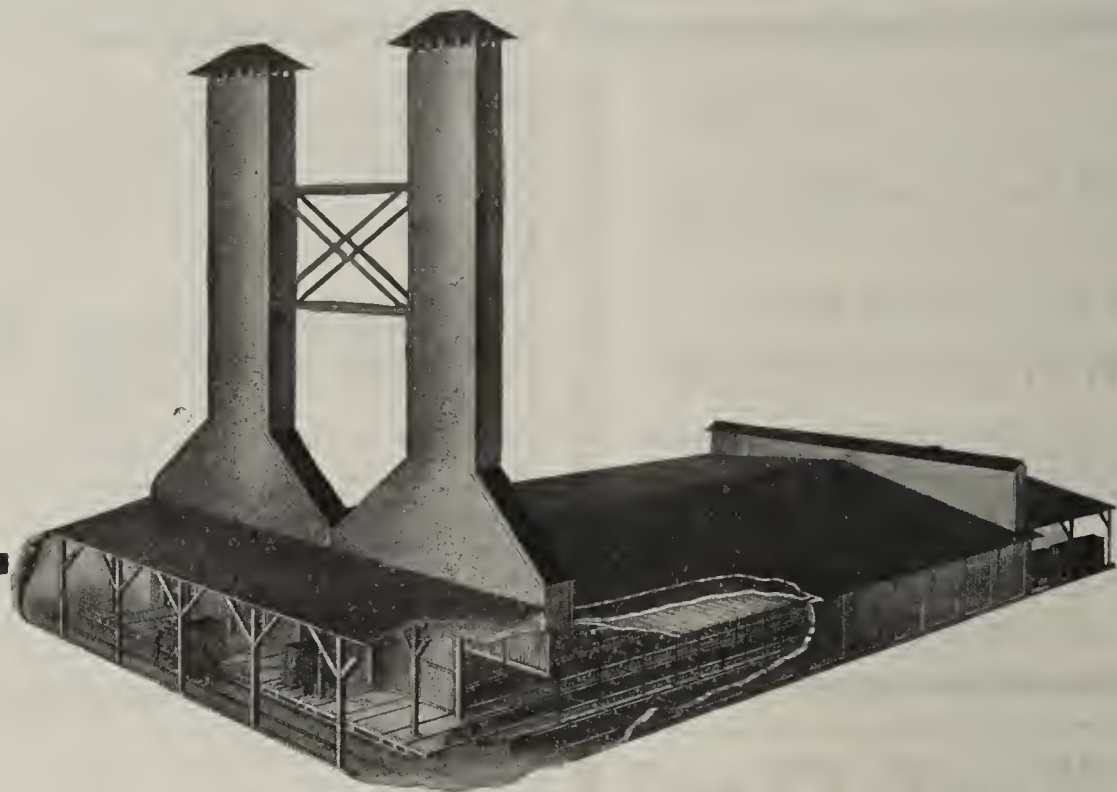
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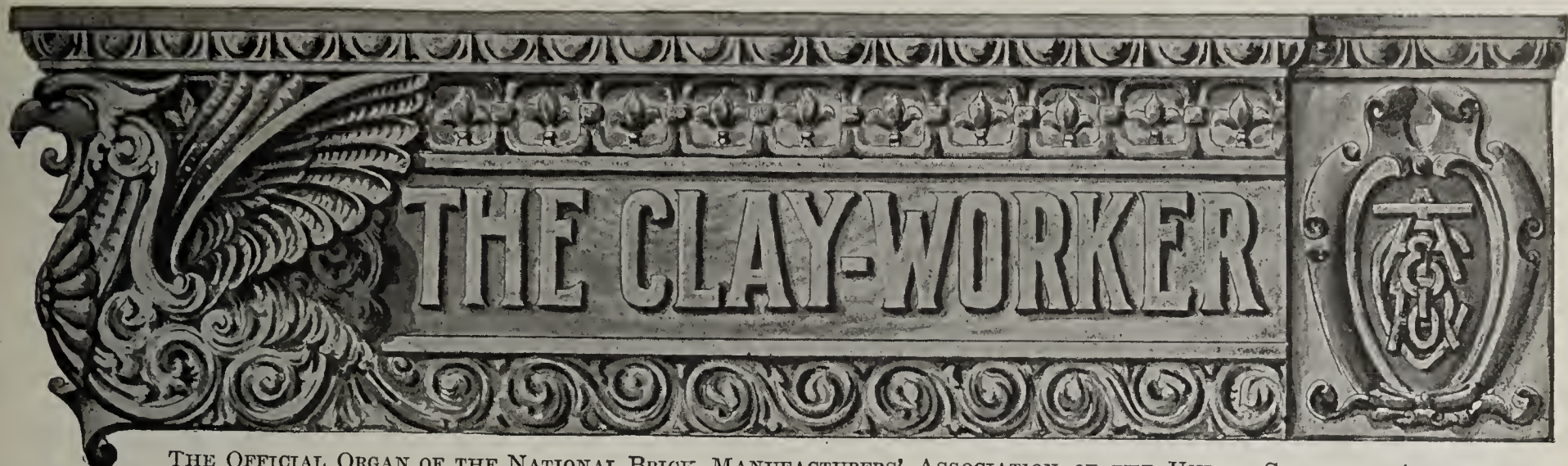
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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVI.

INDIANAPOLIS, IND., DECEMBER, 1911.

No. 6.

Written for THE CLAY-WORKER.

A FIFTEENTH-CENTURY BRICK CASTLE.

One of the Finest Examples of Brick Work in England the
Object of Great Interest.

THERE is nothing unusual in reading about brick and clay products of great antiquity, for these things are unearthed out of buried cities thousands of years old. We generally regard them, though, in a sort of dim and dis-

the fifteenth century. The name has a familiar sound, but this familiarity is misleading. It confuses one with Tattersall, who established the famous Tattersall horse market, there being only the difference of one letter in the spelling of the words.

Tattershall Castle, however, ante-dated the Tattersall horse market considerably, and there is really no connection whatever between the two, even though the names sound alike. Tattershall Castle is one of the old village castles of Lincolnshire, of which there were quite a number in the surrounding territory, and it was built during the



The Famous Tattershall Brick Castle, Located in Lincolnshire, England, Built in 1443.

tant manner, because they are reported from far parts of the earth and are not immediately associated with present surroundings.

There is right now, however, a project on hand to move and set up in our own country an immense brick castle of the fifteenth century. It is known as Tattershall Castle, and was built by Ralph Cromwell, Lord Treasurer of England, in

age when the old type of feudal castle proper was undergoing changes that finally converted it into palaces. In other words, it is part castle and part palace in its architecture.

The feudal castles proper were built in the Middle Ages, from the tenth to the twelfth centuries. But the name still clings to the manor houses and palaces that were built in later days by the lords and princes of Europe.

The original feudal castles were simple masses of formidable buildings surrounded by moats with a draw bridge and portcullis. There was not in those early feudal castles much effort at decorative architecture. They were simply massive fortress-like habitations built more with a view to protection than with an eye to beauty of architecture.

Along in the fourteenth century the idea of the palace began to attach itself to castle building. The moat and the draw bridge gave way to simply surrounding walls of brick or stone with watch and guard towers at the corners and sometimes with ditches inside or outside, or both, as an added protection against invasion. It was about then that the builders began to awaken to thoughts of artistic beauty in design and interior finish so that during the fifteenth century, the time that Tattershall Castle was built, there was incorporated with the massive features and protective walls and parapets of the old castle idea a fair share of effort at pleasing decoration. Especially was effort directed at ornamental fireplaces and mantels. That is why there developed some furore about the mantel pieces of Tattershall Castle. It seems that the castle was purchased five or six years ago by Ernest Terrah Hooley, from whom art dealers obtained options on the chimney pieces, the removal of which caused quite a protest in England.

There is another chance to be misled in the historical association of Tattershall Castle, aside from its name, and that is in the name of its owner or builder. It was built by Ralph Cromwell, who was appointed Lord Treasurer of England in 1443, and held the post for ten years. It was a peculiar fact that while our encyclopedias devote quite a lot of space to the Cromwells it is seldom that the name Lord Ralph Cromwell is found either in the encyclopedias or in the history of the period. He seems to have been one of a branch of another family from those who were conspicuous in certain periods of English history, and though he was one of the board of regents governing England during the minority of Henry the Sixth, there is not much mention made of him in the history of that time. About all we can find is that he displayed great financial ability and was therein of much assistance to England during a time when the English treasury was depleted by a long series of wars with France. It was, in fact, shortly after the day of Joan of Arc. Evidently he was a good financier on his own account, too, for he not only built an immense castle, but he built it well. From the middle of the fifteenth century to the twentieth century is quite a time for brick structures to stand.

And now there is a project on foot to remove this great castle and reconstruct it in this country. Many will perhaps remember the announcement made a short time ago that Tattershall Castle had been purchased by William R. Hearst, the millionaire newspaper publisher of New York, who intends to remove it brick by brick and re-erect it on a magnificent site on Long Island Sound.

Our distinguished namesake, the British Clay-Worker, refutes the idea that this castle is to be taken down and removed to the United States. In their November issue, it declares that the great controversy with regard to the Tattershall Castle in Lincolnshire has ended satisfactorily to the Britishers with the announcement that this historic struc-

ture of mediaeval brick work is, after all, to be preserved intact in England. The bare suggestion of such an act of vandalism, declares our British contemporary, "aroused such a storm of not unnatural indignation throughout Great Britain that it is now a great relief to be assured that we have been spared the national disgrace of tamely submitting to the loss of the finest example of mediaeval brick work extant in the country."—Ed.

BRICK MANUFACTURERS ORGANIZE TRANSPORTATION COMPANY.

The Mallory Transportation and Storage Company, with a capital stock of \$150,000, has been incorporated under the laws of Ohio, and will soon be ready for business. The pur-



One of the Towers of Tattershall Castle.

pose of the organization is to give manufacturers and other firms and individuals who have a large amount of heavy cartage the advantage of a large fleet of heavy motor trucks without the necessity of purchasing them. It is expected to install twenty-eight trucks for general heavy trucking, including builders' supplies and manufactured products. The stockholders and incorporators include many of the most prominent business men in Toledo, among them the following well-known brick men: C. B. Smith, of the Auburndale Brick Company; Richard Kind, of the Toledo Builders' Supply Company; A. R. Kuhlman, of the Toledo Brick Company; E. E. Evans, of the Evans-Spear Brick Company; W. E. Howell, of the Collingwood Brick Company; Ralph Holbrook, of the Kohler Brick Company.

WHO IS TO PAY?

THE WORST YEAR of fire waste since that of the San Francisco earthquake fire! That is the promise for 1911. How long will capital stay in the business of underwriting? Will it remain to carry the risk until the rapidly growing agencies of fire prevention make good their efforts in a curtailment of the frightful burnings? The Boston newspapers, following the issuance of the admirable report of the Chamber of Commerce, and the attack on the same by the speculators in shoddy building construction, quoted skeptically the secretary of the National Fire Protection Association as saying that if Boston should have a fire like that of Baltimore or San Francisco, she need not expect to be re-

writing, of 1.01 per cent. It has been estimated that over a period of fifty years the underwriting profit will not exceed three per cent.

Statistics compiled of the increased capital investment in business of fire underwriting as compared between the years 1870 and 1907, show capital invested in the year 1870, as compared with the capital stock of fire insurance companies in the year 1908, an increase of but \$5,501,166 and a decrease of ninety-eight in number of companies transacting business.

On January 1, 1906, the ratio of loss-paying power to the amount at risk was 66 cents per \$100. On January 1, 1910, the ratio was only 58 cents per \$100, showing that the strength of the companies, taken as a whole, to meet the burden assumed by them is less than it was before the year of the San Francisco conflagration.

In this connection it might be well to consider that while it has become customary to speak of fire insurance as a tax, that the insurance companies stand back of the tax and are obliged to make good any deficit. In the San Francisco disaster alone they contributed upwards of \$70,000,000 in new capital, an amount almost equivalent to the present capital stock of all companies doing business in this country, in order to make good its contracts in that conflagration involving losses approximating \$150,000,000.

The above data clearly demonstrates that the business would be far more profitable at a less average rate to the insurance companies provided the high potentiality of loss in the insurable properties were greatly reduced.

There is no answer to the problem except fire prevention. We must stop our burning to escape bankruptcy.—From October Quarterly of National Fire Protection Association.

HOW TO APPLY FOR A SITUATION.

So many capable men fail to obtain situations owing solely to ignorance in making application for them, that a few hints on this subject may not be out of place. In these days, when the typewriter is so accessible, it ought always to be used where possible, but if written applications have to be made they should be clear and to the point, and written on quarto or foolscap paper, and in ink. It would almost seem unnecessary to insist on the last condition, but so many men write with blue copying pencils (which writing soon becomes undecipherable), and others with lead pencil (equally difficult to read) that the importance of applications being made on decent paper with good black ink is apparent. A great many applicants for situations appear to think

that they are honoring the advertiser by merely putting forward their name, and instead of giving the fullest information at their disposal, they ask for detailed information. Others do not pay sufficient attention to the requirements of the advertiser, and imagine that the entire absence of qualifications will be reckoned in their favor. If applicants would only study the text of the advertisement more carefully, would write distinctly, and answer questions instead of asking them, so many letters would not find their way, as they do, into the waste-paper basket. Above all, original testimonials should never be sent.—Ex.

It looks like instead of one big oil trust we are to have thirty-three smaller ones, all on mighty friendly terms.



A Brick Castle Nearly 500 Years Old.

built to the extent that those cities were rebuilt by insurance capital. But need such a statement necessarily be wide of the mark? It is time for these cities with undermanned fire departments, obsolete apparatus, and growing wooden districts, to take stock of their recuperative chances in the event of a conflagration; for should such a calamity occur somebody has got to pay.

The statistics of net results of fire underwriting for the years 1901 to 1910, inclusive, according to our active member of the National Board of Fire Underwriters' reports, show losses paid of \$1,301,218,715, and premiums received, fire, marine and inland, reported to the state of New York of \$2,297,952,087, or a loss to balance the account, considering the increased liability and actual expenses paid on under-

Written for THE CLAY-WORKER.

A FAMOUS BRICKMAKER.

Murrell Dobbins, Philanthropist, One of the Most Respected Citizens of the Quaker City.

PHILADELPHIA sent one city treasurer to the penitentiary and went to the penitentiary for a successor. Poor, old "Honest John" Bardsley was the victim of his times, political conditions and the get-rich-quick craze and landed in a cell. The governor of Pennsylvania thought so much of Murrell Dobbins, the great brick manufacturer of Philadelphia, that he sent him to the penitentiary personally, as a great compliment to his exceptional executive ability. Being sent to the penitentiary by his friend, the governor, did not end the troubles of Mr. Dobbins, all the judges holding court in Philadelphia agreed that he needed additional schooling, so they sentenced him to school again and only last month was he released by the operations of the law from school. He is still in the penitentiary, however. It might be mentioned, at this point, that Mr. Dobbins is also the custodian of \$30,000,000 belonging to the city of Philadelphia and several odd items aggregating, say, \$5,000,000, belonging to the State of Pennsylvania and a few trifling millions belonging to the Dobbins estate, plus a million or two of his own. Outside of all this Mr. Dobbins is a fair to middling citizen.

His long and continuing term in the penitentiary results from being president of the board of inspectors for the Eastern Penitentiary.

His long delayed school days come from being a member of the board of education.

His surplus cash belonging to other people follows being elected city treasurer in the bitterest political contest ever fought out in Pennsylvania. Mr. Dobbins was nominated against his will "for the good of the Republican party," and in his speeches said: "I don't know anything at all about politics, I don't want to be elected city treasurer. I am a business man and want to be allowed to attend to my own business. I want all concerned to take notice from me that if I am elected city treasurer I will pay no attention to any politics or politicians. I will retain every competent man and I shall certainly get rid of all incompetents. My opponent is a very good man, he wants the place and is well suited for it. He has both the time and the ambition. I think you will do well to vote for him."

The people of Philadelphia differed with Mr. Dobbins and elected him by 47,000 votes.

The city treasury always marked a green spot in the memory of Mr. Dobbins. He happened to be a director of the Third National Bank at the time the Bardsley defalcations were discovered. Three or four banks went down in the crash and at a midnight session Mr. Dobbins was elected president of the Third National in a frantic effort of his associates to tide the bank over the grave crisis then threatening. The then governor of Pennsylvania, the late Robert E. Pattison, named one W. Redwood Wright to succeed Bardsley, and this inexperienced fellow undertook to personally physically count all the monies of the city of Philadelphia then on deposit in the several banks. There was a run in progress on the Third National Bank when Mr. Wright sprung this amazing proposition. President Dobbins went at once to Mayor Stuart, who recently retired as governor of Pennsylvania, and submitted what he was pleased to call a "brickyard statement" covering the assets of the bank.

"Mr. Mayor, if the city money is left with us, on deposit in the Third National Bank, we can pull through, stop the run, and save not only this bank but others which are none too strong. If Mr. Wright is permitted to withdraw this

cash now we must close our doors and no man can foresee the end."

"You personally vouch for the accuracy of this 'brickyard statement?'" asked the mayor.

"I was up all night making it out," replied Mr. Dobbins.

"Is the bank out of paper as well as money?" quizzed the mayor, pointing to the frayed envelope upon which Mr. Dobbins had scrawled his final analysis of the bank's condition.

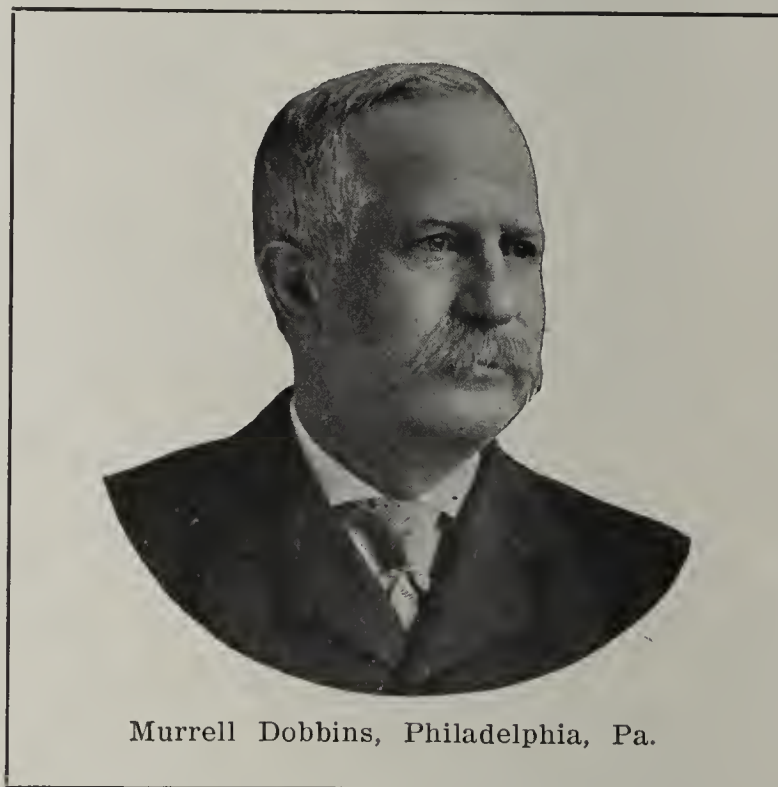
"Those figures are correct, that old envelope is as good as a gilt-edged book for its purpose. We don't go much for books in a brickyard."

Mayor Stuart sent for City Treasurer Wright and said: "Mr. Dobbins has given me his word as to the solvency of the Third National Bank. I take his word at par and you must. I order you not to disturb a dollar on deposit in that bank in the name of the city of Philadelphia and I will hold you blameless in the event of any loss."

The bank was saved and as Mr. Dobbins was passing out the mayor said: "And you will dine with me at six."

"I will be working in the bank at six tonight and at six tomorrow morning. You come around at either time and I will give you a sandwich and a bowl of hot coffee."

It was Governor Pennypacker who sent Mr. Dobbins to the



Murrell Dobbins, Philadelphia, Pa.

Eastern Penitentiary. When he got there he learned that a distillery had been in operation in the place; that counterfeiting had been done in the cells; that prison property was for sale outside, that the inmates were being robbed of their pitiful earnings and that many were being driven insane by idleness. He at once proceeded to create jobs for all hands. The law prohibits the employment of more than ten per cent of the inmates of any Pennsylvania prison in manufactures, so Mr. Dobbins formed crews of water carriers and all sorts of non-productive labor and the penitentiary soon became a hive of industry. Firmly convinced that a man without a trade is no man at all, Mr. Dobbins insisted that every convict had to learn a trade and all of them are now apprenticed in some trade which will support them when they get out. The health of the place has been bettered, the accounts of the institution are like those of a bank and the whole establishment is run as though a human being was in charge of it. His name is Murrell Dobbins.

Mr. Dobbins is also the father of the Mechanical Trades School of the city of Philadelphia. He was very active in organizing the Mechanical Trades School operated by the Master Builders' Exchange and, very naturally when he was sent back to school as a member of the board of education,

he began at once to fight for a trade school. He hounded Senator Penrose morning, noon and night on the school proposition; he waylaid "Boss" Durham in season and out of season and "Jim" McNichol, the present "boss" of Philadelphia, took to his heels and ran when he saw Mr. Dobbins heading his way. They all knew that he was after the appropriation for the proposed trades school. He enlisted Governor Stuart in the work and finally, in self-defense, the order went forth to appropriate \$250,000 for the trades schools and it was only by a slip that the appropriation bill did not read "and \$250,000 for Murrell Dobbins' schools."

The Port of Philadelphia owes much to Mr. Dobbins. He served for many years as a member of the board of port wardens and led in all the great work looking to the building up and betterment of the waterways of Philadelphia. He was elected president of the Master Builders' Exchange in 1892 and gave that organization one of its best administrations.

Mr. Dobbins was born in Burlington county, state of New Jersey. He acquired a good English education, and, later, learned the trade of a bricklayer under his brother, the late Richard J. Dobbins. He had much to do with the erection of the centennial buildings in 1876, and many other historic structures. At one time he operated four brickyards and was, at that time, the largest manufacturer of brick in America.

Written for THE CLAY-WORKER.

PHILADELPHIA BRICK AND BUILDING NEWS.



THE BRICK SITUATION in this city at the present time is extremely quiet. Most of the yards are getting ready for the next season's business and the different firms are preparing to close their books for the year 1911. All manufacturers will show a profit and an increase of business over 1910.

The prospects for 1912 are exceedingly bright. There are a number of building operations contemplated which will require millions of brick, in fact most of the operations now being planned are for brick construction. The city government is planning a number of large improvements and new buildings. The paving situation is looming up big for 1912, as is the sewer work. In fact, all along the line there will be big business in the coming year.

Chief Dunlap, of the water bureau, has sent a communication to the director of public works, urging the passing of an ordinance by city councils directing the installation of water meters in factories and other large manufacturing plants where large quantities of water are used. Chief Dunlap recommended that an appropriation of \$500,000 be made to enable the bureau to carry out a plan whereby the cost of water to the public will be equalized.

In 1909 there was an ordinance authorizing the installation of meters, and about 2,900 properties were placed on meter service. Many industrial establishments took advantage of the service because they believed that they were paying excessively for water under the fixture rates.

This is a matter which will interest all the brick yards and manufacturing plants in this city, and provide a saving in their water bills for the coming year should this ordinance be passed and the appropriation be granted.

The Excelsior Brick and Stone Company has filed a petition in the Court of Common Pleas of the County of Philadelphia for a decree of dissolution. The hearing in this case will be held on Monday, December 11, 1911, at which time all persons interested may attend and show cause against the dissolution.

As an aftermath of the recent world's series, the Bricklayers' Company, of Philadelphia, tendered a dinner to J. Frank Baker, known now in the annals of baseball as "Home-

run Baker." Mr. Charles P. Hart presided and about thirty members of the company were present. The Bricklayers' Company is the second oldest trade organization in the United States and was organized in 1790, and is composed of master bricklayers.

Thomas Wilson, one of the best known paving men in the east, died at his home, 104 Powelton avenue, Woodlynne, N. J., on November 27. He was ninety years old and had been ill for four weeks, the first serious illness of his long life. Mr. Wilson settled in Camden, N. J., in 1850, and for several years was a paving contractor. In recent years he was supervising contractor for Gloucester City, N. J. He built many of the houses in Camden and for years was president of the Democratic Americus Club. He served as a member of the board of education and was president of the Evergreen Cemetery Company, and for more than fifty years was connected with St. John's Episcopal church in Camden.

Simon Kline, a brick manufacturer for half a century, and one of the pioneer citizens of Reading, Pa., died of general debility, aged eighty-one years. He was one of the oldest brick manufacturers in Pennsylvania.

The grinding department of the Watsontown Brick Works, at Watsontown, Pa., was destroyed by fire recently. The loss is estimated at \$5,000 and has caused a temporary suspension until the damage can be repaired.

Mr. J. F. Marshall, a widely-known brick manufacturer of Lock Haven, is on a business trip to this city. Mr. Marshall is one of the foresighted men who recognized the value of the fire clay deposits of Clinton and Clearfield counties, and is prospering in consequence of his enterprise.

The new smokestack erected at the Whitney Glass Works, Glassboro, N. J., contains more than 85,000 bricks and cost \$2,500.

Officers of the State Highway Department held a conference on November 25, at Pottsville, Pa., with representatives of the Juniata Paving Company, of Philadelphia, contractor for paving the main street of Mount Carbon, concerning the 60,000 bricks furnished by the company and condemned by the state engineers. The company was directed to get bricks up to the specifications, otherwise the state will proceed with the work.

The firm of Shellenberger & Smith has been dissolved by mutual consent. George E. Smith has withdrawn from the firm and will conduct so much of the former business of the old firm as relates to the sale of brick, under his own name, and Chauncey F. Shellenberger, who has assumed all liabilities of the firm and will collect all outstanding indebtedness to the firm, will continue so much of the former business of the firm as related to the sale of tile, slate and sewer pipe, at the former place of business of the firm in the Builders' Exchange, No. 27 South Seventh street, under his own name.

NEW SOLUTION FOR LIME PEBBLE TROUBLE.

The following clipping from our German contemporary, "The Deutschen Topfer and Ziegler Zeitung," offers a novel solution of the problem with which many brickmakers who are working in clay in which there are lime pebbles have to contend:

"When lime is present in brick, it has been found that such brick will crack and burst after they have been out on the yard for some time. There are several methods to overcome this trouble. Lime present in brick comes from limestone pebbles which, after the brick is burnt, is calcined. When the brick lay out on the yard, either from the moisture of the air or otherwise from rain, the lime slacks, and in this process the brick is cracked and falls in pieces. The best method to overcome the trouble is to gradually immerse the brick in water after they come from the kiln. A basin can be built in which the cars can be run into on an inclined plane, and left immersed in the water for some time. This will take away from the lime its great expansion power, and when the brick come from the tank they only contain slack lime in fine powdered state. Another method is to burn the brick so high as to burn the lime dead. The lime will then have no more slacking power. This can only be done if the clay will stand a high temperature."

THE USE OF BRICK IN AMERICAN ARCHITECTURE

Paper Read by Donn Barber, New York City, Before the National Brick Manufacturers' Association at Their Twenty-fourth Annual Convention, Held in Pittsburg, Pa., February, 1910.



BEFORE DWELLING particularly upon the subject of the free and general use of brick in contemporaneous architecture, let us first consider for a moment just what architecture itself is, and then exactly what the word "brickwork" means in its broad and accepted sense. Architecture might be defined in the following way: When to the mere necessity in building you add first science, then art, the result is architecture. A French motto tersely expresses the same thought—"the useful, the true, the beautiful." Architecture is one of the fine arts. The arts of painting and sculpture interest us more familiarly as individuals; but architecture is the culmination of plastic art, and embraces and includes both painting and sculpture in a corporate sense, representing ideals of organic forms as a whole. To rightly understand and interpret any art we must, of course, put ourselves in sympathy with

these great responsibilities, for what they build must of necessity remain as an achievement or a failure, and once their work is consummated it can not easily be changed.

Let us now turn to the subject of brickwork.

Until very recently the layman unfamiliar with the affairs of the building world, has had little or no opinion regarding



House at Beverly Farms, Mass.



Side View of House, Showing Effect of Roof and Chimney.



Interior View Showing Center Hall and Dining Room.

it. If we then do not wish to receive the truth in the sense in which it is given, it does not follow that truth does not exist. It means simply that as individuals we do not properly understand or wish to accept it as such, but truth may exist nevertheless.

Architecture is a comprehensive art, in the sense that nature is comprehensive. It is the material expression of the character of man and it impresses us as a great whole after the manner of a landscape. Architecture is practical and scientific, but at the same time architecture is art. The anatomy of a building and its geological structure is determined by science, the use and plan of a building is determined by practice. Art it is that clothes a building and makes it impressive through its outward appearance. Architecture manifests an infinite variety of organic forms and color, but it invariably refers all to a common cause.

The architect has always had every opportunity for the development of his creative faculties, for through the medium of his mind's work he has the power of transmitting crude materials into beautiful forms. The functions of a true architect would, therefore, seem to be the highest that can be bestowed on any human being. His experiences are far greater than those of an ordinary artist; his field is more extended; his work is more durable, and its uses more widely diffused. It might be well if architects realized more fully

brickwork, except, perhaps, to believe it to be an aggregation of clay cubes burned to permanent hardness and possessing as such about as much human interest as the ordinary shovelful of building sand or a handful of wire nails.

It must be admitted that the monotonous and uninteresting methods of brick laying in vogue in this country, even in the immediate past, justifies more or less such public indifference.

Brickwork now, however, seems to be really emerging from what might be termed its "dark ages," and it is interesting to observe that it is rapidly and surely entering upon a real "Renaissance" of its own.

Architecture has already been defined as an art which seeks to harmonize in a building the requirements of utility

and beauty. The brickmaker of today should accept this definition of his "platform" in order that he may be able to challenge with his product every other building material to a comparison of merits as measured by such a standard.

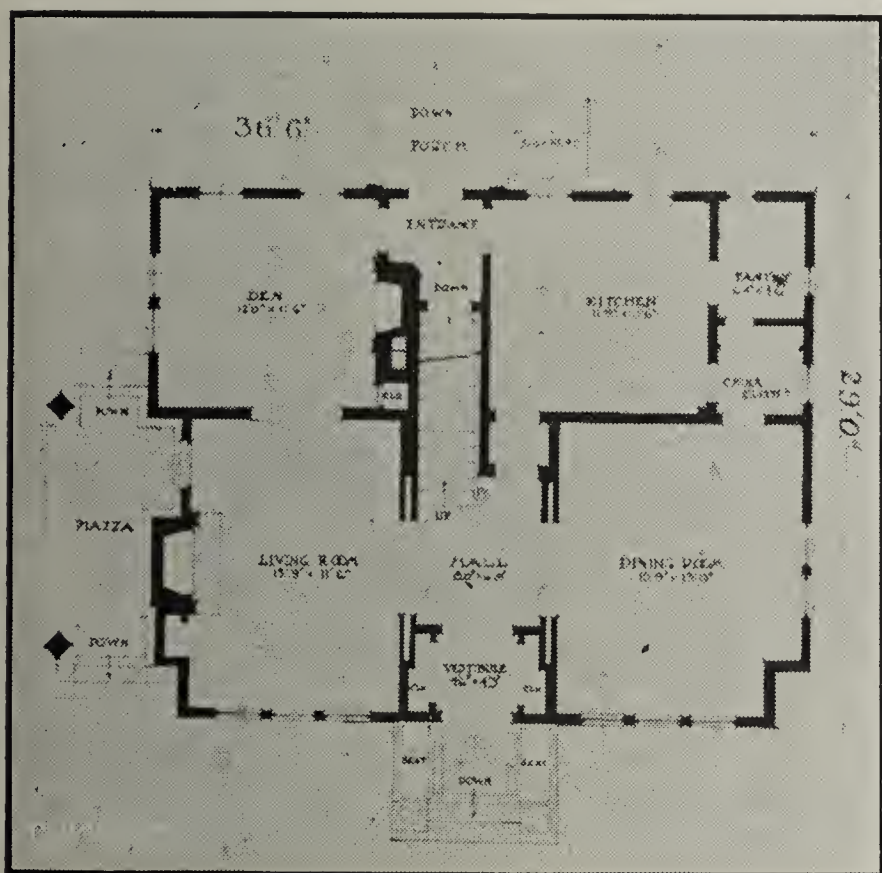
First: From the point of view of utility, because of its size and the ease with which it can be handled, brick is readily adaptable to every form of construction, both large and small. A good brick can further be made imperishable. We have to admit that the ultimate test of everything in this world is "Time." After centuries of competition from every other kind of building material that man has been able to discover or invent, brick stands today where other materials have fallen. The earliest records of man have been found inscribed on tablets of burned clay, where everything around them has crumbled to dust. Brick has far greater crushing strength than it can ever be called upon to develop, and, furthermore, it is fireproof. Well burned brick never needs to be painted and seldom require repairing. Possessing, as it does in the highest degree, these essential requirements of utility, brick is at the same time one of the cheapest building materials in existence.

Considered from the point of view of beauty, brick would

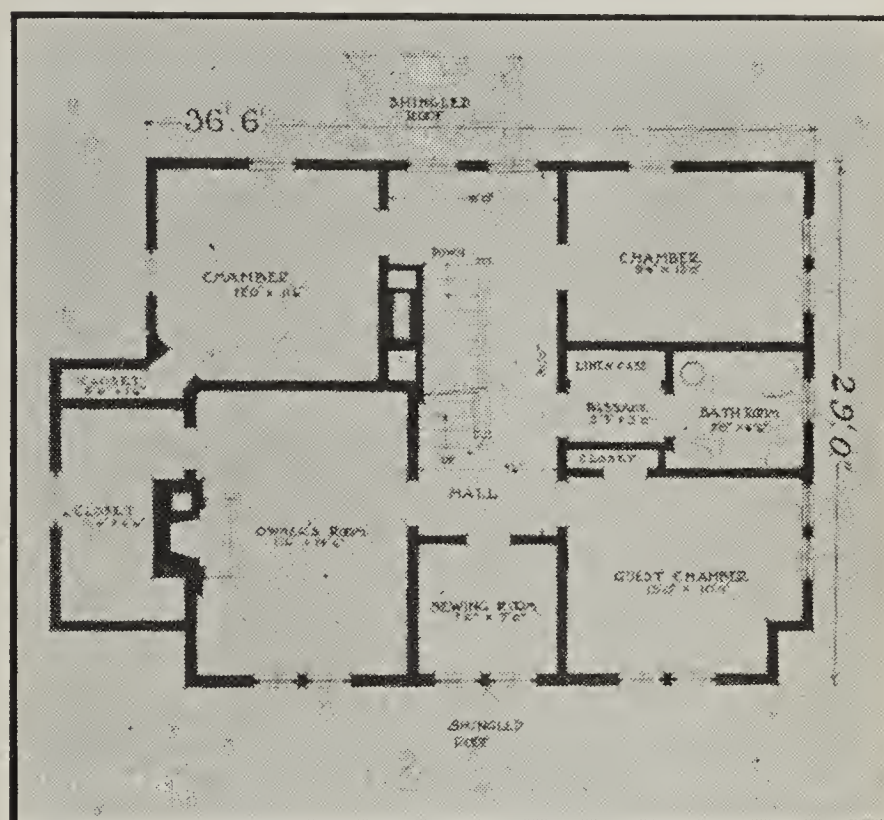
cessity show in the form of a joint to a more or less degree in the face of the finished wall. A mistaken idea has prevailed that the mortar joint is a blemish that should be suppressed as far as possible, or be colored to match the brick. We find, however, that the designer of today seizes the very opportunity afforded by a mortar joint to introduce into his wall another element of color and pattern.

The word "texture" has lately come into use in connection with brickwork, and, strange as it may seem, this word has a very plausible application; for the builder of interesting brick work has much in common with the weaver at the loom as far as resulting color effect goes. Just as the weaver, with his threads of varying sizes and colors, produces a never-ending variety of useful and beautiful fabrics, just so it is possible for the brickbuilder, with his bricks and joints of many colors and sizes, to weave new ideas and combinations into his work, all in beautiful and imperishable patterns; and this applies to all brick.

Just as the fabric charms and delights the eye and at the same time protects man from heat and cold, and performs a thousand other useful functions, so the beautiful wall of brick, exemplifying man's ingenuity and his artistic skill, forms also the protective structure of the buildings erected



First Floor Plan.



Second Floor Plan.

seem to occupy a unique position among the structural materials available for the creation of beautiful buildings. Further analysis discloses, among others, the following interesting points:

Brick is made in reasonably small units, so that in the case of many modern buildings, at least one hundred thousand of them show on the exterior. This, together with the varying shapes and sizes now obtainable, make possible an almost infinite variety of form and pattern, thus giving full scope to the imagination, ingenuity and skill both of the designer and of the workman.

Brick, moreover, is now made in almost every conceivable color and shade, the permanency of which is unequaled by hardly any other building material; with such a "palette," therefore, at one's command, and by a skillful use of color, the brickbuilder of today can readily add to his design that living touch which the painter gives to his painting.

Brick may be also counted unique in the fact that it requires for its structural efficiency the use of a very considerable amount of material of quite another kind and color, namely, mortar, and further that this material must of ne-

cessity show in the form of a joint to a more or less degree in the face of the finished wall. A mistaken idea has prevailed that the mortar joint is a blemish that should be suppressed as far as possible, or be colored to match the brick. We find, however, that the designer of today seizes the very opportunity afforded by a mortar joint to introduce into his wall another element of color and pattern.

The modern brickmaker should strive to make his material the most economical so that the architect can do his part to make it the most beautiful, the most useful and the most permanent. It is interesting to note that the architect of today continues to avail himself of the same material that served his forefather craftsmen so well in the temples and palaces of Assyria and Persia, and the hanging gardens of Babylon.

In view of its general use throughout the ages it seems strange that we moderns do not look upon brick as one of our most usable resources. To be sure, we have used brick with more or less fluency in this country for walls, for pavements and in some modest degree for decorations, but it is only within the last ten years that we see brick creating a real place of its own in our American architecture. What has already been accomplished indicates plainly what can be done when brick is used in a proper way, and from the point of view of its own peculiar charm and character. The development and perfection of the characteristic traits of a

brick style would seem to be now only a matter of time and opportunity.

Looking for a moment to our history of ancient brickwork, we find in Northern Italy, where clay abounds and where stone is scarce, that the Italian builders have developed a remarkable love for their work particularly in the use of brick and terra cotta. The French availed themselves quite freely of the use of brick for the pattern work of their Normandy manor houses and for the charming wall surfaces of their chateaux. We also find that the Dutch have built up for themselves a charming architecture both for the city and country, in brick and terra cotta; and then finally we find that the English have brought all the good, sensible, homely character of the true use of brick in their very delightful country houses. Each of these people mentioned has impressed its personal and characteristic stamp and form on the brick architecture which it has perfected. Each has, moreover, received a due reward for its labors in producing notable variations of its own, in type of architecture, differing widely perhaps, in spirit, from those of the eastern nations, but based usually on the better traditions of older work. We, as moderns, are now free to appreciate the best of all this past to an architecture which will suit our own present day needs and purposes.

In the history of art we find that each successive family of artisans takes from the common stock of antiquity that which it can devise and use, bringing to the working over of the old forms, a new and ever human interest and seemingly a real expression of a new life and style.

It is, therefore, of inestimable value to have continually before us for study, the cultivated field of European and Oriental brickwork available today in book and picture form, and to seek the inspiration that comes from a thoughtful appreciation of what true artists in clay have already produced. The first important step to be taken is to be absolutely sure that we are using bricks in ways appropriate to their peculiar and individual qualities. We can then proceed with a confidence in our ultimate ability to build up interesting and beautiful worth-while walls.

In our American cities no brick that we find can be said to be very old or very impressive; the weather has invariably worked into the poor mortar of the earlier work causing ruins which seem to lack that something of dignity we find so common in the antiquity of Europe. We have, strictly speaking, no real brick past in America to draw on for precedent.

As for new ideas and combinations, it would certainly seem to be inevitable that every possible motif has been exhausted by the ancients who were not only limited strictly to the use of burnt clay, but were instinctive artists in the production of extraordinary patterns and color. Old forms, however, can be readily adapted to our own use, and with study and intelligent handling can be made to take on a new, interesting, and quite natural look.

Brick architecture would seem today to open up to us vistas of new and hitherto unthought-of problems of possible wall surfaces that can be made appropriate and beautiful both for our city streets or country lawns. Houses, terraces, pavilions and pavements in brick can logically and acceptably be made to become part of their natural setting. The gradual expansion of our artistic life must of necessity bring to the competent designer an opportunity to lavish on brickwork his greatest skill. Brick forms, as we use them, more and more seem for some reason or other, to become very companionable and comfortable. Whether the bricks themselves be the long Roman shapes of the Baths and the Pantheon, the smooth gray brick of China, or the great flat slabs of the city wall of Mandalay, whether the jointing employed is a hair crack or the deep mortar beds that exceed the thickness of the clay, wherever the inspiration comes from, they are still brick walls, mellowed it may be by centuries of ex-

posure or built from a burning of a few months ago. The weather of a thousand years may have eaten out the joints, or the tucking tool may have raked them out; it is the resulting effect that must surely interest us primarily, for individual brick patterns can be made today to show a bond that will compare favorably with those of the ancient examples in Europe.

In the hands of those who really love its use, the resources of brick as an artistic possibility are limitless. Given a single color and size and the freedom to lay the brick in patterns, with vertical and header courses, cut corners to make diagonal figures, raised or sunken bands or panels—the wall so built becomes an inspiring study; the surface calm in the direct light seizes our attention with unexpected interest as the sun's rays change, every elevation and depression is gradually brought into delicate relief. Another shade of the same color of brick may be added to make the wall less dependent on the direction of the light and capable of almost infinite variations and play of surface. We may even add bricks of another color altogether, and set tiles into the walls, thus accentuating our bands of perceptible contrasts, bringing out all imaginable play in panels over the wall surface and creating all at once that indispensable wall texture which counts for so much in the general aspect of the building.

Brick in varying colors with the added liberty of surface manipulation and bond, really becomes for the designer in brick the painters' palette of pigments, for just as the painter mixes his colors or uses them in juxtaposition either for harmony of agreement, or for brilliant contrast, just so can we use in an infinite variety of effects multi-colored brick and mortar joints for the painting of our building picture.

To appreciate the elemental qualities of brick we must, as has already been said, use them where they appear at their best. Whatever the similarity or difference of the neighboring material, brick must be used in ways appropriate to its scale and its intractable nature. Its limitations are both evident and inevitable. Brick should be used on broad wall surfaces and panels, slight offsets and flat bands.

Within the last few years, architects have come gradually into the use of many new shapes and colors of brick and what is of greater consequence, they have arrived at better ways of laying them, suggested partly by the careful study of the older and sturdier work, and partly by their own inventive genius.

Embarrassed by the sudden wealth of materials at their disposal, they only fear that they may not have opportunities enough to fully exploit the resources now offered. Good bricks in many colors have been manufactured for some time, and satisfactory results have been obtained with their use in association with stone and terra cotta. In general, however, brickwork has played only a secondary part and the building has been made to depend almost entirely on the character of the so-called stone framework—the laying has been regular, the joints small, the wall surfaces smooth and unvarying, forming only the real background for the real architectural display.

In America, brick and terra cotta have always been much used together, the latter imperfectly filling a place midway between brick and stone, often out of scale with both, the pieces too large for the brick and too small for the stone. Some of the accepted functions of terra cotta can now be performed by moulded bricks, in forms a little larger than the wall bricks, for bands of ornament and mouldings, or as individual units of ornamental panels, through which the wall joints run, insuring a complete unity of color, texture and scale with the other parts of the wall.

In the combination of its simple, honest qualities brickwork serves the cause of virtue as it brings to the builder the assurance of a sturdy resistance as compared to the

shapeless forms of dough-like materials—such as concrete and stucco. There is less temptation and no less danger, of falling into the eccentric and the Art Nouveau when using well laid bricks. Many sins, of course, have been committed in the use of all materials. But brick can be said to be a reasonably safe material to start with.

Brick calls for strong and idiomatic handling, and the present generation of designers has but just commenced to enter upon its study. While very many edifying examples of detail are well known to exist, only a very few good buildings composed completely of brick and terra cotta could have been found in our cities before the present time; even now their number is small, for good design adapted to a newly used material develops but slowly.

The use of pattern, jointing and bond which can be successfully accomplished by any and all kinds of brick work, however, is found to interest and educate the people in brick construction and, therefore, it should greatly increase the use of brick in future. No manufacturer, whether he makes a pressed brick, wire-cut brick, rough texture or common brick, can fail to share in the coming benefit. The wooden house must inevitably go. Already it has been fully demonstrated by actual and reliable figures that the cost of the average sized house in brick is only five per cent to six per cent more than the same house built of wood.

The use of brick in architecture presents to us a rapidly developing field of endeavor which is bound to grow as people come to realize more and more its advantages and common sense adaptability.

Finally, it makes very little difference just what we do in architecture, but it makes all the difference in the world how we do it. With good bricks and good bricklayers available, the architects of today can surely be counted on to do their best in finding a way of producing an indigenous brick architecture which will become one of the most important branches of our great architectural scheme that is being developed and perfected in this broad land of ours.

Following the reading of his paper, Mr. Barber showed a large number of lantern slide illustrations on which he commented, showing the progressive use of brick principally as related to domestic architecture.

AN INTERESTING ARTIFICIAL STONE REPORT.

From Germany, that country from which we first got the idea and learned the process of making cement, and from which we have derived many of the ideas and suggestions that have been exploited here for cement products, lime-sand brick and other artificial stone, there comes lately an interesting story about artificial stone in a consular report from Neuremburg.

This report says that the artificial stone industry is comparatively new there and that the artificial stone made is a mixture of white quartz sand and milk of lime. The process of manufacture consists in using white sand mixed with the milk of lime, pressed in moulds, and then dried in hot rooms.

The ordinary form is that of common brick and these artificial stone brick are used mainly for factories and warehouses and the more ordinary class of buildings. They are not permitted to use them in building chimneys in Neuremburg. Also the report says that red brick is considered a superior building material. It withstands exposure to the weather better and, of course, fire brick is so much better in chimney building that this artificial stone is not permitted to be used in such work.

An interesting feature about it is that reading between lines it tells a story of the admitted superiority of brick, and this artificial stone is not considered on a par with it, though it is somewhat cheaper. It is merely used as a cheaper substitute for red brick.

Written for THE CLAY-WORKER.

AMERICAN POTTERS MAKING GOOD.

SOME IDEA OF THE rate at which American potters have been making good may be had from the fact that according to our latest reports a little over seventy-seven per cent of our domestic pottery is now made in the United States, whereas, back in 1875, only about fifteen per cent of it was made at home. Then we perhaps export enough to more than make up in point of quantity for the imports. In other words, American potters today are making practically the amount of pottery that is being used in the United States.

In 1910 the pottery industry broke all previous records with the total value of the output reaching nearly thirty-four million dollars. The exact figures, according to the report compiled by Jefferson Middleton for the United States Geological Survey, is \$33,784,678, a gain of 8.81 per cent over the figures for the previous year. This is the greatest production on record and the best of it is that it looks like it is a record that will be broken again in future years. There will be a greater volume of trade for home consumption and then our pottery manufacturers are steadily enlarging the export trade, especially with our neighboring countries on the north and south.

The pottery products are classed as red earthenware (flower pots), yellow and Rockingham ware (culinary utensils, tea pots, etc.), cream colored ware, white granite ware, semi-porcelain and semi-vitreous ware, and china in its various forms (general household wares, such as table ware, toilet sets, etc.), and sanitary ware (bath tubs, lavatories, wash tubs, etc.), and miscellaneous wares, including art pottery made under various trade names, chemical pottery, jardinières, pins, stilts and spurs for potters' use, porcelain door knobs, porcelain hardware trimmings, porcelain lighting chimneys, smoking pipes, toy marbles, turpentine cups, umbrella stands, and filter stones, and tubes and shuttle eyes and thread guides.

This gives some indication of the wide scope of the pottery industry and some of these lesser known items are fairly important while others are merely incidental.

That class covering white ware or household ware is most important and makes up nearly fifteen million dollars of the value. This is a product that Ohio shines in, supplying nearly two-thirds of the total production.

The total value of china ware produced is a little under two million dollars. New Jersey led in the production of this, followed by New York and Pennsylvania in the order named.

Sanitary ware is one of the rapidly developing branches of the pottery industry, the making of bath room and sanitary supplies, and the production of this in 1910 amounted to \$6,758,996, or a little more than three times the total value of china ware. This is a product, too, that should double in the quantity and value in the next few years, because the bath room is becoming a part of every modest home and not merely an adjunct to every wealthy home, as in the past, and it is this that is doubling and quadrupling the demand for sanitary ware. It should result, too, in this branch of the industry making a new record every year. It already represents twenty per cent of the pottery value, and the chances are that in ten years it will represent fifty per cent of it.

Another comparatively new line of products making good is porcelain electrical supplies, which were produced to the value of one and one-quarter million dollars last year and are showing almost the same ratio of increase as sanitary ware, though, of course, they will not likely reach the same high figure, because they are used in smaller units and are less expensive generally.

The only branch of pottery production that showed a decrease was stoneware and yellow and Rockingham ware.

“Mr Clayworker-This is YOUR SHOW”



CLAY PRODUCTS SHOW.

IT IS THE intention of those manufacturers who make clay products for municipal purposes and for road work to have one of the best displays at the Clay Products Exposition that has ever been put on anywhere in the world. The paving brick manufacturers, sewer pipe manufacturers and conduit manufacturers have taken thirty-two spaces in this exposition, and will show a full size brick street in various stages of completion, together with pipe connection for sewerage, electric wires, etc. Samples of paving brick will be on display from every plant in the United States with the name and address of the plant exhibiting same. A feature of this display will be maps of aggressive towns showing the proportion of brick paved streets. The sewer pipe interests will make various tests of their pipe in the exposition. This entire display will be so comprehensive and complete that city engineers, street committees, road supervisors, contractors and others interested in the purchase and use of these products will be invited to come to this school of proper road building to study the methods, advantages and superiorities of these materials.

Another feature of the exposition will be prizes of \$1,000 which will be paid to the architects submitting the best plans for a low priced brick bungalow. There are four prizes, the first being \$500, the second \$250, the third \$150 and the fourth \$100. Mr. A. D. Rogers, of "The Brickbuilder," Boston, has been put in charge of this contest, and is very enthusiastic over the outlook. The popularity of bungalows and the well-known superiority of brick construction will jointly make this contest one which will be of great benefit to the general public, and the generous prizes will awaken

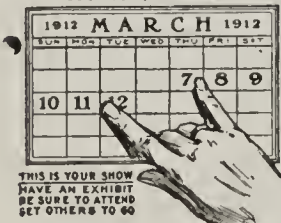
the interest of all architects. All of these plans will be turned over to a committee of well-known Chicago architects who will award the prizes on the fourth day of the show, and every plan will be on exhibition in the Clay Products Show.

An added feature of interest will be the donation of the \$4,000 brick house, to be erected complete on some lot in Chicago, to some fortunate attendant at the show. The brick interest of Chicago will erect in the exposition a model \$4,000 home, which will be fully equipped and open to inspection. The Northwestern Terra Cotta Company has plans made for a \$10,000 exhibit, while the American Terra Cotta and Ceramic Company is building a special exhibit for this exposition. The Chicago Face Brick Association has contracted for sixteen spaces fronting on both sides of a main aisle, and will show in this generous space the product of 150 face brick manufacturers. The display will be handsomely carried out, so that each manufacturer will be fairly represented. Some of the sewer pipe manufacturers have taken individual spaces aside from the municipal display and will make very complete exhibits.

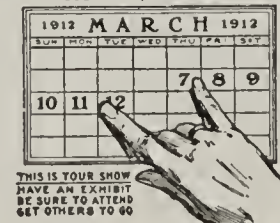
These are only a few features of the exposition, and it is the desire of the management to make every branch of the clay industry fully as prominent as these mentioned. Every manufacturer is expected to do his part towards seeing that his own branch of the industry is creditably placed before the public.

The Clay Products Exposition has only one object, and that is to benefit the manufacturers of clay products, and to increase the popular favor for clay products. There is no monetary motive back of this show, the entire object being, as stated, to help the clay industry.

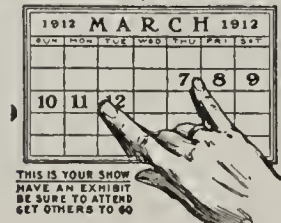
CLAY PRODUCTS SHOW
COLISEUM, CHICAGO



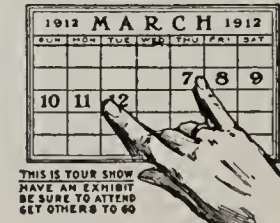
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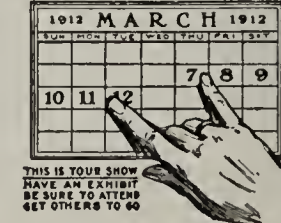
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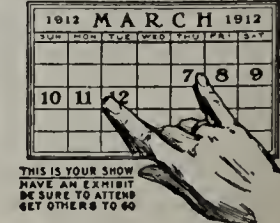
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CLAY PRODUCTS SHOW
COLISEUM, CHICAGO



CLAY PRODUCTS SHOW
COLISEUM, CHICAGO



A FINE PAVING BRICK EXHIBIT.

THE EXHIBIT of the National Paving Brick Manufacturers' Association at the Rochester convention was the center of great interest to the hundreds of visitors who attended the Rochester convention. At all times the National Association booth was filled with interested visitors, a great percentage of whom were highway commissioners and city engineers from all parts of the country.

One of the features of the National Association exhibit was the construction, before the visitors, of miniature brick roads. One of these model roads was finished to show what a uniform surface brick gives when it is properly laid. Another model was built in such a manner that it left to view the various stages of construction—the concrete base, sand cushion, grout filler between the interstices of the brick and the expansion joints at the curbs.

Samples of brick from various manufacturers, neatly displayed, and pictures uniformly hung made an attractive background for the exhibit.

The pictures were enlarged views of brick paved streets

GOOD ROADS CONVENTIONS.

THE TWO MEETINGS in the interest of public highways, just held, one by the American Road Builders' Association at Rochester, New York, and the other the meeting of the American Association for Highway Improvements held at Richmond, Virginia, were the best meetings of like character ever held in this country. That of the American Road Builders at Rochester was more in the nature of a study of various kinds of roads and their adaptability to conditions, and now that they are over a study of each meeting, respectively, is in order.

At the Rochester meeting great concern for the maintenance of roads was distinctly apparent, so much so that the whole meeting was full of suggestions as to whether or not the more important matter of how and with what to build roads was not overlooked. Clearly the roads most talked about were expected to begin to wear out and require attention from the very day of their construction. Many delegates made such a declaration. The fact that carelessness, in-



The National Paving Brick Mfrs. Association's Splendid Display at Rochester Good Roads Convention.

and country roads. Especial interest was manifested in the pictures when it was learned that the views were of roads that have withstood heavy traffic, without any repair whatever, for as high as twenty years.

An air of hospitality surrounded the National Association and many manufacturers of paving brick entertained their friends at the booth.

THE SOLUTION OF THE FREIGHT RATE PROBLEM.

More people than ever before are now realizing the importance of inland navigation as a solution of the freight rate problem and also of moving merchandise and serving the country properly. In fact, it is beginning to look as if, before we get the Panama canal finished and some of our main rivers improved, there will be many other canal projects under way, and eventually we will realize that the highway of commerce, with navigable water, is more to be desired than some of the great roadway projects for automobiles that are being talked of.

difference, selfish interest and ignorance of road building is a real menace to the propaganda for roads was not acknowledged and dealt with as it should have been by the convention. Neither was sufficient attention given to the question of adaptability of various forms of roads to the travel and traffic requirements. We believe that these questions are paramount and will not down, if the hope of those who cherish a system of real roads in this country is to be realized, for it must be borne in mind by the real friends of good road agitation in this country that whatever character of road, if properly adapted, will meet the wants and the demands of any particular traffic and travel, cost, maintenance and all considered, is the kind of road that must and should be built upon such a highway.

It must be further borne in mind that whatever the kind and character of road that may be decided upon if adaptable for certain highways, that that kind and character of road must be built at its very best, in order that the economy of expenditure therefor will be conserved. We know that a

road over which the products of half a dozen or more farms is transported, onto a road carrying the traffic of many such, can not be a brick highway. A well graded and well drained dirt road or a sand clay road would answer for such traffic with minimum repairs for a long time. At the other end, traffic conditions on a thoroughfare that connects two important roads or one that takes on the traffic of converging roads, carrying a large aggregation of miscellaneous traffic, enough to utterly destroy the primary roads, or those of intermediate use, brick roads, properly constructed, are the only ones that will care for and bear the burden of such excessive travel with any degree of economy to those who either pay for or use the roads. A road continuously out of repair carries with it a charge cost that doesn't usually appear in figures. It nevertheless should be considered a charge, as it actually is.

These suggestions go somewhat in criticism of the suggestions and questions dealt with by the American Road Builders, but these are questions that must be seriously dealt with and recognition of the real facts must be given in the proceedings of future meetings of this character.

The meeting of the American Association for Highway Improvements, at Richmond, was somewhat different in character, and although the idea of maintenance and repair of roads permeated in a way, nevertheless almost every speech that was made at that meeting was in the nature of a booster. It gave consideration to ways and means rather than to manner and method. In spite of the fact that the Associated Press dispatches indicated a lack of harmony, especially in the committee on resolutions, it nevertheless was true that a more harmonious gathering upon any public question was never assembled together. The committee upon resolutions, the attending visitors and delegates were unanimous for national aid for the construction of highways, and so expressed themselves.

The representation was from almost every state in the Union. The sentiment from every part of the country was pronounced in favor of aid in road building from the national treasury. It may be said, with reference to each of these meetings, regardless of what may be said in criticism, that each represented the best talent and thought to be found in the country. At the Rochester meeting the real students of road building held sway. At Richmond was represented the highest and best talent for ways and means that was ever brought together.

W. P. BLAIR.

BURNED CLAY SEWER PIPE IS DEPENDABLE.

Here's what a manufacturer of sewer pipe says of the cement tile. It is worth remembering:

Contractors say of cement tile:

If the sand is perfectly clean—

If the cement is first-class—and—

If the sand and cement are used in "proper" proportions—

If the sand and cement are properly mixed and—

If the mixture is not too wet or dry (take your choice)—

If the mixture is used at once—then—

If the mixture is thoroughly tamped in the moulds—and—

If the moulds are not taken away too soon—then—

If the tile are not allowed to stand in the sun or wind—

If the tile are properly "cured" then the product

"May be" all right to use for Drainage Purposes—and—

"May" last for some time—

If the action of water or other corrosive impurities does not wash out the cement and leave only a crumbling mass of sand.

The presence of one "if" in the construction of any drain should make one hesitate, but when "ifs" are innumerable—well—who can afford to take a chance? There are too many "ifs" connected with the making of cement tile.—Exchange.



RECLAMATION BY CONVICT LABOR.

Now it is suggested that the government establish, all along the line of the lakes to gulf deep waterway, places for the federal prisoners to get out stone, of which there is plenty on all the rivers, and build walls holding the rivers in their channels and thus protecting the lowlands. Millions of acres of the richest lands in the world would thereby be reclaimed. This would keep the men from idleness and from doing work in competition with our laborers, and furnish a solution of the convict labor problem.

EXTENSIVE PRIVATE DRAINAGE.

Mr. M. M. Payne, who owns a large tract of Missouri river bottom land in western Iowa, has practically completed what is probably the largest private drainage work in the middle west. As the land was rarely available for cultivation, Mr. Payne devised a system of drainage. Clay suitable for the manufacture of tile was found on the place and a factory was constructed. When completed, there will be more than fifty miles of tile laid beneath the rich soil and the owner is confident that his enterprise will prove a profitable investment.

DRAINAGE DESTROYS THE OLD WATERMILL.

A touch of tragedy marked the cutting of the river bank near Carson, Iowa, by a drainage ditch. The mill dam was made useless when the water went out by a new course and the mill stood still. Aside from the commercial value the residents valued the old mill for sentimental reasons. It is related that at the beginning of the civil war the miller declared his intention of enlisting in the union army, but there was such a protest made that he desisted. He was told there would be no one left to run the mill and they could not survive without it, so the miller stayed. In those years and for many years after the mill grounds were made the rendezvous of people from far and near and every possible subject was debated and settled there. Carson people sigh and say they have been betrayed and mistreated.

DRAIN ALKALI SPOTS.

Alkali spots, or "scald spots," are found here and there throughout the country. Even in the regions where alkali is not generally found these bad spots occur. In general, they are low places where water gathers and stands until removed by evaporation. Water running in from the surrounding surface and water brought up from below by capillary attraction containing even small amounts of alkali, leave their deposits as the water dries up. These small accumulations, through the ages, have rendered the spots unfit for the growth of profitable crops.

The alkali may be taken from the soil by a thorough system of underdrainage. As the salts are soluble in water, they may be removed in solution and washed out by the water of rains that sinks down through the soil and is carried away through the drains.

Such spots may be temporarily improved by the application of manure. The manure, in rotting, creates an acid

which neutralizes the alkali and renders it harmless. Deep plowing is helpful if only a small amount of alkali is present.

FILL THE TILE DRAINS.

Tile ditches should be inspected and filled as soon after the tile are laid as practicable. If the trenches are left open during the winter, or for any considerable time, loose dirt will fall upon and be washed into the tile through the joints by rains that fall while the trenches are open.

After the trenches are filled, little, if any, water runs into the tile through the top of the joints. The natural way for water to enter is from the bottom and the sides.

How Water Enters Tile Drains.

When rain falls upon a drained field the water does not know where the tile drains are and start directly towards them. Neither does the tile draw the water. The only influence causing the water to flow is gravity. Gravity draws the water directly downwards toward the center of the earth. The water of each rainfall sinks directly into the earth until it reaches the water level, or surface of standing water below. As the rain continues and the water settles into the earth the water level rises until it comes up to the bottom of the tile and then it begins to enter the spaces at the joints and the drain begins to run. If the rain is heavy and continues, the water level may rise faster than the water can enter the tile and be carried away. The drain will run full and if the tile are too small the water level may continue to rise until water stands on the surface of the ground. The drain continues to remove the water after the rain ceases, and soon the water level sinks again below the surface of the ground and is lowered in a short time to the level of the tile.

What Size Tile is Best?

Tile drains seldom run full, and then only for a short time during and after heavy rains. When they run full and are too small to carry the water there is a pressure upon the water running in the tile caused by the weight of the water in the soil around and above the tile. This pressure causes a rapid flow of water in the drains and has a beneficial influence in scouring out the tile and tending to remove any sediment that may have settled in the tile during times of weaker flow. This has been advanced as an argument in favor of the use of small tile.

On the other hand, if the tile are too small to promptly carry away the water as fast as it comes during heavy rains, the water may fill the soil and stand upon and above the surface of the ground. If this condition should obtain for any length of time, during the growing season of crops, and particularly while the plants are small, they might be destroyed by the water and the season's crop lost. Larger tile would have removed the excess of water more quickly and saved the crop.

DITCHING WITH DYNAMITE, OR HIGH-SPEED DITCHING.

Naturally the use of dynamite is associated in the mind with blasting of hard substances. Rock and shale blasting and stump pulling are fields of usefulness that have long been occupied by dynamite, but until very recently it has not been utilized in moving soft and wet soils. The benefits of blasting hard pan subsoils with dynamite have been amply demonstrated and in many instances subsoiling with dynamite has been practiced with very satisfactory results. Many subsoils that were hard and almost impervious to roots, became mellow after being loosened and shattered with dynamite.

It was but an easy step from subsoiling with dynamite

to ditching with dynamite, after experiment had revealed the methods necessary to the removal of earth by explosives. The method is marvelously simple and effective in wet or damp ground.

All that it is necessary to do is to determine on the location of the ditch and the width and depth. Holes are then punched at intervals of about two feet along the course of the center of the ditch with a crowbar about one and one-half-inch in diameter. In each of these holes a 1¼ x 8-inch cartridge of sixty per cent dynamite is dropped and tamped in with some of the mud. A row of these cartridges is made 150 to 200 feet long, and only the center cartridge is primed with a fuse and blasting cap. This fuse is lighted and the operator retreats to a distance of 200 feet or more. In a moment there is an explosion and a sheet of mud is thrown 200 or 300 feet into the air for the entire length charged with dynamite, and behold there is the ditch already for the passage of the water. The dirt excavated is scattered over the adjacent land, so that there is nothing to re-shovel.

The whole 150 or 200 feet is excavated in a single instant, and the first time water goes through, the banks of the ditch are all washed to a true line.

When an extra wide ditch is desired, two parallel rows of cartridges are used, and the depth of the ditch is regulated by the depth of the charge.

If the soil is dry or loose, such as a sandy soil, the charge can not be depended on to propagate from one cartridge to another, but each separate cartridge must be primed with an electric detonator.

These electric detonators, or fuses as they are called, all are connected electrically with a blasting machine, which is placed about 200 feet from the nearest charge. The whole ditch is exploded as soon as the blaster operates the machine. This method of draining swamps is followed where there is a sufficient pitch to the land to permit of ditch drainage, but where there is a swamp in flat ground which can not be drained by ordinary ditching, it will almost invariably be found that this swamp is underlaid with hard pan, which is impervious to water. This hard pan is usually only a few feet thick and located several feet below the surface of the marsh top soil. All that is necessary to do to drain such a swamp, is to bore a hole with an extension auger down almost to the bottom of the hard pan.

Into this hole, several of the sixty-percent dynamite cartridges are lowered and tamped. Of course, the top cartridge must be primed with blasting cap and a fuse long enough to reach out of the top of the hole. The number of cartridges put into the hole depends upon the thickness and toughness of the hard pan. Usually three or four cartridges will be sufficient. When this is exploded it breaks a large hole through the hard pan and permits the water of the swamp to gradually seep through into the gravelly soil that usually exists underneath the hard pan, thus accomplishing the drainage of the swamp.

It is impossible to give hard and fast directions for either ditching or drainage such as here described, that will apply in all cases, because the conditions vary so greatly as to the nature of the soil and the amount of water.

But there can be no question that in the average case ditching with dynamite is far quicker and cheaper than any other known method, and the dynamite can be handled with safety by the use of ordinary care in following the instructions furnished by the manufacturers.

A series of analyses of the water in the Mississippi river made by the chemists of the United States Geological Survey show that it changes in character considerably at different points. Well, what could you expect of it considering all the things it has to swallow and absorb between the flour city up in the north and the crescent city on the south end?

Written for THE CLAY-WORKER.

A CLAYWORKING PLANT OF THE INLAND EMPIRE.

One of the Leading Industries of Spokane. American Fire Brick Company's Plant at Mica, Washington.

ON THE MAIN LINE of the Oregon-Washington Railroad and Navigation Company, at Mica, Wash., fifteen miles southeast of Spokane, the American Fire Brick Company has established its manufacturing plant. The Mica mountains, which are located just east of Mica, belong to the oldest geological formations of the State of Washington. The clay beds found at Mica are decomposed granite formation and are very valuable from a clayworker's standpoint. The American Fire Brick Company owns 100 acres of land at Mica, which includes three large deposits of clays. The largest deposit is located directly behind the plant and is used for the manufacturing of sewer pipe and building tile. This bank has a face of about 500 feet long, and is 35 feet high. The clay is right under the grass roots, and very little stripping has to be done. Just south of this bank the shale bank has been opened up, at a little higher elevation, and all the clay



The American Fire Brick Company's Clay Bank.

is run down to the storage sheds. The fire clay pit is located about half a mile north of the plant, and the clay is hauled by wagon to the factory. This fire clay is one of the best clays for fire clay products, and the American Fire Brick Company has built up a very good reputation for their product.

The factory has been built with several natural advantages on account of it being located in a rolling country. The clays as they come from the clay beds are run direct in large storage sheds, and as the level of the claypit tracks has about twenty feet elevation with the storage sheds, there is plenty of room for storing clays.

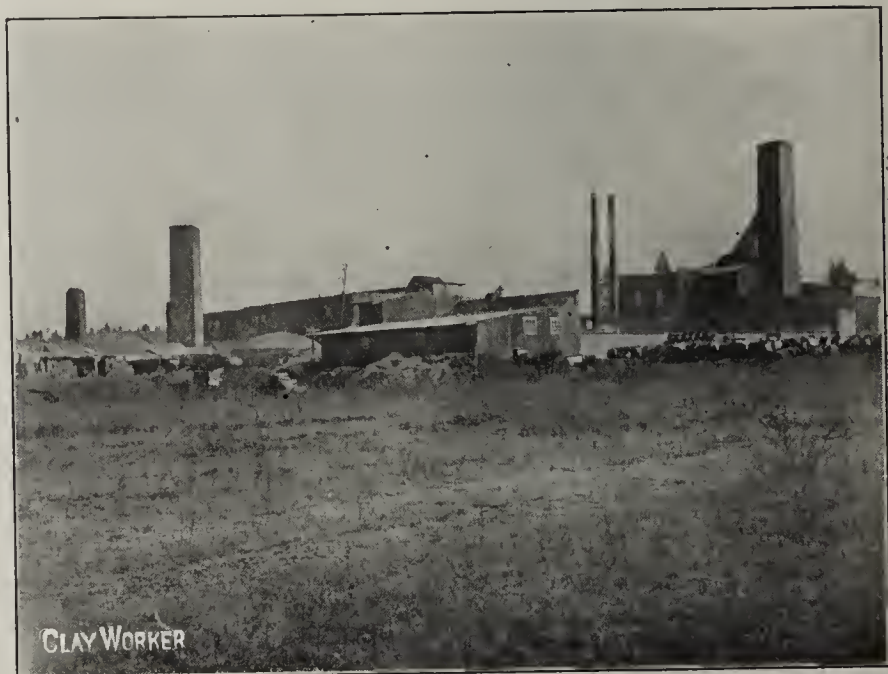
The factory is divided into two parts, the sewer pipe plant and the brick plant. The sewer pipe plant is a large three-story building equipped along modern lines. The clay grinding equipment for this plant consists of a large dry pan and two wet pans, all Stevenson's make. A large Stevenson sewer pipe press, 40 x 52, with 20-inch mud cylinder, all mounted on iron frame, is used for the making of all large sewer pipe, while a small Turner, Vaughn & Taylor press is used for small pipe.

The brick plant is built of hollow tile and sheet iron. It is equipped with a Stevenson dry pan, an American brick machine and automatic cutter and Richardson repress. The

brick are dried in a ten-tunnel King direct dryer equipped with 250 cars.

The power for the two plants is furnished by a large power installation which is located between the two plants. The eight main line shaft is laid underground, and all power for dry pans and other machinery is derived direct from this main line shaft. Two 150-horsepower high pressure boilers furnish the steam for the engine and the sewer pipe press. A large Twin City Corliss engine, able to develop 425 horsepower, furnishes all the power for the two plants. At present about 225 horsepower is used.

The kiln equipment consists of eight down-draft kilns, thirty feet in diameter, and one small square kiln, which is



Main Plant of American Fire Brick Company, Mica, Wash.



The Large Clay Storage Sheds.

also used for test kiln. Formerly wood was used for fuel, but in the last years coal is used. They use either Canadian or Wyoming coal. As it makes some trouble with fire boxes, Mr. Oudin has devised a very convenient fire box. It has a large flat grate surface, and has a small arch built below the firebox door opening, which prevents the half-burnt coal from falling from the firebox while the fires are cleaned.

The company maintains its headquarters in Spokane, where they have a large retail yard, located on the O. W. R. & N. tracks. Mr. C. P. Oudin is the general manager of the company, which is a close corporation. The principal articles manufactured are fire brick, sewer pipe, building brick and tile and special white face brick. The company has just obtained the rights for the Dennison interlocking tiles, and

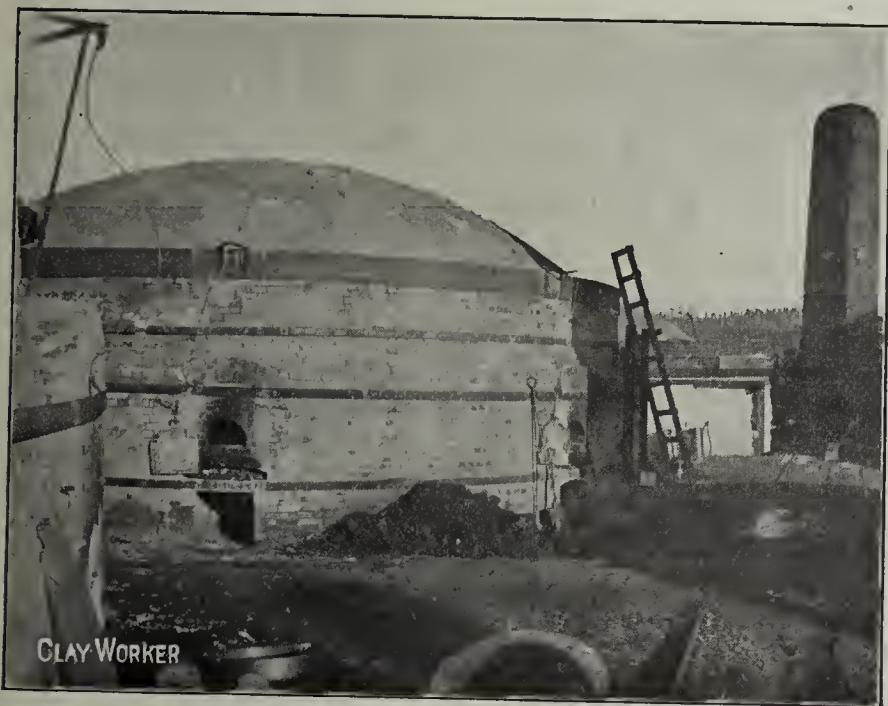
will install a complete Fate combination tile machine and table for this purpose. When running full time in all departments, the company employs about 95 men. Several attempts have been made to manufacture paving brick, and while they have made some excellent brick, the right mixtures have not so far been found to make such brick successfully.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

AS THE YEAR draws to a close, the general situation in the Pacific Northwest can be considered good for a very busy season next year. Of the cities in this section which would reap the largest harvest with increased operations are Seattle, Tacoma and Spokane, as they have been rather dull this past season. Portland and Vancouver, B. C., have held their own, and with the large productive country behind them, they have been able to show considerable gain in their business conditions.

Now that the brickyards are closed, the convention ideas are awake again. The clayworkers of the Pacific Northwest should now get together, and form a permanent organization, which will be a benefit to all concerned. The clayworkers



Oudin Improved Fire Box on Down-Draft Kiln.



Paving Brick Plant of A. F. B. Co., Mica, Wash.

of the State of Washington have their organization, and it would be a good idea to have the scope of their organization extended to take in the whole Pacific Northwest. Mr. C. S. Ridge, their new secretary, has taken this matter up, and we hope that his efforts will bear fruit.

The old Ballard brickyard, which has had a somewhat varied life, has been sold by its former owner, Mr. A. Nuetzel, to Mr. P. Marcuson. The plant is located on the Great Northern track just north of Ballard, and is considered a well equipped yard. Mr. Marcuson has several parties interested with him in the new proposition and states that he will operate the yard to its full capacity as soon as the weather permits.

The Victoria Brick and Tile Company, of Victoria, B. C., is making preparations to enlarge its yard for next season. They have placed an order for a new Fate combination machine. The Bazan Bay Brick and Tile Company, of the same place, who have their yard near Sidney, will also enlarge their plant shortly.

Mr. E. A. Davidson, representing the J. D. Fate Company, of Plymouth, Ohio, has returned from the east, and is now making Portland the permanent headquarters of that company for the Pacific Northwest. His office is located in the Blake-McFall building.

Mr. J. A. Terteling, manager of the Potlach (Idaho) Brick

Company, reports a very good but somewhat short season. His Palouse plant has not been operated this season, but if conditions look favorably they will make face brick there next season.

When Bend, Oregon, was placed on the railroad map recently when the Oregon Trunk Line opened their line, the first carload shipment consisted of a new brick machinery outfit for the Bend Brick and Lumber Company, and the first shipped out was lumber by the same company, and these industries will take a large place in the commercial possibilities of Bend.

The Dominion Shale Brick and Sewer Pipe Company, of Vancouver, B. C., will install a large plant on Gabriola Island. They expect to be in operation by the first of March, and the plant will have a capacity of 40,000 brick per day.

The brick yard owned by the Gold Ray Granite Company at Tolo has been leased by the Rogue River Pottery Company, of which Mr. J. H. Nickol is president and manager. They intend to enlarge the plant, and will endeavor to make a better class of product. The new company is incorporated for \$50,000.

The Newberg Brick and Tile Company, of Portland, entertained the Portland Builders' Exchange and their friends recently. The company ran a special train from Portland to

their plant at Newberg and showed the visitors how they make their "Newberg Reds."

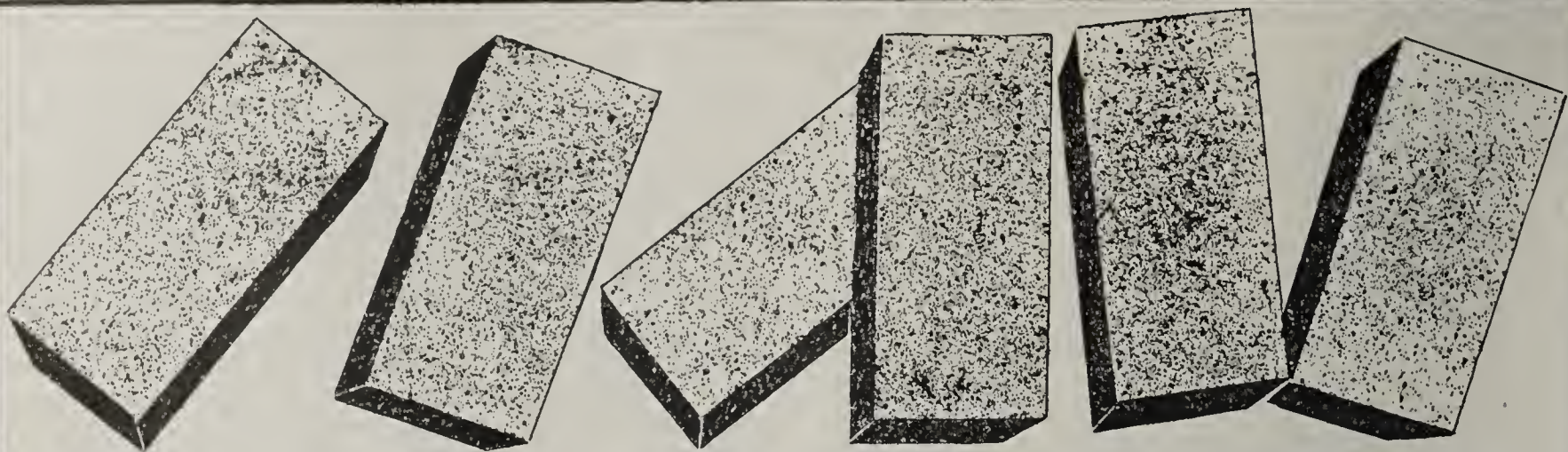
SIWASH.

BUSY DAYS IN THE SOUTH.

J. C. Steele & Sons, manufacturers of brickmaking machinery, Statesville, N. C., advise that the brick business has been exceptionally good in the south this year and that they are still filling orders for machinery, though ordinarily this is an off season.

They have recently made shipment of a granulator, elevator and drying system to Elizabethtown, N. C.; a 40,000-capacity outfit to Greenville, Ala.; equipment for making tile to Franklin, Va.; an automatic side-cutting table to Norton, Va.; a 40,000-capacity outfit to Athens, Ga., this being the second outfit of that size they have shipped to this point this year; a 25,000-capacity outfit to San Benito, Texas; a drying system to New Berne, N. C.; disintegrator, hoisting drum and clay cars to Tuskegee, Ala.

It used to be the fashion among agricultural people to try everything to reduce the size of the mortgage, but now the fashion has changed and the mortgage seems to have disappeared. In its place, however, there is a disposition to reduce the size of the farm and cultivate more intensely.



Why the Wise Man Always Builds His Home of Brick (Just Six of Sixty Good Reasons You Should Know.)

Because: A home built of brick saves \$100 or more every three years in painting bills.

Because: The insurance on brick homes is only \$10 per \$1,000 for three years against \$13 for wood houses.

Because: Insurance of furniture in a brick house costs \$10 per \$1,000 for three years and \$13 for wood houses.

Because: A home constructed of brick is far more durable, outlasting wood houses by a great many years.

Because: Brick houses need no repairing or patching.

Because: A brick home will increase in value with age while frame or wood houses decrease. This is the rule, not exception.

Brick or Frame, Which?

Don't decide it hastily. Take your time. Look into the proposition carefully, get all the information you can; get facts and figures. Don't let yourself get into the fix of this man, who writes:

"I am building a frame house at the present time, but would have considered BRICK had I had the proper information on the subject. I am a great admirer of brick for construction of residences."

So is everyone else who has an eye for the beautiful, the artistic, the substantial. But there are other things to consider, too---COST. First cost, and the COST AFTER THAT. The reason why more people do not use more brick is because they do not understand its Advantages.

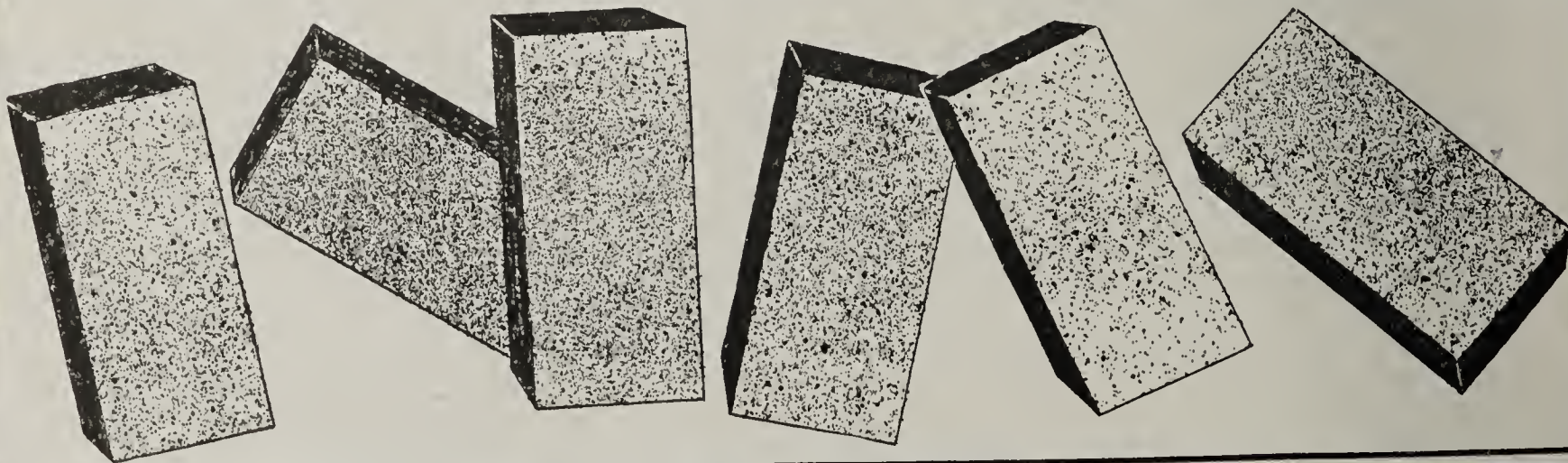
A Booklet All About "It" Free---Ask for it.

GEORGIA-CAROLINA BRICK CO.

HOWARD H. STAFFORD, President.
Augusta, Georgia.

715 Broad Street.

Irish American Bank Building



ADVERTISING CLAY PRODUCTS.

THE MANUFACTURERS of clay products are realizing more and more the real value of publicity work. Especially is this true of the Georgia-Carolina Brick Company, of Augusta, Ga., which has been making an active campaign in its territory under the able direction of H. H. Stafford, the president of the company, who has entire charge of the sales department. We reproduce in miniature on the opposite page one of the attractive full page advertisements which has been appearing in the Sunday editions of the Augusta papers. Mr. Stafford is well satisfied with the returns.

If the southern brick manufacturers find such publicity effective in increasing their sales, it would seem that clay products manufacturers throughout the country would benefit in a like degree by running good sized attractive ads in their local papers. Such an advertisement as the one reproduced is so attractive that it will be read with more than usual interest by the average business man.

As has been said frequently, the clayworkers think their product are so well known that advertising is futile—a needless expenditure of money. Be that as it may, there certainly are but few brick makers whose business is so good that increased orders are not welcome, and newspaper advertising surely is certainly a means to that end. No matter how large or how small the town, it will pay the brick manufacturers and contractors to get together and boost clay products, not only by display advertisements, but by publishing brick, tile or sewer pipe news, illustrated descriptive articles calculated to arouse a more general interest and patronage. It pays to advertise.

USE OF BRICKWORK IN MAGAZINES.

Mr. J. Parker Fiske, secretary of the Building Brick Association, recently issued the following bulletin to the members of that organization:

It ought to be an encouragement to those who believe in publicity for brick that the monthly magazines are finding brickwork a popular subject for exploitation. You may have observed that a number of them have used brickwork on their front covers in a decorative way. We wish to call your attention particularly to the fact that advertisers are also using brickwork as a background for their story. We refer you to the back cover of the Saturday Evening Post of October 21st, and back cover of Everybody's Magazine for November. Also back covers of some of the magazines of less importance recently published. The fact that the Dental Cream advertisement of Colgate & Co. is in the form of a tablet with a background of brickwork covering the entire page is in itself evident of increasing popularity for brick.

You may also have noticed the advertisement of the Holeproof Hosiery Company, consisting of a brick wall with a young man and a young woman sitting side by side dangling their feet. The brick wall forms the background for the whole picture.

The monthly magazines are simply mirrors of public taste and sentiment. The fact that they are using brickwork is an evidence that brickwork is beginning to interest the public in a way which it never did before.

The B. B. A. of A. can very properly claim the credit for nearly all this increased popularity of brick.

Moral: IT PAYS TO ADVERTISE.

GERMAN EMPEROR INTERESTED IN FLOOR AND WALL TILES.

Emperor William broke one of the traditions of his reign recently by visiting Kempinski's famous 50-cent restaurant to see a new room, the Cadinen Saal, which is paneled and floored with tiles made at the emperor's porcelain factory in Cadinen. Hitherto the emperor has refused to visit a hotel or restaurant lest he made the proprietors of all the others jealous. He has never attended an entertainment at a hotel,

even when given by an ambassador. But his Cadinen pottery is very dear to him and he had approved the plans of the Saal.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BUILDING CONDITIONS around San Francisco are fairly satisfactory for this time of year, and the outlook is favorable for gradual improvement throughout the coming year, the general impression among material dealers being that something of a boom will take place during 1913. In the state at large the heavy agricultural and mineral output of the past year, together with the growth of population and a good deal of development work, has prevented the depressed feeling which has prevailed in some other industrial centers, and while there is still a conservative feeling there has been considerable progress. Corporate interests are endeavoring to adjust themselves to the new legislation enacted or foreshadowed by recent amendments to the state constitution, and there is a general belief that those responsible for legislation will take care not to discourage investment in a state which needs investment for the development of its resources. The official record of building permits for November totaled \$1,617,890, a gain of nearly \$400,000 over October, while this record for November last year was only \$992,258. A similar increase as compared with the preceding month, and the same month last year, is noted in the records of both Oakland, Cal., and Portland, Ore., while Los Angeles is keeping about up to the average, and has been the busiest city on the coast for the year as a whole.

The brick dealers and manufacturers of San Francisco feel that their industry is beginning to get on its feet again, after several years of hard times in which all have suffered and many concerns have been entirely submerged. The troubles have been due mainly to overproduction and fighting of brick men among themselves, though also largely brought on by the energetic work of the cement manufacturers, who have spared neither money nor brains in their campaign. The brick men do not yet feel in a position to carry on an organized campaign to advocate their products, but the fact that most of their own quarrels have been adjusted is shown by the present steadiness of the brick market on a basis of moderate profit. The present price of \$7 per M on common brick is likely to be maintained throughout the coming year, and unless unforeseen conditions arise, a further advance may be possible with the approach of the Panama-Pacific Exposition and its accompanying activities.

The kiln output is still somewhat larger than the demand in this vicinity, but by co-operation the various selling agencies have been able to find a good outlet in other quarters. Shipments are constantly being made to points up the coast, even to Astoria, Ore., though the San Francisco manufacturers cannot compete with those of Portland in their home market. The Coos Bay district of Oregon is taking large quantities of California common and fire brick, due to improvements being installed there in anticipation of increased business opportunities. A great growth of the agricultural and lumbering industries of that district is expected to result from the extension of the Southern Pacific Railroad to the coast at that point. Some large shipments of brick have also been made recently from San Francisco to Hawaii and the Philippine Islands.

The United Materials Company, representing the Los Angeles Pressed Brick Company and the Porta Costa Brick Company, report a number of new contracts, some of which are quite large. Among the new buildings in which their bricks will be used, or are at the present time being used, are: The Terminal Hotel on lower Market street, the new ten-story office building at the corner of Montgomery and Sutter streets, the Rudgear Hotel on Bush street, near Stockton, and the

Southern Pacific Hospital in Sacramento. This company has just finished the tile roof for the new Lincoln School here, and the roofs of five buildings at the Presidio Reservation. Twelve more buildings at the Presidio are yet to be tile roofed by this company.

P. McG. McBean, president of Gladding, McBean & Co., and W. E. Dennison, president of the Steiger Terra Cotta and Pottery Works, are two local manufacturers who will attend the convention of the architectural terra cotta manufacturers to be held in Chicago on December 8 and 9. Mr. Dennison is now in New York, but will stop off for the convention upon his return trip.

Business with the Ione Fire Brick Company, Ione, Cal., has been very good during the year. Though this company recently suffered a heavy fire loss, this has not interfered with their business, as they had on hand a supply of a million and a half of brick for the winter trade. This supply will tide them over until a new plant is constructed and manufacturing begun again in the spring. The new plant under consideration will embody the latest improvements and be far superior in efficiency to the old one.

Since the paving brick plant of Los Angeles burned, brick of this sort has been scarce in southern California, and what supply is available is said to be poor in quality.

An attachment was recently filed on the Double Star Brick Works at Christie, near Martinez, Cal., and half a million unburned bricks sold out by the sheriff.

Articles of incorporation for the Southern Brick and Tile Manufacturing Company have been filed with the Secretary of State in Oregon. D. W. Banker is the president of the company. Manufacturing on a large scale will be commenced in the spring at Sutherlin, Ore.

Eri H. Richardson and E. W. Hurssel, of this city, have entered into a co-partnership as tile contractors and have opened offices in the Examiner building. Mr. Richardson has been a resident of this vicinity for the past five years, and Mr. Hurssel has for the past fifteen years been connected with W. H. Hoops & Co., of Chicago, and W. W. Montague & Co., San Francisco. Until the Western Art Tile Works ceased manufacturing, he was their Pacific Coast representative.

J. J. Donovan, it is reported, has discovered a valuable deposit of material suitable for making assayers' crucibles in Santa Barbara county, Cal., and intends to establish a factory at Richmond, Cal., in the near future.

The new plant of the Simons Brick Company, at El Centro, Cal., is soon to commence operations. It is expected that the company will manufacture about two million brick during the coming season.

The Pacific Porcelain Company, of Richmond, Cal., which has been manufacturing porcelain plumbing fixtures on a small scale for the last year, has let contracts for several new buildings and intends to double its present capacity.

The new San Francisco sewer system has been a godsend to the various people who have experimented with paving brick in the last few years, offering a ready outlet for an enormous quantity of material which lacked some of the qualities requisite for good pavers. So far the problem of producing a really first-class paving brick in the vicinity of San Francisco has not been solved, though a great deal of money has been spent on it.

The Los Angeles Pressed Brick Company's plant at Richmond, Cal., has taken a contract for 1,000,000 brick for additions to the Standard Oil Company's refinery at that place.

Henry Kiersted, manager of Gladding, McBean & Co.'s plant at Lincoln, Cal., made a visit to San Francisco this week.

SUNSET.

There has been a slight decline in the importation of diamonds and some of the other things termed luxuries during the present year. Some argue from this that people are retrenching a little and restraining the desire to indulge in extravagant luxuries. We are anxious to believe that what we might term a sane, sober afterthought has struck the country, but notwithstanding this we are inclined toward the opinion that the falling off in diamond purchases has been more than made up for by the indulgence in automobiles. In other words, we don't believe people are any more economical now than they have been heretofore.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



AT THE VERY end of the year building activities in Chicago are just beginning to come up to the records for corresponding weeks last year, and in some few instances to exceed those records. This is an encouraging omen for next season; and, in the absence of any painful financial stringency, next year should be a good one from

the point of view of the builder and the building material man. Thus far, although business has been quiet in general, money has not been so tight but that loans have been negotiated for large undertakings with considerable freedom.

It must be admitted that the closing year has been far from satisfactory to building material men in many lines. Makers of common brick perhaps have fared, on an average, better than any of their brethren. The price of \$7.00 a thousand has maintained throughout the year, as it had for a considerable time previously.

It is currently reported and not denied very emphatically, at least, that there has been too much price slashing in terra cotta lines to have made the year very satisfactory to a number of manufacturers and dealers, although there has been a large amount of this material used, and the market seems to be constantly broadening. The tendency is reported on the part of manufacturers from other sections to compete for local business almost regardless of freight rates and at a minimum of profit, or sometimes at no profit at all. This has not cheered the local brethren to any appreciable extent. As always, the margin of profit in high-grade finished brick for exterior and decorative work has been narrow, and the fact that—thanks to labor troubles now happily about ended—the amount of building this year has been comparatively small. There has been no overdose of prosperity in this line, either. However, so far as known, no members of this branch of the trade will fail to light the Yuletide tapers, nor will they ostracize the festive bird. Fortunately for paving brick men, the labor troubles which strangled building operations during the first half of the year did not extend to the laying of pavements, and the year of 1911 has been a very good one for them.

Among big downtown structures, which are being pushed toward completion, is the new office building of the Chicago Telephone Company, which is to run to a height of twenty stories, and which will be another monument to the serviceableness and beauty of clay products for exterior finish. Above the fourth floor the exterior will be of brick until the last six stories are reached, and these will be finished in terra cotta, the same material being used for trim and decorations.

There is considerable development going on also just outside of the loop district, and this is important to Chicago's growth. The fact that the tendency in these sections of the city is toward lower and more artistic buildings is encouraging to those who have the "City Beautiful" at heart. Some of these buildings even are going up within the strictly downtown territory.

Many unique features will be included in the building to be known as "The Shops," 19-21 North Wabash avenue, to be erected by LaVerne W. Noyes, at a cost of \$200,000. It will be designed after the "Fine Shops" of New York City. Probably its most unusual feature will be the provision for each tenant of a shop window facing a specially-constructed arcade, 20x80 feet on the main floor. Each side of this arcade will have fifteen show windows. The building will have a ground area 72x170 feet, and will be six stories in height. It will be constructed of white and bronze-colored terra cotta with the roof of red glazed tile, with flaming torches surmounting white tile pillars at each end. A row of bullseye lights will be placed under the top cove and just above the second floor. The upper floors will be divided into seven shops to each floor. Each upper story tenant will have a show window on the main floor, in addition to the one on his own floor. Alfred S. Alschuler is the architect for the building, and the Central Realty and Investment Company, the agents.

The trustees of the estate of Otto Young will erect a two-

story store building on Michigan boulevard, 150 feet north of Peck Court, to cost about \$100,000. The structure will take the place of a number of old residence properties, which for many years have been used as boarding houses. This will be the first attempt to erect a structure of this type in that immediate vicinity. The design is to raise the standard of property in that neighborhood. The new building will have a frontage of 250 feet on the boulevard and will be of an unusually handsome type of architecture. It will be used for small shops with twelve on each floor. Each store will be twenty feet wide. On the second floor, overlooking the street, will be an open eight-foot arcade, handsomely decorated. It is understood that the structure will be only temporary, giving way, when necessity demands, to a larger building. J. C. and R. C. Llewellyn, architects, are designing the plans. The buildings now on the site will be wrecked this week, and rebuilding operations will start immediately after the completion of the wrecking.

There is a considerable increase in the number of apartment houses that are being erected.

Orrin J. Holbrook, commercial superintendent of the Chicago Telephone Company, will erect a steel construction apartment building, at a cost of \$500,000, on Lake Shore Drive, near Walton Place. The structure will be eight or ten stories in height and will contain thirty-two or forty apartments, to rent for not less than \$4,000 a year each. The property has a frontage of 244 feet and a depth of 108 feet. Plans are being designed by Marshall & Fox, architects.

A three-story, thirty-apartment building, to cost \$125,000, will be erected by Anton E. Sward on the property he recently acquired from Rupert J. Henry, on Cornell avenue, 330 feet north of Fifty-sixth street, east frontage, 120x331 feet. The building will be constructed around a forty-foot court. Thomas R. Bishop is preparing the plans. W. K. Young & Bro. negotiated the purchase of the land and will manage the building.

The newly completed twelve-apartment building at the southwest corner of Sheridan road and Barry avenue can be considered one of the most modern and elaborate structures of its kind in the city. Erected at a cost of about \$200,000, it is fitted with practically every labor-saving household device known to modern builders. Every room has been decorated at an estimated cost of \$1,000. Each apartment contains eleven rooms, three baths and a large front porch, with quarry tile floor. The principal rooms are finished in solid mahogany, and the remainder in other costly hardwoods and white enamel, cabinet finished. Bathrooms are finished with ceramic mosaic floors and glazed tile walls, the bathtubs being recessed and equipped with a complete shower system. The building is equipped with a complete electric pumping system, insuring a high water pressure at all times; a complete telephone system, with an instrument in each room; electric vacuum cleaning machines, electric-lighted refrigerators and garbage incinerators. A garage, furnished with dynamos for the charging of electric machines, is on the rear of the lot. The lot has a frontage of 116 feet on Sheridan road and 193 feet on Barry avenue, six apartments fronting on each side. Perkins, Fellows & Hamilton were the architects.

A three-story apartment building, to contain many unusual features and to cost about \$200,000, will be erected at the southwest corner of Oakwood boulevard and Ellis avenue, by E. L. Turner. The building will really be three separate structures and will contain 100 apartments of two, three, four and five rooms. One building will be devoted exclusively to bachelor apartments. It will have a large lobby on the main floor, to be used as a sort of clubroom. The lobby will contain a large open fireplace. The building will be on a site 162x200 feet. H. H. Mahler, architect, is designing the plans.

Edgar R. Martin, of Schmidt, Garden & Martin, architects, is planning the erection of a six-story apartment building at the northwest corner of Delaware and DeWitt places. While his plans are not fully matured, it has been decided that the structure will contain nine apartments of six and eight rooms, with all modern features, including all-tile bathrooms and kitchens, sun parlors, vacuum cleaning systems and electric elevator service. The structure will cost approximately \$80,000. The property has a ground area of 50x107 feet. Construction operations will start next spring.

The Dellray apartments, in process of construction at the northwest corner of Washington avenue and Fifty-seventh

street, upon which S. W. Straus & Co., mortgage and bond brokers, have made a loan of \$60,000 in the form of a bond issue, will be a three-story brick and stone building, with an English basement, containing twelve apartments of six, seven and eight rooms. It will be designed after the fashionable English apartment houses, with all the wooden portions finished in a most expensive and elaborate manner. The servants' quarters will be separate from those used by the family. Each apartment will have a porch inclosed with glass and steam heated, so that it may be used as a sun parlor and conservatory in winter, the glass being replaced by screens in the summer if desired. Jesse Boydell is the builder. The structure is being erected at a cost of \$100,000. SCRIP.

A FEW PERTINENT FACTS ABOUT TATE, JONES & CO.

IN THE oil burning line, Tate, Jones & Co., Pittsburg, Pa., have made an enviable reputation, becoming closely identified with the clay industry through the successful operation of their equipment on a number of fine clay plants.

The general offices of Tate, Jones & Co. are on the tenth floor of the Empire building, Pittsburg, Pa., while their branch



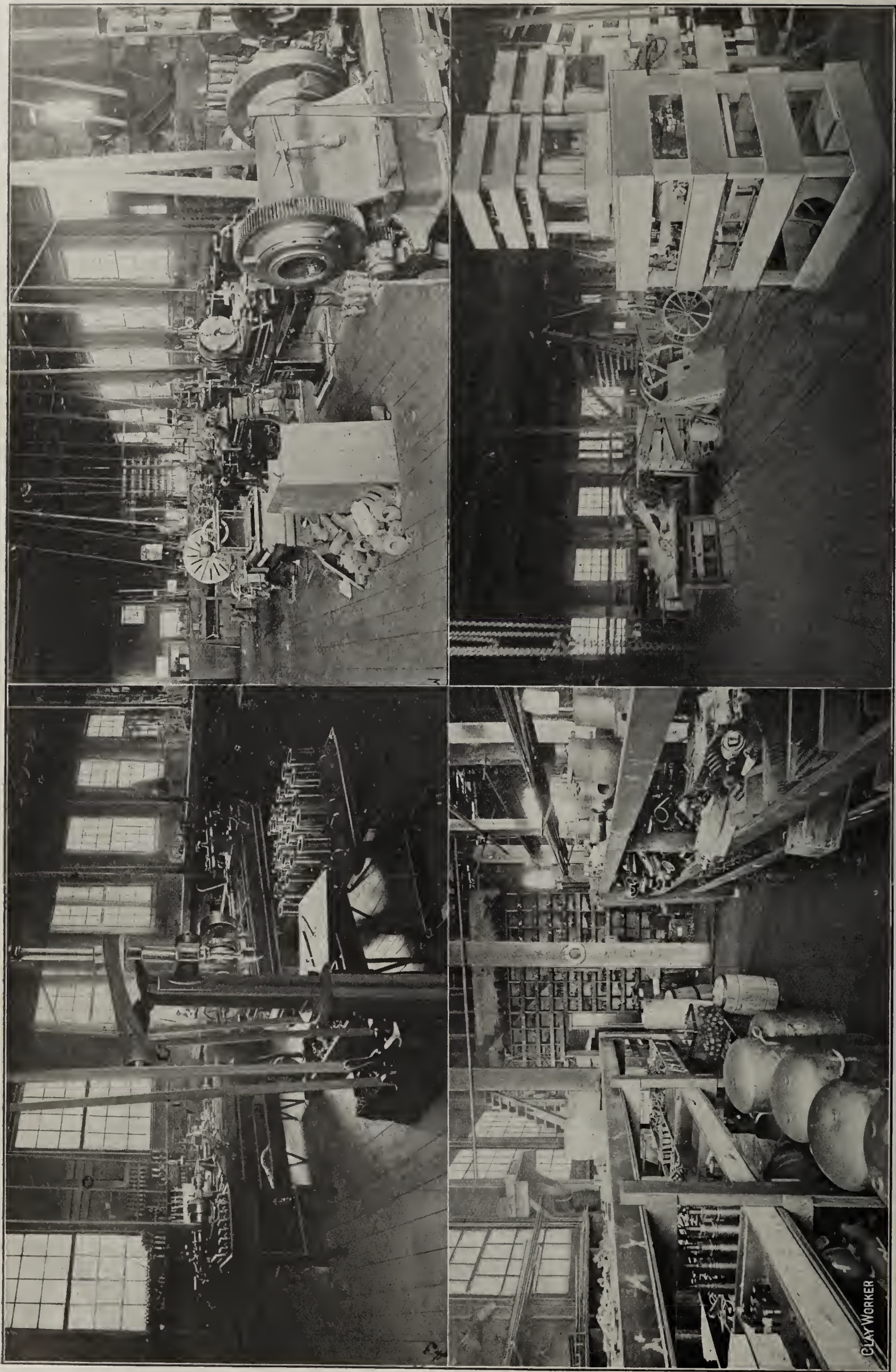
Front View of Tate, Jones & Co.'s Manufacturing Plant, Leetsdale, Pa.

office is in the Fischer building, Chicago, Ill. Their plant is located at Leetsdale, Pa., about fourteen miles east of Pittsburg on the main line of the Pennsylvania railroad, within the area of the great iron and steel industry, which insures cheap raw material, as well as expert workmen, for there are found iron and steel workers from all parts of the world.

The company is an incorporated company, with full board of officers and directors, under the able management of J. M. Tate, Jr., who is president of the company. The mechanical department is directly under the management of Mr. Kirkwood, the patentee of the system bearing his name.

They manufacture all kinds of appliances used in the burning of liquid or gaseous fuels, including atomizers, burners, pumps, heaters, furnaces, meters, regulators and equipment pertaining thereto. All of this equipment is manufactured under the well-known Kirkwood system, which needs no farther approval than the stamp. The company is a leader in its line, not a follower, nor a copier. In fact, they are the Edisons of oil and gas burning.

Their experience covers a period of fourteen years, which means they have virtually come up with the business in this country, as but little oil was burned as a fuel prior to that



INTERIOR VIEWS OF TATE, JONES & COMPANY'S PLANT, LEETSDALE, PA., WHERE THE FAMOUS "KIRKWOOD" SYSTEM IS MANUFACTURED.

1. Corner of Brass Furnishing Room. Here the brass oil burner is finished and assembled.
2. A Glimpse of the Machine Room. The initial heavy work is done here.
3. A View of the Storage Room. Note stock of burners and accessories carried at all times.
4. Corner of Erecting Room. Note oil pumping systems crated and ready for shipment.

time. Their experience is sufficient to insure the trade expert advice and the best results possible to be obtained from the standpoint of experience.

The business of the company has had phenomenal growth, when it is considered that for several years the company had no shop, but had the equipment manufactured and assembled at various shops, and today they own and operate on full time their own present commodious shop illustrated herewith.

The engineering department of the company has grown

WAGE EARNERS IN THE BRICK INDUSTRY.

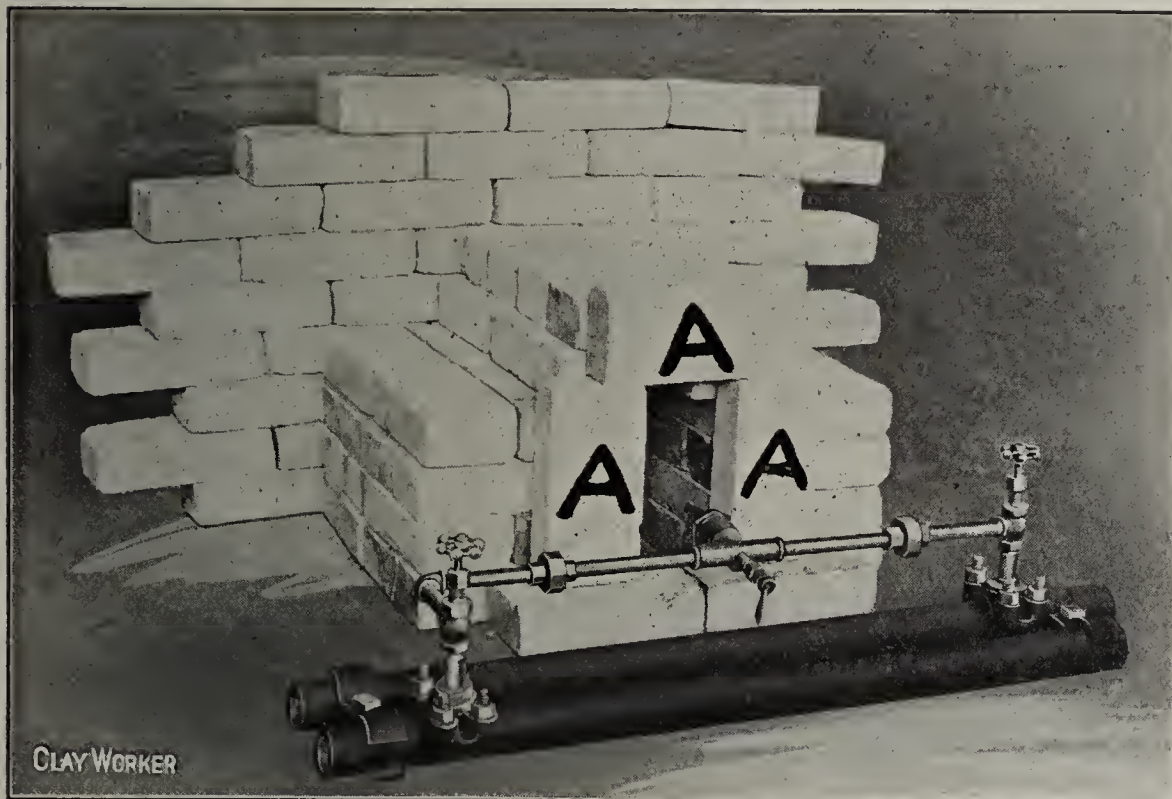
THERE HAS BEEN ISSUED recently by the Bureau of the Census a special preliminary report on the constancy of employment of wage earners in the different manufacturing industries.

In the majority of industries, where the number of wage earners employed runs fairly even the year around, it was found that the greatest number are employed during the month of November.

The brick and tile industry is classed among what is termed seasonable industries, in which the number of wage earners employed varies materially in different seasons of the year. In the brick and tile industry there was employed on an average during the census year, 76,528 wage earners. The largest number employed at one time was 104,930, employed during July. The smallest number was employed in January, and amounted to only 38,312, or only a little more than a third of the maximum.

In other words, we may figure from these statistics that in January there is only about a third as much work doing in the brick and tile plants as during the mid-month of summer. This is really a better showing than one might expect when we consider that in the greatest brick producing sections of the country there is not a great deal of brick used during the cold months.

Fortunately, however, for the wage earners, brick manufacturers strive to keep their plants running as near all the year around as practical. They figure for a close clean-up at the end of the



Oil Burner Attached to Steam and Oil Piping. Bricks Marked A Regulate Air Supply.

with the rapid development of the business, and it was found necessary to divide it into four distinct departments, namely:

First—The iron and steel industry, with its many branches, embracing all divisions from melting the original iron ore to the heating of rivets, including annealing, hardening and tempering furnaces.

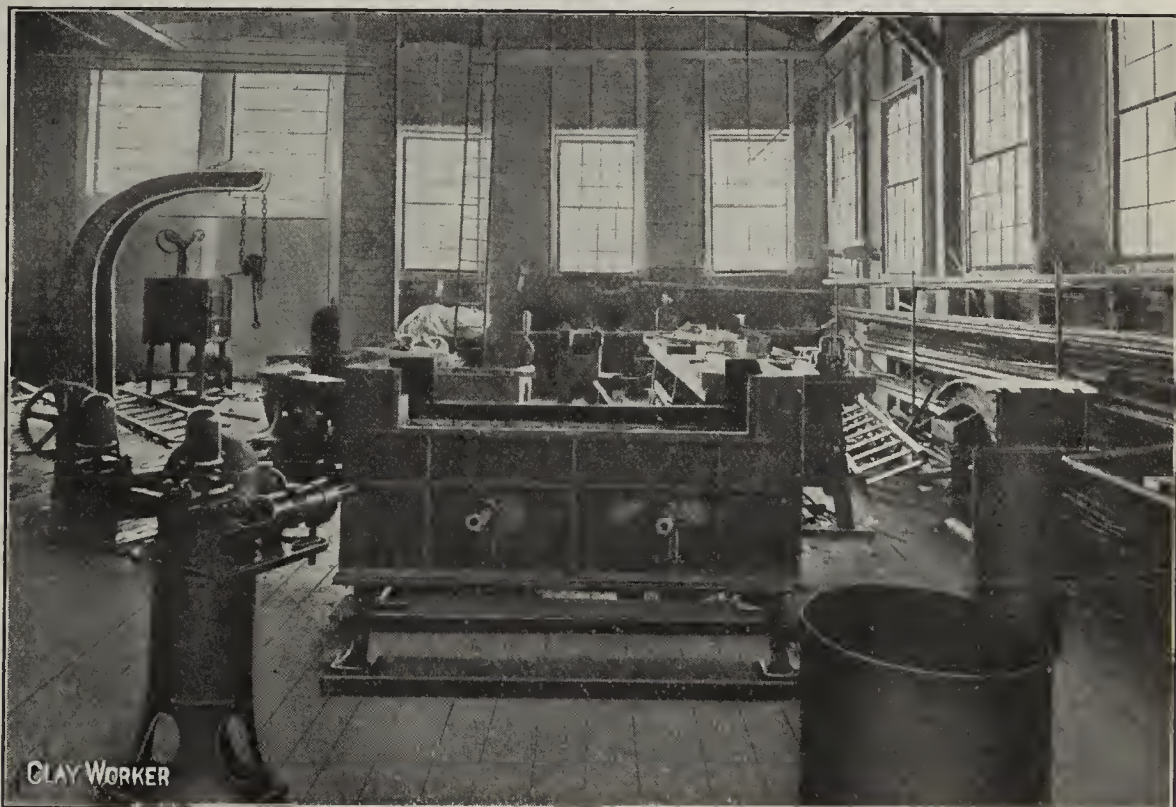
Second—United States marine work, including navy and army work in the equipment of man-of-war, transports and the equipment of various navy yards.

Third—Stationary boiler practice, including all lines of industrial power plants of large units or for hotels and apartment buildings, where oil can be procured and where the fuel and labor item pertaining thereto is of sufficient importance to justify.

Fourth—Ceramic industries, embracing all lines of manufacture under its head, as either oil or gas is adapted to any kind of kilns for burning any and all grades of clay wares.

As each of these departments work together, there is no fear of any problem submitted not having a full and expert consideration, and the best possible service. The results obtained from this co-operation can not help but produce the desired results.

It is the intention of this company to keep abreast of the times in all improvements; in fact, every day finds them experimenting on some new burner or device for the improvement of their equipment. They would be pleased to have any new devices or ideas submitted for their consideration, and especially do they desire any problems in their line submitted for solution, assuring the trade their hearty co-operation.



A Corner of the Erecting Room in Tate, Jones & Co.'s Factory.

building season in the fall and then put in the winter time making up stock and getting it ready for the spring season. Of course, they do not push the work during the winter like in the summer, and also they usually stop to make repairs in the midwinter season, and it really shows good work toward the end of rational constancy of employment to see that 36½ per cent of the maximum and a little over half of the average number of wage earners are employed during even the dulllest month of the year.

The next thing we know it will be bungalow business houses. And it may be a refreshing change from sky-scrapers.

THE DUNN WIRE-CUT LUG BRICK AT THE GOOD ROADS CONVENTION.

"Have a carnation? This is given with the compliments of the Dunn Wire-Cut lug block. Will you kindly register?"

The above was repeated over two thousand times by the young lady in charge of the Dunn Wire-Cut Lug Brick Company's exhibit at the convention of the American Road Builders' Association held at Rochester, N. Y., December 14 to 17, and it brought results for over twenty-two hundred carnations were given away, every recipient registering and taking time to closely examine the splendid exhibit. Mr. Frank J. Dunn, of Conneaut, Ohio, inventor of the brick, and Mr. W. T. Blackburn, of Paris, Ill., were in charge of the exhibit, and spent a very busy week, answering questions and pointing out the merits of the new type of vitrified lug brick, which has

this brick, namely, The Danville Brick Company, Danville, Ill.; The Patterson Clay Products Company, Clearfield, Pa.; The Reynoldsville Brick & Tile Company, Reynoldsville, Pa.; The Kushequa Brick Company, Kushequa, Pa.; The Sterling Brick Company, Olean, N. Y.; the Corry Brick & Tile Company, Corry, Pa., and the United Brick Company, Conneaut, Ohio. While only two manufacturers produced wire-cut lug blocks in the territory embracing Western New York, Western Pennsylvania and Northeastern Ohio, last year, four others in the same territory were added during the present year, a pretty good evidence of their success. Over four hundred cities and towns have included the Dunn wire-cut lug brick in their specifications, and many prominent brick men have approved it, and it is a foregone conclusion that a large number of them will be making the same in 1912.

Mr. Dunn has had many years of experience in the clay



The Dunn Wire-Cut-Lug Brick Co.'s Exhibit at American Good Roads Convention, Rochester, N. Y.

made a deep impression upon the paving brick world and is being adopted by many of the paving brick companies. Many manufacturers of paving brick attended this convention and were so favorably impressed with Mr. Dunn's unique method of advertising that they assisted in the distribution of posies and made the exhibition one of the most popular of the fine displays made.

We give an illustration showing the Dunn exhibit and the young lady in charge with her jars of carnations. The sample pavement shown in the picture was laid with Dunn wire-cut lug brick, made at the plant of the United Brick Company, at Conneaut, Ohio. Sample of the Dunn wire-cut lug brick made by the Sterling Brick Company, of Olean, N. Y.; the Reynoldsville Brick & Tile Company, Reynoldsville, N. Y., and the Corry Brick & Tile Company, Corry, Pa., were also on display.

Seven prominent brick companies are now manufacturing

industry in the capacity of workman, foreman and superintendent in a brick factory, then machinist, erecting mechanic, salesman and accountant in a factory where clayworking machinery was manufactured exclusively, and finally became general manager of a paving brick plant, and street paving contractor. For a number of years he held the opinion that repressed paving brick, which he had previously considered the best paving material, had many disadvantages which could be overcome if a wire-cut lug brick could be used. He therefore conceived the idea of a wire-cut lug and invented a simple method of deflecting the wires during the process of cutting the original brick, thus placing lugs or ribs on the wire-cut surface of the brick. The invention is so simple, and yet so important that manufacturers wonder that the idea was not worked out years ago. Mr. Dunn claims that the wire-cut lug brick has all the advantages of the repressed brick with none

of what he styles the disadvantages. His views on the subject are plainly set forth in his advertisement on page 683 of this issue. Interested readers are requested to write the company for one of their recent pamphlets.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



THE LAST BURNINGS of the season are in sheds at Hackensack. Seldom is it possible to make brick so late as has been the case this year. Indeed, manufacturers have usually closed their plants long before this, but business improved somewhat late this year and there has been a steady movement all through the latter part of November and the early portion of December. Prices have ruled about as they were reported last month. The advance in New York helped makers here and the situation is considerably better than it was last year at this time. The weather has been favorable up to the close of the first ten days of December, when it turned cold and some snow fell, but it warmed up afterward, enabling those manufacturers who still had burnings ready to get them done without difficulty.

Without knowing all the details of the season, it is safe to say that the estimate made early in the spring that 73,000,000 would be turned out along the Hackensack has been amply fulfilled. Probably the total will go over that. Prices have been fair and movement has taken out about everything as fast as it was made. Nearly all manufacturers speak in favorable terms of the season now closing.

In the Raritan section, business is unusually good for the season. The Sayre & Fisher Co. is the large factor in that region. They have a steam dryer in operation and will continue to operate their plant all winter at perhaps eighty per cent of its full capacity. Last season the percentage was much lower, though they ran all winter. The company reports some good contracts which call for delivery during the winter, consequently it is necessary to put its plant in readiness to fulfill them.

In the Perth Amboy district the conditions are satisfactory for the season. Business has been generally good and there has been a large output from all the plants. Demand has continued active right up to the close of the season and is now much more important than ordinarily at this season. Indeed, according to the reports of nearly all concerns, brick has been coming into its own in all the manufacturing districts of New Jersey of late. The season just closing will rank as one of the best for years.

The Great Eastern Clay Company, of South River, makers of chimney brick, report the close of a prosperous season. Their product was sold over a much wider territory than formerly. This firm has made a specialty of this class of brick and is rapidly acquiring a wide market. The quality is recognized as unusually good for the purpose.

The American Enameled Brick and Tile Company, of the same town, is doing an excellent business. It has employed more than one hundred hands all the season and its plants have been worked to their capacity. Its product is in increasing demand by consumers and business grows steadily as a direct result of the excellence of its output.

The Stegmayer Enameled Brick Company, of South Amboy, has had a good season and sees promise of good things ahead for firms in their line of business. Conditions have been favorable and the output of the firm has been larger than formerly. Demand increases steadily and the excellence of the product insures a continuation of the present satisfactory conditions.

There are four firms in Trenton making front brick, Applegate & Co., employing about seventy-five hands; Donahoe & Nolan, about the same; Fell & Roberts, about eighty to ninety, and the Trenton Red Front Brick Works, with

about fifty at work. All these have been working to full capacity all summer and are closing a busy and profitable season. They have turned out on an average more than heretofore and the sale has been more rapid. They are quite ready to agree that the new publicity plan for arousing interest in brick has had its influence already. They look forward to a continuation of the present satisfactory conditions.

The Bridgeton Brick Company, of Bridgeton, manufacturers of red pressed stock, have been turning out all their plant would allow throughout the season. They make a high-class of goods and the sale has grown very rapidly of late, coincident, perhaps, with the general development in demand for various classes of brick which has characterized recent months. Their orders will consume their entire product, so they will start next year without old stock on hand.

The National Fireproofing Company is driven with orders at both its Keasby and Lorrillard plants. The increase in demand for fireproofing has been so rapid that it has been almost impossible to keep pace with it. This firm has developed the business to a high state of proficiency and is able to supply immense quantities of fireproofing at short notice. They have been compelled to keep increasing their plants and otherwise providing for increased output. The season just passed has been the best in their history and they anticipate still better business during the year to come. Fireproofing is coming to be one of the essential features of all sorts of building construction, even the small residences sharing in this requirement. So many city ordinances require fireproof or slow burning construction that this branch of the clay industry has received an impetus which will be of vast benefit to manufacturers in the future. A. L. B.

THE HAIGH CONTINUOUS KILN POPULAR WITH USERS.

Mr. Hervey Haigh, Catskill, N. Y., inventor of the Haigh continuous kiln, reports that he has recently sold one of his kilns to the Albion Shale Brick Company, which has one of the finest brickyards in Illinois. Mr. Haigh has installed his kilns on many brickyards throughout the land, and is the recipient of many commendatory letters from satisfied users. We take pleasure in publishing two recent communications which will be of interest to kiln users: one from John W. Sibley, the popular treasurer of the N. B. M. A., who recently celebrated the opening of his new plant at Sibleyville, Ala., and the other from a Texas brick manufacturer.

Office of the Sibley Menge Brick and Coal Company.

Dear Mr. Haigh:

I was up at the factory last week and saw the first chamber of the Haigh kiln that was burned, and the results were far beyond my anticipation. Your kiln seems to be peculiarly adapted for burning our shale. Of course, this first kiln will not give us any accurate idea as to the saving in fuel and labor, but I am satisfied it is going to be a big saving for us. The kiln has worked smoothly right from the start, without a hitch, and I think you are going to be proud of it when we have the N. B. M. A. convention here in 1913. The kiln will be a big show place for you, as well as for us.

With kindest regards, I am,

Yours very truly,

JOHN W. SIBLEY, President.

Office of the Wise County Brick Company.

Bridgeport, Texas.

Dear Mr. Haigh:

We have your favor of the 1st inst., and are handing you herewith check to balance our account for drawings, specifications and rights for your system of continuous kiln. In this connection we desire to thank you for the many courtesies extended. Our relations with you have been very pleasant, indeed; and the kiln is a fuel saver.

Business conditions have been such here that we have not been crowded with orders this year; but, even under these conditions, we are now adding four additional chambers to the kiln, which will then give us twenty-four chambers.

With best wishes for your continued success, we are,

Very respectfully yours,

WISE COUNTY BRICK COMPANY.

J. V. Montrief, Secretary.

Failure of Reinforced Concrete

DREADFUL TOLL OF DEATH AND DESTRUCTION AGAIN RESULTS FROM THE USE OF THIS TREACHEROUS MATERIAL.

ANOTHER CONCRETE FAILURE.

SHORTLY AFTER ONE o'clock on Wednesday afternoon, December 6, the three story addition to the Prest-O-Lite office building on South street, Indianapolis, Ind., collapsed, burying over forty workmen, of whom ten are dead, while several of the survivors are so seriously injured that it is doubtful if they can recover.

The new addition was in the course of construction, two stories had been completed and the third story was well under way. The entire structure was of reinforced concrete. The whistle calling the men to their employment at the close

and was quickly replaced. This floor had not been properly supported.

Many theories have been advanced as to the real cause of this most recent concrete failure, the expert engineers believing that the collapse was due to poor concrete work and the fact that the concrete was being poured during weather unsuited for such work.

It has been proven that a poor mixture was used in the first place. Large chunks of concrete are found in the ruins covered with loose sand. In the concrete lumps are to be seen rocks as large as a man's fist. The changing weather had an important part in the failure too, for the concrete was poured



Two Views Showing Destruction Wrought by Collapse of Concrete Building in Indianapolis, December 6.

of the noon hour had just blown. Men came from their lunches and clambered up the ladders to their places. Some had just picked up their tools and the clang of the first hammers echoed through the neighborhood, when, with a grating crash, the central part of the concrete structure gave way. It was followed by the cries of the workmen, shouting a warning to one another as they rushed blindly about searching for a place of safety. The crash was over in a moment, forty men were buried under the heap of twisted iron, broken concrete, sand and dirt, while several of the workmen were thrown to the street to safety but badly bruised and injured.

Shrieks of the men pinned under the ruins aroused the neighborhood and nurses and attendants at the St. Vincent's hospital close by hastened to learn the cause of the alarm and lend assistance. Many workmen engaged on the north wing of the plant which was not yet completed, scurried down ladders to the ground and immediately set to work aiding in the rescuing of their fellow workmen buried in the wreckage.

This terrible disaster is one of the most appalling accidents recorded in the history of Indianapolis, but is only one of many concrete failures that have occurred in the Hoosier capital. Only a short time previous to this accident, the top floor of the Hume-Mansur building, Indianapolis' newest office building, just being completed, fell in but did little damage

on a very cold day, which was followed by several days of thawing weather.

So clear is the proof that concrete will not stand winter weather that the city officials have demanded that all work on other concrete buildings being erected in the city at this time, be stopped until a thorough examination can be made by the inspectors and critics.

In commenting on the disaster, the Indianapolis Sun, under date of December 10, prints the following trite summary of the case:

"Is That All?"

"On last Monday a concrete building, in course of erection in Indianapolis, collapsed, causing the death of nine workmen and injuring many others.

"The permit for the building called for a two-story structure, but without any authority whatever, or even notification to the building department, the contractors went ahead and built a three-story structure.

"The building had not been inspected by the building department for two weeks preceding the disaster.

"Various reasons have been assigned for the collapse, including the overloading of the roof, the removal of the forms into which the concrete was poured before the concrete was

sufficiently hardened, a defect in the plan, and the use of materials of poor quality.

"Somewhere along the line there was criminal negligence, and nine lives was the awful price that was paid.

"Saturday the building inspector made affidavit, charging the contractors with violation of the building ordinance. The minimum fine for violation of the ordinance in question is \$10, and the maximum fine is \$100.

"Is that all?"

We wonder how long the American people will stand for this inexcusable slaughter of people. There have been many concrete failures during the past year, most of them crushing out scores of lives. The Austin dam, the collapsed four-story concrete building in Cleveland and the Buffalo disaster are three concrete failures that most of us well remember; and these have all occurred within the past year.

In condemning poorly-constructed concrete buildings, we

safe proposition. It is agreed, however, that it will never replace good, solid brick construction work as long as the conditions are relatively the same as they are now."

CONCRETE HIT HARD.

At Kearney, N. J., the citizens have expressed very strong dissent from the decision of the board of education to erect a concrete school. The citizens asked the board to reconsider its action, but instead of doing so it passed a resolution asking the board of estimate to appropriate \$108,000 for the construction of a concrete building.

The citizens held a meeting and appointed a committee to raise money to pay lawyers' fees in fighting the proposition. The citizens want a brick building and they propose to carry the matter to the courts before they give up in their contentions. They are very emphatic in their declarations



Ruins of Collapsed Concrete Building that Caused Ten Deaths and Many Injuries.

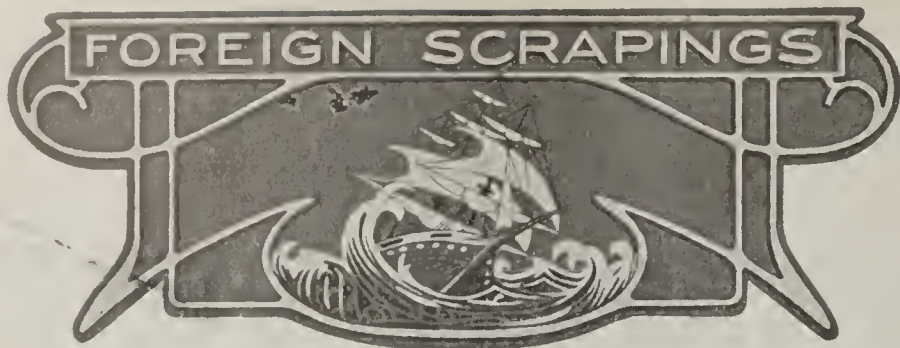
had the following to say in our issue of last December, which is well worth repeating:

"It has been demonstrated, for one thing, that while concrete may be more or less carelessly handled in real hot weather, it is an extremely dangerous material when the raw, damp weather of fall and spring sets in, and is absolutely worthless in cold weather as a structural element. Another lesson which has been taught is that there is no economy in concrete construction, as compared to brick and steel. It is true that sometimes the buildings can be put up cheaper, but the problem is to keep them standing. Put up with honest labor, honestly paid, concrete is dear all the way through. With enough steel to carry the stresses independent of the concrete reinforcement and with a squad of inspectors armed with sections of gas pipes and sand bags on the job, concrete in the hands of the average building workman is perhaps a

regarding concrete, and so far absolutely refuse to consider the matter. They will proceed with injunctions before they allow a cement structure to be erected.

Concrete is getting hit pretty hard in New Jersey of late. There have been other attempts of the same character thwarted by vigorous work on the part of objectors, and in this instance it seems as though the board of education will be compelled to succumb to the desire of the citizens. Otherwise they will be continuously confronted with injunctions or other equally unpleasant legal complications.

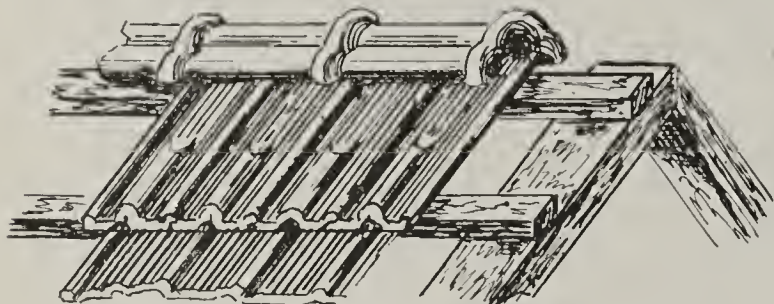
Wherever a really progressive idea in farming takes hold of the people it generally means an enlarged market for drain tile, and where the drain tile idea has not been hooked into other progressive ones it is up to the manufacturers of this product to hook it on and tell the farmers something.



Leadless Glazes.—Dr. A. Berge has made some experiments with borazite and strontium carbonate. He obtained very clear glazes by cone 04. The glaze starts to mature by cone 010. The following mixture was used: 100 parts borazite, 220 parts feldspar, 70 parts of flint and 130 parts of strontium carbonate.—*Keramische Rundschau* No. 38, 1911.

Women Labor in Germany.—According to a new law regulation which will be put in force on April 1, 1912, the employment of women is entirely prohibited in the handling of building materials. Further, the employment of women in clay pits, brick yards and other clay manufacturing establishments is again very much reduced, and the total prohibition of such labor in these establishments will be put in force on April 1, 1915.—*Tonind. Z.* No. 93, 1911.

The Laying of Roofing Tiles.—In Germany the use of roofing tiles is very extensive. Many patented styles of roofing tiles are used, and among these the interlocking ones



are in great demand. The cut shown herewith gives a good idea of the method employed in laying these tiles on the roof. The slats are twelve inches apart, and it takes twenty-four tiles to every square meter (10¾ sq. ft.) of roof space.—*Deut. Topf & Z. Z.* No. 66, 1911.

Improvements in the German Pottery Industry.—The figures of the statistic department of the German government show that the pottery industry for the first half year of 1911 was better than it has been since 1907. The exportation for the first six months of this year amounted to 24,193,200 kilos, which was 1,731,700 kilos more than in 1907, and was 3,238,000 kilos more than last year. The value of the exported goods increased from 1,647 million marks in 1907 to 1,874 million marks for the first part of 1911.—*Keramische Rundschau* No. 37, 1911.

A French Token of Friendship.—The French government will present to each of the governments of Denmark, Sweden and Norway a magnificent Sevres porcelain vase. It will be a token of friendship of France to the Scandinavian countries and at the same time a tribute to the ceramic industry of France, by the choice of a porcelain vase. The vases, will be made by the National Manufactory of Sevres, and they will be decorated with the coats of arms of the respective countries.—*Moniteur de la Ceramique* No. 18, 1911.

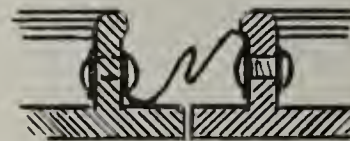
The Export of Magnesite.—The Austrian magnesite mines have been only partly operated for the past half year. The demand for the product on the European continent is about

the same, while the export to the United States amounts only to the required amount of 400 carloads per month. There were months in the past that this export amounted to twice and three times this required amount.—*Tonind. Z.* No. 99, 1911.

Plaster Moulds for Roofing Tiles.—When the plaster moulds crack and break after making four or five tiles, the fault is in the iron outside mould. This mould is not strong enough to stand the pressure, and the plaster mould shows the crack on that account. The plaster should be of the very best kind, and should not be used for several days after being cast. The addition of hair to the plaster will increase the strength of the mould.—*Tonind. Z.* No. 102, 1911.

The Cooling of Pottery Kilns.—The use of fans in order to cool pottery kilns has been adopted by several firms. Care should be taken that the cooling does not go too fast, as otherwise the ware will get airchecked, and the saggars will not stand the quick change of temperature. The hot air from the cooling kilns can be used for drying the ware, or for warming up the factory rooms. Another use of the fan is that, after the kiln is drawn, the fan can be kept going and will materially cool the inside of the kiln, which makes it more advantageous for the kiln setters, as they will not have to work in a very hot kiln.—*Keramische Rundschau* No. 40, 1911.

Terra Cotta or Glazed Tile Clamp.—The trouble of fastening tiles has been some drawback in their use. Mr. Bruno Mehlaui, of Breslau, has patented, under German patent No.



234,695, an iron clamp which will lock the tile tight, as the cut plainly shows.—*Sprechsaal* No. 31, 1911.

The Making of Machine Made Saggars.—The manufacturing of saggars by machine has proven a great success, and an experienced sagger-maker will make 200 saggars, measuring 14 inches diameter and 4 inches high. The price paid for making the same is 2 marks (\$0.48) per 100. The sagger clay must be delivered close to the machine. According to the height of the sagger the price paid in piece work varies. For saggars 8 inches high the price is 3.50 marks (\$0.84). The machine-made saggars have proven just as good as the hand-made ones. More care should be taken in drying the machine-made ones, as they will crack easier.—*Sprechsaal* No. 34, 1911.

Higher Prices for Firebrick.—The bad condition in which the fireclay products and fire brick business has been in Germany in the last year on account of the low prices paid for the finished materials, has been taken up by the united action of the manufacturers. They decided in a meeting held on June 24 last to raise the prices ten per cent, this raise to go into effect at once.—*Tonind. Z.* No. 79, 1911.

The Checking of the Daily Production.—There are a number of devices for the automatic counting of the brick or tiles which have been made per day by brick machines. Such devices are very useful checks on the employees inasmuch as they are more careful in the handling of the made product. The device can either be adjusted to the cutting table or to the elevator which handles the products, or on the cars when they are run to the dryer.—*Tonind. Z. Z.* No. 80, 1911.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



WITH THE YEAR 1911 drawing rapidly to a close, builders and contractors in this city are expressing their entire satisfaction with the record which has been made. Although not as great a number of very large projects have been gotten under way this year, business is fully as good as in former years. Innumerable small projects have been started. The volume of home building has been particularly large, and will amount to several million dollars.

A noticeable feature of the building reports of the present year has been the increased use of brick and similar fireproof materials. The extension of the fire limits to a number of sections of the city has compelled the builders of stores and similar structures to use fireproof materials. It is needless to say that the bulk of the material used for facing purposes has been brick. There has been a decided advance in the class of brick used also. Comparatively little common brick is seen in Cleveland these days. The majority of builders are using facing brick of good quality.

The building supply men who represent the various brick companies of this city, in addition to being entirely satisfied with the volume of business for 1911 express the opinion almost to a man that the year 1912 will see an even larger amount of building done.

Already a number of good sized projects are under way, and it is believed that there will be no diminution in the building line in this city next year. The use of terra cotta in commercial structures has increased wonderfully over last year. Cleveland has had erected several of its finest buildings at that time, and they have been faced with beautiful white glazed terra cotta.

Considerable interest is being displayed in the erection of the new Statler hotel, a building costing \$2,000,000 exclusive of the furnishings which are to cost \$6,000,000. The building is being constructed of brick and stone; stone being used for the first three or four stories, with brick above. A beautiful chocolate red colored face brick is being used. Thousands of dollars worth of hollow tile are being used in the floors and walls of this building, while considerable white glazed brick will be used in various places throughout.

Just across the road splendid progress is being made with the new six-story mercantile building for the Commercial Building Co. The entire front of this building is being faced with white glazed terra cotta, while the structural work is of steel, concrete, and hollow clay tile. It is expected that the building will be ready for occupancy early in the new year.

During the past year the new fourteen-story Athletic Club building has been completed and it has just been dedicated and is doubtless one of the finest club buildings in the world. It, too, is faced with white terra cotta, while the side and rear walls are faced with an attractive gray colored brick. Considerable white glazed terra cotta is used for interior finish.

Active progress is being made with the preparation of plans for the new \$1,000,000 hospital building for St. John's hospital on Detroit avenue. A committee of prominent citizens is now very busy collecting the necessary funds. Architect W. S. Lougee has about completed the plans for a fire proof structure containing about 100 rooms. It is expected that the building will be proceeded with just as soon as the weather will permit next spring.

Plans have been filed for the rebuilding of a part of the Hollendon hotel in this city. Glazed brick and terra cotta will be used for the exterior walls. The building will be nine stories high, and will replace that section now facing East Sixth street. Plans for the improvement have been prepared by Architect G. F. Hammond.

One of the biggest building projects for next year which

has yet developed is a new hotel building for the site of the present Forest City House on the west side of the Public Square. The new building will probably be twelve stories high, and is expected to cost about \$1,500,000 when completed. The structure is to be erected by the Square Realty Co., in which some very prominent Cleveland capitalists are interested. The new building will be fireproof and will be of the highest type of construction throughout. It is almost certain that the exterior walls will be of terra cotta and brick.

A new theater is to be built on Woodland avenue at East Twenty-eighth street, and will be known as the Ohio theater. The building will be three stories in height, and will have an auditorium seating 1,400 people. The building has been planned by Architect N. N. Gleichman. The building is to be fire proof, and is to conform with the new state building code, which insures its safety and sanitary conditions. It is expected that the new building will be ready for use early in the new year.

The J. F. Aring Construction Co. is making a good progress with the New Glenville M. E. Church. The exterior of the building consists of gray Darlington brick, and is being furnished by The Quiesser-Bliss Co. It was planned by architects Mouer & Mills.

One of the largest brick contracts made here recently was let to the Cleveland Hydraulic Pressed Brick Co., which is to furnish facing brick for a group of buildings to be erected at Euclid avenue and Noble road by the National Electric Lamp Association. The same firm also has the contract for the furnishing of terra cotta for this entire group of buildings. The Cleveland Material Co. has closed a contract for the terra cotta to be used in the new May-Zanzerle building on Euclid avenue, opposite East Seventeenth street. A granite base is to be used with terra cotta above.

The mammoth new warehouse on West Ninth street, which has just been completed for the Wm. Edwards Company, has the brick supplied by The Quiesser-Bliss Company.

The west side of the city has been having a great number of active building operations going on during the past year.

A new apartment building is being erected on West Seventy-fifth street for C. Nelis. Plans call for four stories, eight suites, brick building. A new brick school house, costing \$45,000, is to be built for the St. Philomena's parish, at Euclid and Wellsley avenue, East Cleveland. The building will contain twelve rooms seating fifty students each. Plans for the structure have been prepared by Fountain & Maratz.

An oil well was discovered on the property of the Newburg Brick & Clay Company about a month ago and has developed into a good producing well. During the month, pumps and equipment were furnished, and the well produced during the first twelve hours it was worked a great quantity of oil. A number of other wells are being drilled in the vicinity, including one on the Metropolitan Brick Company's property a short distance away. It is believed this is only the beginning of an oil boom in the neighborhood.

W. P. Blair was one of the delegates appointed to attend the annual convention of the American Association for Highway Improvements held at Richmond, Va., during the latter part of November.

Osnaburg Brick Company, of Osnaburg, Ohio, is evidently flourishing, for during the past month it increased its capital from \$25,000 to \$35,000.

The Builders' Exchange held its annual election of officers during the past month. J. C. Skeeel was elected president, succeeding E. E. Tere; E. A. Roberts was again chosen secretary for the ensuing year. The Exchange now has four hundred members, and is in a splendid financial condition, having about \$22,000 to its credit in the bank.

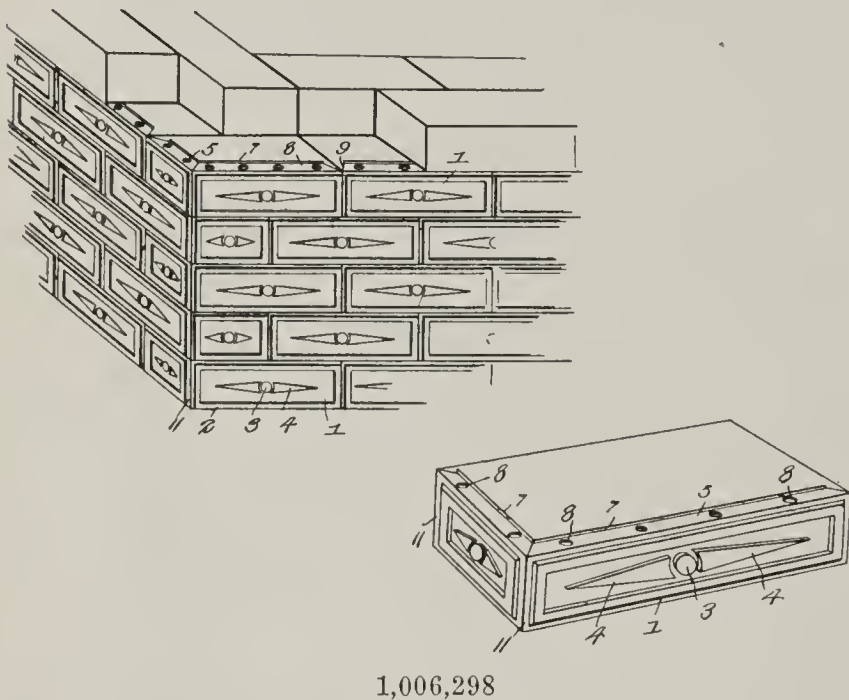
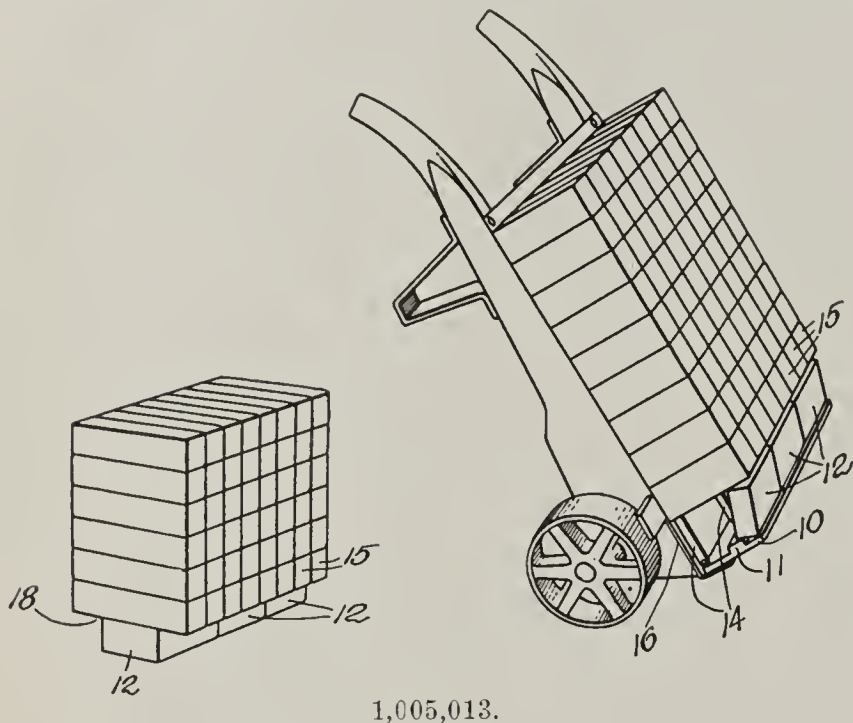
BUCKEYE.

Generally there is the most kiln waste and money waste, too, where there is the most soft brick. Avoid them all you can.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Brick-Handling Method and Pallet: William H. Francis, of Cherryvale, Kansas. 1,005,013. Patented October 3, 1911.—This improved method of handling brick consists in providing a pallet and arranging thereon a course of brick (12) set on edge, and inclined. The other bricks are then laid across and supported by the lower course and a pivoted support (14). The whole stack may now be lifted onto a truck and carried



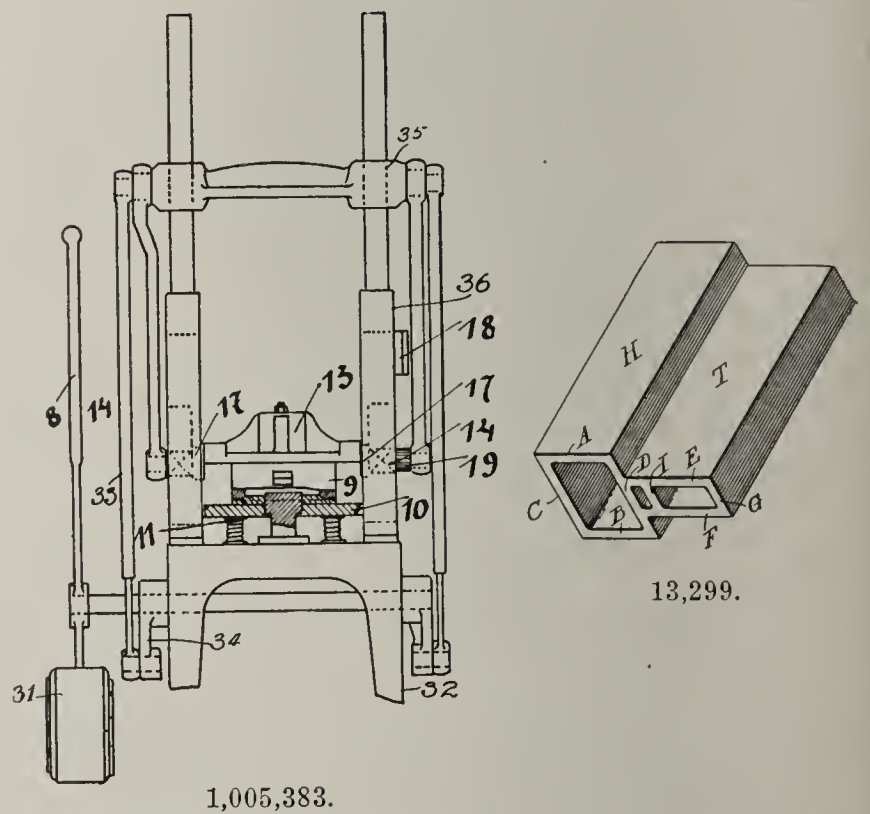
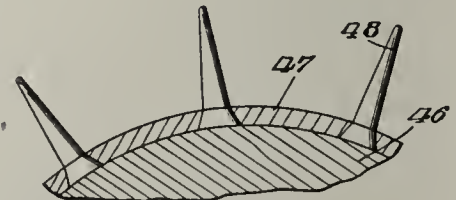
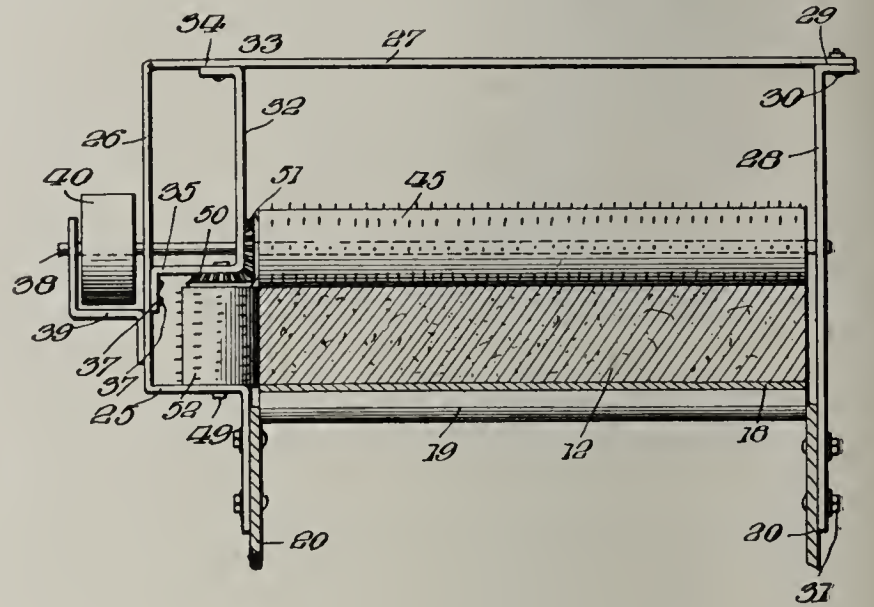
to any desired destination. It will then be obvious that by giving a slight push to the stack the bottom bricks (12) will be tilted over onto their flat side, as shown in one of the illustrations, with the courses resting upon them, free of the pallet.

Metal Facing for Bricks: Lowry Sexton, of The Dalles, Oregon. 1,006,298. Patented October 17, 1911.—This invention relates to a metallic facing for bricks, building blocks and the like, the object of the invention being to provide an ornamental metallic face for building blocks or bricks which may be slipped over the exposed side edge or end of the brick and held in position by the mortar between the surfaces of adjoining bricks.

A further object of the invention is to provide a simple, inexpensive and durable metallic facing which is adapted to be firmly bound in place by the mortar and provides for the

effective overlapping of the adjacent ends of the facings at the corners and the passage of the mortar between the surfaces of the bricks at points adjacent the abutting ends of the facing.

Marker for Brickmaking Machines: George W. Rathfon, of Brazil, Indiana. 1,004,818. Patented October 3, 1911.—This is an attachment to brickmolding machines designed for imparting to the surface of the bricks a roughened or otherwise fanciful appearance. The attachment consists of spiked rollers mounted in the frame and rotated by means of suit-



able gearing. These rollers are so locked as to engage the surfaces of the column of clay as it comes from the press.

Apparatus for Molding Automatically Ceramic Tiles with Flanged Edges for Embedment in Plaster: Andre Weill, of Brussels, Belgium. 1,005,383. Patented October 10, 1911.—The object of this invention is to provide an improved press for making tiles in such a manner that there is no burr on the front surface thereof. For a full understanding of the invention those interested should obtain a complete copy of the patent.

Building Block: William C. Denison, of Cleveland Heights, Ohio, assignor to the Ohio Clay Company, of Cleveland, Ohio, a corporation of Ohio. 13,299. Reissued October 17, 1911.—

This patent covers a hollow building block of improved design, as clearly shown in the illustration. Many advantages as to strength and convenience of laying are claimed for this block.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



HERE HAS been quite an investigation in progress during the past month before the board of public works as to the merits of concrete sewers, as compared with vitrified clay pipe. Some complaint was made about the fact that specifications were not made broad enough to include concrete as well as clay pipe when sewer work was advertised, and so the board opened up the matter and one member was asked to investigate and make report to the full board. He found that he had undertaken a big job, so reported to the board that it would be best to give a hearing to both sides of the controversy, before the entire board. This was done. At first it was expected that an afternoon would be all the time it would take, but an adjournment was taken until evening, and then to the next day, and it dragged along for several days, much interest being taken on both sides. Finally, the board agreed to make the specifications broad enough to include both kinds of bids, but that the board would reserve the right to award the contract for whichever material it considered the best, regardless of price.

There has been a considerably better demand for brick in this city of late, in fact the demand is quite good for this season of the year, but the supply continues to be so great that there is no chance of anything like a stiffening of prices. Contractors are generally getting their work in shape for the cold weather, and the fact that we have had several cold spells before Christmas, when we generally have the first one between Christmas and New Years, is taken to indicate that there is going to be a hard winter.

The plentiful supply of brick is bound to hold the price down for some time to come, and it is hardly expected that there will be anything like good prices realized for brick before the spring rush of building begins.

Brick men seem to generally believe that the coming year will be up to the average in the matter of building in this city, and possibly ahead of the average, as politics will hardly cut much figure with us out here away from the big factories which would be affected by tariff changes, and conditions in the surrounding country have been good. The new union depot, which is now under course of construction, is bound to have a stimulating effect on general building here, and especially in the immediate neighborhood of the depot. The piers are being rapidly completed, and it is now planned to put up the main waiting room and place it under roof before the main part of the building is begun. The steel is on the ground and is to be placed in position within the next month.

The Kansas City Hydraulic Press Brick Company has been cutting down expenses greatly during the past month. Its yards have been closed, one yard is being dismantled and the Diamond yard is out of commission until a shaft is dug to the lower level of shale, so nothing will be done there in the way of making brick until next spring. There has been some talk that the Kansas City plants would be allowed to remain closed, and this office would be merely turned into a sales office, and the cutting down of the force in the office, as it has been cut in the last month, would indicate that some such move was contemplated.

The Fidelity Material Company has opened offices in suite 413 Keith & Perry building, and will do a brick jobbing and general material supply business. Theo. C. Jacoby, who has been with the Hydraulic Press Brick Company in various capacities for years, and has for some time had charge of the

paving brick and of the Kansas City sales force, is manager of this new company, and Frank Clyatt, who has had charge of the sales of building brick for the same company for a considerable period, is secretary. As both these men are in thorough touch with the brick business, and have a long list of warm personal friends among the contractors in both the building and paving lines, they should be able to book a good big business right from the start.

The gas experts who have been investigating the Kansas and Oklahoma fields have reported that this city will not be able to get natural gas over about four more years provided the sale of this product to manufacturing plants is continued, and that the supply would only last seven years if confined to the small consumers. This would indicate that even the best located plants will not be able to use gas as fuel for a very long period of time, and that some other fuel must be adopted shortly. A good many of the Kansas plants are closed down, and a considerable percentage of them are to try oil as a fuel when they open up again. They believe it is a cheaper fuel to use than coal, but as they can only get gas at certain times they are becoming tired of it as a fuel. Some plants are in control of their own gas supply, and these should reap a large profit in the future, if they maintain prices as good as the plants using a more expensive fuel. There is no reason why they should not do this, as they should profit from the fact that they are keeping a supply of cheap fuel on hands.

K. A. W.

A CORRECTION.

Frost Dry Pans Not Built for Santa Claus.

In referring to some recent sales of Frost Dry Pans in the November Clay-Worker, the intelligent(?) compositor made a provoking though amusing error, giving the dimensions of the pans in inches instead of feet. Mayhap he was full of thoughts of Christmas, or something, and thought the pans were a special lot ordered by Santa Claus for the stockings of good clayworkers. As our readers may see by turning to the ad of the Frost Engine Company on page 739 of this issue, there is nothing diminutive about their pans. On the contrary, they are large capacity crushers built for heavy service. That they meet every requirement is attested by their use at the plants of the Purington Paving Brick Company, Galesburg, where, by the way, there are sixteen of them in operation the year around.

THE 1910 CEMENT PRODUCTION.

A preliminary report of the United States Geological Survey on the cement industry for 1910 shows an increase of a little more than 11,500,000 barrels over the production in 1909. The total cement production for 1910 was 76,549,951 barrels, with a total value at point of production of \$68,205,800. This is a little better price than was paid for Portland cement in 1909, but the price is too low yet for comfort except in thoroughly equipped and properly financed institutions. The cement industry has now reached the point where it produces really more than is needed for the country. In other words, our own manufacturers exported considerably more cement than was imported last year. The imports, which were at one time our main source of supply for Portland cement, were last year only 308,683 barrels and our exports for the same period were 2,475,957. Back in 1905, when there was a big increase in the cement production, it jumped from less than ten million barrels to over thirty-five million barrels and the price went down below the dollar mark for the first time. It went down then to 94 cents on the average and kept going down until it reached the low water mark of 81 cents per barrel at the mill in 1909. It has come up a little since, the average price in 1910 being 89 cents.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Louisiana Brickmaker Has a Prosperous Season.

Editor CLAY-WORKER:

Enclosed find \$2.00, covering my subscription for another year. Business was very good here in Louisiana the past summer; and this winter I cannot begin to fill my orders.

GEORGE MILLHOLLAND.

Valuable Reading in The Clay-Worker.

Editor CLAY-WORKER:

You may send us THE CLAY-WORKER and the pocket kit for which I have enclosed \$2.50. I don't want to miss a single number of THE CLAY-WORKER, for I find valuable reading in it each month.

Yours very truly,

M. J. LEE BRICK AND TILE COMPANY.

Canadian Brickmaker "Lost" Without The Clay-Worker.

Editor CLAY-WORKER:

You will perhaps be pleased to know that I am now vice-president and general manager of a new concern known as the Dominion Shale Brick Company. Our plant is located at Nanaïmo, B. C. At first we will only make shale press brick, but later on expect to install sewer pipe machinery. Be sure to get my change of address, for I feel I have lost something if I do not get THE CLAY-WORKER each month.

L. D. MORRIS.

Credit to Whom Credit is Due.

EDITOR CLAY-WORKER:

In looking over the complimentary article in your November issue, I find a statement regarding the organization of the Southern Sewer Pipe Company that may be misleading as to the part I took in same. The organizer and promoter of this company was Mr. Lewis S. Russell, and to him belongs whatever glory comes from same, though I co-operated with him in selecting a site and furnished the shale for the first operations of this company. Mr. Russell afterwards sold out his interests at the same time with Mr. Menge, and he has since recently designed and built a large plant for the Bibb Sewer Pipe Company, of Macon, Ga.

Trusting you will publish this correction in your next issue, I am,

Yours very truly,

JOHN W. SIBLEY.

Greater Birmingham, Ala., Nov. 27, 1911.

No Cause for Complaint.

Editor CLAY-WORKER:

Replying to your favor of the 23rd ult., we are pleased to say that we certainly are elated over the results of our past year's business—the largest in our history.

We have noticed a general tone of complaint in a good many lines of business, but must say that we have no reason for joining the cry.

We have enjoyed an unusually large demand for screens and feeders this year, as well as brick rattlers and elevator equipment, to say nothing of draft gauges, thermometers, pyrometers and other miscellaneous equipment. The ship-

ment of this material has not been confined to any particular area, but has covered almost the entire country.

Just at this writing we are crating two of our largest (30"x8' 0") piano wire screens and one of our disc feeders, for a shipment to the Oakland Paving Brick Company, at Oakland, Cal., just across the bay from San Francisco.

We see no sound reason why there should be any decrease in demand, and we are laying plans for a much larger business for 1912.

Very truly yours,

THE CERAMIC SUPPLY AND CONSTRUCTION COMPANY.

Columbus, Ohio, December 1, 1911.

A Ten Per Cent. Gain for J. D. Fate Company.

Editor CLAY-WORKER:

We are in receipt of your favor of the 23rd inst., asking us if we have read the analysis of the Government Statistical Report on page 529 of the November CLAY-WORKER.

In reply would say that we have looked over this, and think very well of the report; and we would also say that we are very well satisfied with the business we had during 1911.

Our business this year will have increased over 1910 about ten per cent., therefore we have no kick coming whatever; and the outlook for 1912 is a great deal better than was 1911 at this time last year. We have a great many fine prospects, and no doubt we will be able to get our share of them. Of course, we cannot expect to get all of the business from all inquiries, although we are satisfied if we can get our share of it.

November is usually a dull month in this line, but with us this year such has not been the case, for we have received an order for a large Premier machine for hollow ware, a full line of automatic cutting tables, etc., to go to The Pacific Face Brick Company, of Portland, Ore.; a Hummer outfit for brick and tile, from Victoria, B. C.; a Hummer outfit for tile and brick, for the Harvel Tile and Cement Company, of Harvel, Ill.; a "D" outfit with vertical attachment for large tile up to 20 inches, for St. Henrys, Ohio; a "D" outfit with cutting tables for both brick and tile, dry pan, etc., for The Craig Colony for Epliptics, Sonyea, N. Y.; an Imperial outfit for The Koalin and Clay Products Company, Martha's Vineyard, Mass.; a special automatic table, for The Canton Roofing Tile Company, for cutting floor tile, roofing tile and promenade tile. We are just now shipping a complete outfit of Imperial machine, cutting tables, dry pan and all necessary equipment for the new plant of The Mansfield Clay Products Company, Mansfield, Ohio. This also included an extra double-shaft pug mill. We recently have furnished two more double-shaft pug mills for The National Fire-Proofing Company's Hobart, Ind., plant, which makes four in their one plant. Besides the above, we have a number of small orders for cutting tables, crushers, disintegrators, etc. So you see that we cannot complain.

Trusting that business will continue as it has so far, we are,

Very truly yours,

THE J. D. FATE COMPANY.

Plymouth, Ohio.

Per H. H. Fate.

Making Hollow Block in South Dakota.

Editor CLAY-WORKER:

You may be interested to know that the Rapid City Brick and Tile Company, heretofore makers of common brick only, is now turning out a superior hollow clay building block, the first made in the State of South Dakota, and for which there has been a steady demand during the past season. We have furnished these building tile for several large buildings in this vicinity; and the comments have been most favorable.

During the past season the company has also been turning out drain tile in sizes from three to eight inches, with a capacity of 15,000 four-inch and 6,000 eight-inch tile a day.

The power plant is 100 horsepower steam, the exhaust be-

ing used to dry brick and tile, and then to the hot-well, to be used for boiler feed. In the summer we make use of atmospheric drying, as well as the waste heat from the kilns during the entire year. The clay shed, 60 feet in length, is equipped with a conveyor, making it not only possible, but easy, for one man to feed clay for 40,000 brick in one day of ten hours. Of kilns we have three Holman down draft, giving us a capacity of three and one-half million brick a year.

Our clay is red and burns buff or salmon color, certain mixtures giving a clear cream.

We find it to our advantage to handle all clay, brick and tile by piece work, excepting manufacturing.

Looking forward with pleasure to the receipt of the CLAY-WORKER, we are,

Yours very respectfully,
RAPID CITY BRICK AND TILE COMPANY.

Arbuckle & Co. Running Full Force.

Editor CLAY-WORKER:

We have your favor of the 23rd asking for our idea of the situation in the brick and tile trade. In this connection will say that the present year has been one of the best we

castings are to be shipped to them shortly. We filled an order for our tile machine and pug mill for the Winnebago Drain Tile Company, of Winnebago, Minn.; shipped a complete outfit to the Lebanon Brick and Tile Company, at Lebanon, Ky., and a four-shaft feeder, a ten-foot pugmill, pulleys, shafting, etc., to the Underhill Brick and Tile Company, of Rockport, Ind.

We have had a very heavy demand for our feeders, and in fact a satisfactory demand for most of our products. We have had a full force of men working right through the year and have been extremely busy. So you see we can't complain.

Very truly yours,
ARBUCKLE & Co.

Rushville, Ind.

Past Year Has Been Best in His 24 Years' Experience.
Friend Randall:

I am taking time to write you a letter giving you an idea of what I have been doing since I last saw you in Louisville, Ky. To begin with, this has been the best year in all of my twenty-four years experience as a kiln builder, and I must say that THE CLAY-WORKER deserves a great deal of credit



Two Dennis Kilns on C. A. Stuck & Son's Plant, Jonesboro, Ark.

have ever experienced, as the volume of our sales will run a little higher than last year, and we considered last year a pretty good year. The tile trade has been a little dull in all parts of the country, due to continued dry weather, and other causes, but from present indications it will be much better next year. The brick trade has been good, however, and from the inquiries we have at present we think that next year will be an exceptionally good one.

During the past two weeks we have shipped several good orders of machinery. Two carloads, including one granulator, one pug mill, one heavy duty disintegrator, one special heavy duty smooth roll crusher, a winding drum and two 2-yard steel clay cars were shipped to the Reliance Brick and Tile Company, of Belleplain, Iowa. An order for a 6 D brick and tile machine, one automatic tile cutter cutting up to eight-inch tile, one automatic tile cutter cutting from eight to twelve-inch tile, and one automatic side-cut brick table had been shipped to this same firm a short time previous. Two complete outfits of machinery and two carloads of castings for kilns and dryer were sold the Barr Clay Products Company, of Wanamingo, Minn.; two carloads more of

for my success, for it is the only journal that I have advertised in and it has brought me good results.

I am sending you a picture of the two kilns I built at Jonesboro, Ark., for C. A. Stuck & Sons. One is a single-arch kiln of 250,000 capacity and the other is a double-arch kiln with nine fire boxes on each side, the capacity of this kiln being 450,000.

I have built two kilns for John B. Prullage, at Vincennes, Ind., since I left Jonesboro, and have just returned home from Goldsboro, N. C., where I recently built and burned one of my double-chamber down-draft kilns for the Borden Brick and Tile Company. The first burn on this kiln was all hard and red brick from top to bottom, so that it was pronounced the best kiln of brick ever burned in the State of North Carolina by all the brick men that saw it. The kiln made such an impression that I got orders for four more kilns to be built on four other yards in other places. This double-chamber kiln holds 310,000 brick.

I am to go back to Goldsboro soon to erect another kiln for them. Their plant is a new one, and has been most successful from the very start. Mr. Chas. A. Lano, of Salis-

bury, Md., built their plant, and as he is one of the best brickmakers and burners in the country, they had a sure thing. He is with them now and has turned out over two million brick since June, all of which have been A No. 1 bricks. The chief trouble they have is that they can't turn out enough brick to supply the demand. They will open up another kiln next week, but they have got over a million brick sold ahead. This is certainly good for a new plant. They use all of J. C. Steele & Sons machinery except a Fate clay feeder. They can make 50,000 brick a day.

I wrote the C. A. Stuck & Sons the other day, asking them which of the two kilns I built for them in Jonesboro, Ark., they liked the better. I wanted to know if they considered the double-chamber kiln better than the single-arch kiln. Here is the reply I received:

F. W. Dennis, Norfolk, Va.:

Dear Sir—Replying to yours of the 10th inst., asking about the two kilns that you built for us last spring, will say that it is difficult for me to say which one is the better. We burn all of the brick hard from top to bottom in both kilns; the

Expects 1912 To Be Banner Year.

Editor Clay-Worker:

Answering your valued favor of recent date, we are pleased to say that business looks decidedly better than it has for several years past. We are receiving more good genuine inquiries than we have at any time since the slump in 1907, and have lately made several shipments not only to points in the United States, but to Canada and other countries. We look forward to 1912 as the banner year in our business.

You will probably be interested to know that our president, Mr. O. W. Dunlap, has disposed of his interest in the Bloomington Pressed Brick Company, so that he is now able to devote more attention to the manufacture and selling of the "Perfect" clay screen.

Bloomington, Ill.

Very truly yours,

The Dunlap Mfg. Co.

Mathews Brick Carrier Coming Into More General Use.

T. A. Randall & Co.:

Gentlemen—Answering your inquiry as to how the situation looks to us and a comparison of this year's business with



Unloading a Kiln of Brick with Mathews Gravity Carrier System.

double kiln is dandier in some ways, but takes a little longer to burn than the other, as the single-arch kiln is not so wide. The only advantage the double-chamber kiln has over the single-arch is the capacity. As soon as the kiln is opened we can empty one side and can fill this side while the other side is being emptied; this gives us the chance to have the kiln half set with green brick by the time the burned brick are taken out, but your single-arch kiln can't be beat for burning brick, for I know that we did not get 300 salmon brick out of that kiln in the last three times that it has been fired.

Yours very truly,

WALTER ESQUE,

Manager and Burner for C. A. Stuck & Sons.

This shows, Mr. Randall, that I have been pretty successful, and I give your paper full credit for the excellent returns I have received from my ad. This man Esque used three of my kilns at Mt. Vernon, Ind., for over four years. They were all double-arch kilns. He made good burns in them all of the time. This was for the Industrial Brick Company, of Mt. Vernon.

Norfolk, Va.

Very respectfully,

F. W. DENNIS.

last, will say that we do not know that we have anything in particular to write for publication.

You no doubt realize the fact that our conveying devices which we sell to brickmakers are so different from the old established methods in vogue on clay plants, that it has been somewhat difficult to introduce them, but we are glad to say we have succeeded in doing so in many instances, and feel quite confident that as brick manufacturers in general become better informed as to the advantages which our system affords as a labor-saving and hence a money-making proposition that ultimately our Gravity Carrier will become a part of the equipment of every up-to-date brick and tile plant. We are glad to say our sales have steadily increased from year to year. This year's sales are greater by 25 per cent. than the preceding year. This is progress in the right direction, so we are sanguine of still a better season in 1912.

In the last thirty or thirty-five days we have made sales to the following brickmakers:

Savannah Brick Works, Savannah, Georgia.

Buckeye Eng. Co., Chicago Junction, Ohio.

W. M. Pattison Supply Co., Cleveland, Ohio.

A. F. Wendling, Massillon, Ohio.

W. M. Pattison Supply Co., Cleveland, Ohio.
 John Wilson, Alliance, Ohio.
 Manistee Brick Company, Manistee, Mich.
 W. M. Pattison Supply Co., Cleveland, Ohio.
 Kansas Buff Brick & Mfg. Co., Buffville, Kansas.
 Constantine Construction Co., Buffalo, N. Y.
 The Hinde Brick & Tile Co., Sandusky, Ohio.
 Pittsburgh Steel Co., Monessen, Pa.
 Reynoldsville Brick & Tile Co., Reynoldsville, Pa.
 Cliffwood Brick Company, Cliffwood, New Jersey.
 American Equipment Company, Bucyrus, Ohio.
 Illinois Terra Cotta Lumber Co., Chicago, Ill.
 Stamford Mason Supply Co., Stamford, Conn.
 Cleveland Vitrified Brick Co., Oklahoma City, Okla.
 Penna Tile & Construction Co., Boston, Mass.
 Kansas Buff Brick & Mfg. Co., Buffville, Kansas.
 Paterson Clay Products Co., Clearfield, Pa.

We are sending you a photograph showing the carrier in operation.

Very truly yours,
 St. Paul, Minn. MATHEWS GRAVITY CARRIER CO.

No Foundation For Report Circulated.

T. A. Randall & Co.,

Gentlemen—We are in receipt of a letter from a prospective customer at Detroit, stating that some unscrupulous competitor has reported in that city, that we are going out of the manufacture of brick making machinery and appliances. We wish to deny this most emphatically, and to say that we expect to be manufacturing this class of machinery long after such competitors are in the bone yard. They surely must be in a bad way for business when it becomes necessary to use such underhand methods to obtain it.

We have at all times gotten a fair share of the Sand Mould business, don't expect to get it all, and by the same means used heretofore, (namely, "fair and honest treatment of our customers, giving full value for money received," there is no reason for us quitting the business.

The outlook for the coming year is bright, and we wish to notify the trade in general, that we will be in position to furnish Potts machinery and supplies promptly as heretofore.

Yours truly,

Indianapolis, Ind. C. A. POTTS & CO.

Business for 1911 Fairly Satisfactory.

Editor of CLAY-WORKER:

We are much pleased to see somewhat of the old line matter in the November issue of the Clay-Worker. It seems as if some people can "come back," when we read of "D. V." taking hold at Galesburg again in an active way.

You ask us as to business the past season, and would say that business has been rather erratic with us during the past season, but taking it all in all, it has been fairly satisfactory. Rather think we have had our share of what business there was to be had. Our shop enlargement and new equipment completed in the spring was of decided advantage and enabled us to handle some work that we could not have cared for otherwise. The possibilities of our No. 5 side cutter have been developed and it is now doing splendid work on fire brick and large sections of furnace block work. We are now building a new measuring and feeding machine for feeding measured quantities of different ingredients. The machine may be made to handle from one to four different ingredients in any specified proportion, and is equipped with a variable speed drive so easily controlled that the quantity of material delivered can be regulated at will. We anticipate having a photographic illustration of this machine ready for the January issue.

Yours very truly,

CHAMBERS BROTHERS CO.

Philadelphia, Pa.

J. H. Chambers, Pres.

Written for THE CLAY-WORKER.

NEW JERSEY'S CLAY INDUSTRY.

ACCORDING to figures just given out, New Jersey still leads in the production and sale of raw clay and ranks third in the value of its manufactured clay products. In 1909 New Jersey ranked first in the production of fire-proofing, second in architectural terra cotta, second in tile, fourth in fire brick and fourth in common brick. It is second in the total output of pottery, being exceeded by Ohio alone. In 1909 it was first in china delft and Belleck ware, some sixty-one per cent of the whole; first in sanitary ware, with seventy-two per cent of the whole, and second in porcelain electrical supplies.

The total value of clay products in 1910, exclusive of raw clay, was \$17,834,297, compared with \$17,172,094 in 1909, an increase of 2.6 per cent.

The most valuable clays of New Jersey, including the fine grades of fire clay, paper clay, ball clay, and similar grades, are in what is called the Raritan formation. There is a broad belt of these grades extending across the state from Raritan bay to Trenton and Bordentown. A much narrower belt, but of equally good quality, extends along the Delaware river to Salem county. Unfortunately, a considerable proportion of this latter area is covered with sand of such a depth that in many localities profitable operations are impossible. The most extensive development of clay mining is in the district of which Woodbridge and South Amboy are the principal centers. A larger percentage of the more valuable clays are dug in this vicinity, while smaller quantities are mined in Burlington, Mercer and Camden counties. Clay for common brick is mined in numerous localities throughout the state, while clay suitable for high grade pressed brick is mined at several points in Monmouth, Ocean and Burlington counties.

In 1909 New Jersey reported about nineteen per cent of the clay produced sold in a raw state and about twenty per cent of its total value. The production that year was 410,103 short tons, valued at \$694,566. Of this about seventy-eight per cent was fire clay, which aggregated nearly eighty per cent of the total value. In 1910 the raw clay amounted to 405,591 short tons, valued at \$657,805. The various kinds of clay mined, the tonnage and value, are shown in the sub-joined table:

	No. of Producers.	Amount in short tons.	Value.	Average per ton.
Ball clay	3	2,896	\$ 17,376	\$6.00
Fire clay, including				
sagger clay	30	286,854	468,890	1.63
Stoneware clay	8	21,099	45,171	2.14
Brick clay	8	30,645	28,683	.93
Miscellaneous	14	64,097	97,685	1.52
	63	405,591	\$657,805	\$1.62

There was a good increase in the pottery industry. The total production of all pottery ware in 1910 was valued at \$8,588,455, compared with \$7,791,136 in 1909, an increase of 10.23 per cent. Fifty-nine firms reported production. The following table gives the statistics for 1910 and 1909 for purposes of comparison:

	1910.	1909.
Red earthen ware.....	\$ 36,549	36,573
Stoneware, yellow and Rockingham ware	55,734	66,293
White ware, including C. C. ware, white granite, semi-porcelain and semi-vitreous porcelain	1,345,156	1,242,361
China, bone china, delft and Belleck	1,131,412	1,082,398
Sanitary ware	4,955,066	4,341,040
Porcelain electrical supplies.....	874,013	823,056
Miscellaneous	200,545	199,415
Total value.....	\$8,588,455	\$7,791,136

Trenton, which ranks first in the pottery centers of the United States, reported a number of new firms established

and producing. Trenton manufactures ninety-three per cent of the pottery products of the state. It was a trifle over twenty-three per cent of the total product of the entire country in 1910.

An inexhaustible supply of suitable raw material and proximity to large centers of population, which require large structural operations, have combined to make brick manufacturing a thriving industry in New Jersey for more than fifty years. Indeed, for nearly two hundred years brick has been made in greater or less quantities. The value of common brick produced is twice that of any other variety. Fire brick aggregate a little less than half the value of common brick, while front and enameled brick are next in order of succession. Architectural terra cotta is a large and growing item in this important industry. In 1909 New Jersey almost equaled Illinois in the production of this material. Fireproofing is another important division of the clay industry. New Jersey, as has heretofore been said, ranks first among the states in this. The following table will give the principal facts in this class of production:

	No. Plants.	No. of M.	Value.	Value per M.
Common brick	67	401,103	\$2,215,628	\$5.55
Front brick	9	47,651	609,845	12.80
Fancy brick	2	.....	246,257	.....
Enameled brick	2			
Fire brick	13	38,349	1,001,063	25.96
Total value of brick			\$4,072,793	
	No. Plants.	No. of M.	Value.	Value per M.
Drain tile	7		\$ 23,147	
Architect'l terra cotta.	5		2,000,039	
Fireproofing and hol-				
low blocks	9		1,582,101	
Tile (not drain)	9		1,199,113	
Miscellaneous	6		368,661	
Total all products			\$9,245,854	

In 1910 there was a slight reduction in all kinds, excepting fire brick, which showed an increase. There was a decrease in the production of drain tile. The production of architectural terra cotta and fireproofing showed an increase over the previous year.

PROMINENT YOUNG PEOPLE WED.

We were pleased recently to receive cards announcing the marriage of Marion W. Blair, formerly of Terre Haute, Ind., to Miss Grace Foulston, at Cleveland, Ohio, Wednesday, November 29. Both of these young people enjoy a wide acquaintance among the brickmakers of the country, Mr. Blair on account of his services as an expert in the line of building new brick plants and rebuilding old ones, and Mrs. Blair through her office as secretary to Mr. Will P. Blair, secretary of the National Paving Brick Manufacturers' Association ever since the formation of that organization. Mr. and Mrs. Blair will be at home after January first at Kushequa, Pa.

THEY ALL WANT BRICK.

The brick situation in and about New York has been helped materially recently by the attitude of labor unions, Mayor Gaynor and other men of commanding influence, all of whom have done their utmost to secure the selection of brick wherever it is possible to use it in structural work. The labor unions contend that the use of brick instead of cement involves the employment of skilled labor, since only thoroughly trained men can lay brick, while unskilled laborers can pour cement into molds. All these forces are now at work endeavoring to have brick specified for use in all the new school houses, all the new fire houses, in the subways, and wherever else construction of any importance is under contemplation they want brick used in place of cement.

It will be recognized that a combination of this character

necessarily exerts an influence difficult to overcome. The result is that the cause of brick in New York and vicinity is daily improving. Indeed, there has not been a time during the past three or four years when every interest was exerting its influence to help in the specification of brick in structural operations as they are today. It can not but be beneficial to the industry.

One of the principal reasons for this attitude is the publicity campaign undertaken and carried out by the Greater New York Brick Company. There was never a more striking confirmation of what has been said over and over again about the value of advertising brick. The result has been so beneficial in this vicinity that it should encourage others elsewhere to undertake the same character of advertising.

HEARD IN NEW ENGLAND.



DEMAND FOR BRICK throughout New England has been very good so far this fall. Prices have varied from \$5.25 to \$5.50 per thousand, but many makers believe that business conditions warrant a price of at least \$6.00, and some would be glad to see them go twenty-five or fifty cents higher than that. There is a good demand for light hards in Boston and at times the supply has been somewhat short. Hollow brick are bringing \$7.00 at the yard with a fair market. Other varieties are held steady at previous range of quotations. The cold weather of the last week or two has reduced the demand by causing a cessation of building operations in the more northern sections. All of the northern plants are now shut down and in winter quarters. It is too early to give statistics of production, but it is believed that as many have been made this year as heretofore, with probably some increase at a few of the plants. The growing scarcity of lumber makes it necessary to find a suitable substitute to be used in building operations. So far, builders have found nothing which suits them better than brick, and the quantity used increases from month to month. If the New England manufacturers could see their way clear to form some sort of a selling organization to assist them in holding up prices, there is no question about their being able to obtain more than \$6.00 for common brick. The matter is being seriously agitated and something may develop before the next manufacturing season opens.

The New England Steam Brick Company, at Barrington, R. I., has resumed the shipping of brick, a settlement having been agreed upon with the employes who placed attachments on the property for wages alleged to be due. Mr. Marsden is superintendent of the plant.

The new swimming pool at the Y. M. C. A. at Taunton, Mass., is lined with white enameled brick, also the new lavatories and improved shower baths. Enameled brick seems to be the proper and fitting material for the lining of public bath rooms, swimming pools, etc.

A fire at the plant of the Stiles & Reynolds Co., Berlin, Conn., on October 31, caused a loss estimated at several thousand dollars. The fire is believed to have been caused by defective wiring. The engine house, containing a valuable dynamo, which furnished power for running the plant, was ruined.

The Stiles & Son Brick Co., of North Haven, Conn., has purchased forty-six acres of standing timber, from which wood will be cut for use in burning brick at their plant.

Thomas Lacey, general manager and treasurer of the New England Brick Company, with headquarters at Boston, has adopted coal instead of wood for burning brick.

R. O. Clarke, of East Berlin, Conn., has been elected trustee of the bankrupt estate of the New Britain Brick Company, New Britain.

Plans for brick building include an eight-story hotel in Haverhill, Mass., three buildings for the Eastern Gas Company in Portland, Me., eleven-story mercantile building in Boston, together with many public and society buildings.

HIRAM.

Written for THE CLAY-WORKER.

The Evolution of Santa Claus

Time was when Old Santa Claus
came in a sled—
Great-Grandfather Claus, I mean,
long ago dead,
With reindeer caparisoned gaily, and
rode
Right up on the house-top, with all
his big load;
Then slyly he'd take an assorted big
pack,
And fasten it squarely upon his
strong back
And step in the open-mouthed chim-
ney—presto!
Before you could wink, he was safely
below.

He'd look at the children asleep in
their bed,
And count one big stocking for
every small head,
Then open his pack, full of all kinds
of toys,
Each made by his own hands, for
girls and for boys.
He'd fill every stocking, with gener-
ous care,
Then spring up the chimney, and out
in the air,
And over the housetops his reindeer
would go,
So silent and glad, through the night
and the snow.

But Santa Claus, Jr., with far-seeing
eyes,
Was not an old foggy—oh, no! he was
wise,
And very progressive. He owned
the first "wheel,"
And also the very first automobile;
He turned loose the reindeer to play
in the snow,
And go just wherever they wanted
to go;
He bought great machines, too, to
make all his toys,
Which he brought in his car, to the
girls and the boys.

And then people closed up the old
fireplace,
Because it looked lonesome, and
didn't keep pace
With new-fangled things, and the
children no more
Could watch for "Old Santa," as
they did before.
For never again did he come in to
see
If children and stockings exactly
agree;
But sent by his chauffeur a gift for
each one—
Quite up-to-date, thank you, and
then he was done.

And now Mr. Santa The Third rules
the day,
In marvelous, 20th century way.
Not like the old woman that lived in
a shoe—
He has lots of children, but knows
what to do.
His house is The Great Wireless
Central, from where
He keeps right in touch, through the
answering air,
With everything where, in one hour,
he learns more
Than all the Old Santa Claus men
knew before.

No automobile for him—no sir-ee!
For Master of Space and the Air-
World, is he.
He sits at his Wireless, and talks at
his ease,
And sails in his downy Air Ship, if
you please.
He sees all the children, and knows
where they live,
And finds just what everyone wants
him to give.
In spite of his progress, his heart is
the same—
His love and his mission—oh bless
his dear name!
—Margaret Andrews Oldham.

A NEW TYPE OF REVOLVING STEAM SHOVEL.

THE MARION STEAM Shovel Company, of Marion, Ohio, that satisfactorily meets the requirements of stripping has evolved a new type of revolving steam shovels over-burden, whether this be from coal, iron ore, stone quarries, phosphate rock or other material of a similar nature. These shovels are exceedingly powerful, carefully designed to successfully withstand the severe shocks and strains incident to the strenuous conditions under which they must operate. They are equipped with extra long booms for stripping wide cuts and dumping the excavated material at a sufficient height and distance to permit the mining of the uncovered material without a part of this being under the spoil bank. By a single operation, these shovels take the over-burden from the bank on one side and deposit it far enough over on the other to eliminate the extra expense of rehandling necessary by other methods, where the excavated material is first loaded into carts, cars or skips—as the case may be—and hauled away by horses, engines or cableways. But one crew is required for the complete operation, that for the shovel itself.

When opening up a new field these shovels are capable of

ducer in stripping over-burden, because wherever installed it has reduced the expense of this work by more than one-half.

Among the principal reasons for the wonderful success achieved by this shovel is that the truck frame is fitted with patented hydraulic equalizers or leveling devices, which gives it all the flexibility of a three-point suspension. After this shovel is moved up and ready for operation, by a single manipulation of the valves it can be locked up so as to be absolutely rigid, thus producing an equal bearing at each of the four corners of the trucks. This permits the shovel to be moved over and operated on uneven tracks without the least twist or torsional strain on the frame, occasioned by unequal distribution of weights.

For more complete information write the Marion Steam Shovel Company for their latest circular, which is most interesting.

CHRISTMAS FIRE DANGERS.

The season is approaching when scores of lives are annually lost and hundreds of fires are started by carelessness in Christmas and holiday decorations. In addition to the fires and panics in crowded stores, due to careless wiring of



The Marion Steam Shovel Company's Revolving Shovel at Work in Shale Bank.

digging a thorough-cut and depositing the excavated over-burden all on one side within the limits of their reach. After the thorough-cut is well started the uncovered material can be removed, so that when the shovel completes the one cut it can return on another, this time depositing the over-burden in the open pit or excavated space where the coal, for instance, has been taken out. This will permit a wider cut to be made the second time, on account of there being more room, and as the machine revolves in a complete circle the only necessity, in working back and forth against the face of the over-burden, is to shift the track for it to work on when returning. It is desirable, however, to take out the material proper immediately following the shovel as it advances, so that no time is lost or delay occasioned at the end of a cut.

Another superior feature of these special shovels over the ordinary type of excavator is that they will handle over-burden of a far greater depth and width of face. They are simple in design and easily controlled. Their entire upkeep and operating expense is surprisingly small, which makes it possible now to handle at a splendid profit many stripping propositions hitherto considered unworthy of development.

This shovel has become widely known as a great cost re-

special displays or the catching fire of inflammable decorations, thousands of dangerous risks are run in homes, churches and Sunday-schools. Wherever possible, electric lights should be used instead of candles on Christmas trees, and the wiring should be carefully done. If this is not possible, the greatest precaution should be taken to see that the trees are firmly installed and well braced, so that they may not be overturned when presents are being taken down or by the over-enthusiasm of the children. Under no circumstances should cotton batting be used by amateur Santa Clauses for hair and whiskers, as non-inflammable substitutes can easily be had, and the risk of serious or fatal burning is excessive. If candles are used, children should not be allowed to light them while their parents are not present, as they often set fire to their clothing. Special care should be taken not to leave matches lying about, as they are specially dangerous at Christmas time. The holidays, of all periods of the year, should be freed from the danger of terrible calamities, which is always present unless reasonable precautions are taken in the matter of holiday decorations and festivities.

The great trouble with the man who knows he is a good talker is that he is so often such a mighty poor quitter.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



BUFFALO IS, at present, experiencing a building boom along the lines of public structures. Two skyscrapers, one theater and an eight-story building are now under way. This is the fitting close of a busy year. Now, at the close of 1911, there are more towering office buildings going up than at any time within the memory of employes of the bureau of buildings. Underway are two structures that will overtop anything yet erected in the city. The Buffalo General Electric Company's new steel frame skyscraper, at Washington and Huron streets, is about one story above ground. It will be seventeen stories high, and with its tower, will be the tallest structure in the city. It will cost \$421,000.

Foundations for the new office building of the Bell Telephone interests have been started at the southeast corner of Church and Franklin streets. This building will be fifteen stories high and will cost \$600,000. Some of the floors will be rented for offices; others will be occupied by the company.

Across the street, on the northeast corner of Church and Franklin streets, ground is being cleared for the new eight-story building that the allied natural gas companies will erect. It is to be an office building and will cost about \$250,000.

The building boom in Buffalo has been stimulated by the opening of the Elmwood extension car line. While Elmwood avenue has always been the recognized residential section of the city, the opening of the car line has increased the value of property in entirely new sections, and brick buildings, brick apartment houses and large brick stores are going up on Morgan street, Chippewa street, Johnson Park and near the water front.

Tile forms the principal feature in the plans for the new building which will be erected by the J. N. Adams Company on the corner of Eagle and Washington streets. Work on the new store will begin in May. The cost will be \$200,000, and Esenwein & Johnson are the architects. While the plans are not wholly decided upon, it is expected that the height will be fifteen stories.

The masonry work on the reconstructed arsenal on Broadway will be awarded to William F. Felton, as he was the lowest among the Buffalo bidders. The plans will be reported on by the common council at an early date. Out of twenty building permits of one week, which totaled \$60,000, over a third of them are for brick structures.

Workmen have for a long time been busy on the building at Genesee street and East Parade avenue. This is the new police station, No. 12. There is no more imposing station house in the city, and it has improvements that make it a model. The new house is of dark red brick, two stories high, with a square front and large windows that give it the appearance of a bungalow. Only the barred windows at the rear give a hint as to the real purpose for which the house was built. The building is absolutely fireproof and a model in sanitation. The interior is finished in oak. The walls are white and the floors of concrete. It is lighted with electricity. In the front room is a desk where the prisoners tell their histories. The captain's room adjoins it. Next is a big reserve room for the men. There are also large dormitories for the men, and rooms for the women prisoners.

One of the biggest events in Buffalo's industrial history took place on the morning of December 9, when ground was broken for a drop-forge plant, to be established by J. H. Williams & Co., of Brooklyn, N. Y. The plant will occupy an eighty-acre tract just outside the city line, in the town of Tonawanda. Mayor Fuhrman was represented by his secretary, John Sayles, who turned the first sod of earth. The plant will employ 700 hands, and the structure will be of brick and tile.

Plans are being completed for a new State Hospital for Cancer Research in connection with the Gratwick Laboratory,

at No. 113 High street. To offset the cost of the site, \$21,000 have been raised, and the Legislature has appropriated \$65,000 for the erection and equipment. The board of trustees, with the approval of the state architect, has appointed George Cary, of Buffalo, as architect of the new hospital.

Among the smaller builders, business is said to be a little slow, but on the gain. A fine brick building on the corner of West Genesee and Franklin streets is being erected. It is to be used by the Johnson-Kurtz Company for stores and offices, and will be handsome and commodious. When fully complete it will be five stories high. Mr. Thomas Lockwood is the owner of the building, and Mosier & Summers the contractors.

J. M. Carter, the secretary of the Builders' Exchange, Buffalo, was elected secretary and treasurer of the Pioneer Masons' Building Association at Cleveland, Ohio, on December 7. Detroit was chosen as the meeting place of the convention in 1913.

CLAY-WORKER REPORTER.

BOYD PRESSES FIND FAVOR IN CANADA DESPITE THE HIGH TARIFF.

Much discussion has been heard of late concerning the tariff on the various commodities, but we doubt if many of the clayworkers of the United States realize that the Canadian brick manufacturers must pay twenty-seven and one-half per cent duty on all brickmaking machinery shipped them from Uncle Sam's side of the line. Notwithstanding this high tariff, the Boyd brick press, manufactured by Chisholm, Boyd & White Co., Chicago, Ill., is very popular with the Canadian clayworkers, and especially is this true in Western Canada, the growth of which has been very rapid within the past five years.

The Milton Pressed Brick Company, Ltd., Milton, Ont., uses the Boyd press exclusively in the manufacture of a high-grade face brick from shale, of which they have unlimited quantities. Mr. J. S. McCannell, vice-president and managing director of the company, recently purchased another four-mold Boyd press and the following letter testifies to his satisfaction regarding his purchase:

OFFICE OF

MILTON PRESSED BRICK CO.

MILTON, ONT., Nov. 7, 1911.

Messrs. Chisholm, Boyd & White Co., 57th and Wallace Sts., Chicago, Ill., U. S. A.:

Dear Sirs—We are pleased to advise you that the new four-mold "Special" Boyd brick press which we recently purchased from you arrived in good condition and is now making bricks.

We have now six Boyd presses in a row and expect to be in the market for another in the course of a few months. It is now nearly twenty-two years since we installed the first Boyd presses.

We tore out the first one put in to make room for the new Boyd "Special," which is built on a very much stronger scale than the ordinary machine. However, we still have one of these old machines in operation and producing first-class bricks. For a number of years this machine worked night and day.

We might state that we are well satisfied with the Boyd press or we would not be using your machine exclusively.

We are satisfied that we are making the best bricks made in Canada with your machines.

Thanking you for prompt shipment of the last press, we remain,

Yours truly,

MILTON PRESSED BRICK CO., LIMITED,

J. S. McCannell, Managing Director.

Another large concern using the Boyd brick press in Western Canada is the Alberta Clay Products Company, Medicine Hat. Warren Overpack, managing director, installed a Boyd press a few months ago. This concern makes a specialty of round-edge brick, which they make on the Boyd brick press.

The Crandell Pressed Brick and Sand-stone Company, Calgary, Alberta (plant located at Brickburn), started in the brick business about five years ago, and installed the Boyd brick press. This company enlarged their plant early in the year and put in another Boyd press, increasing their capacity to 40,000 per day.



OFFICIAL ANNOUNCEMENT.

Twenty-Sixth Annual Convention of the National Brick Manufacturers' Association to be Held in Chicago, Ill.,
March 4 to 9, 1912.

AT OUR LAST CONVENTION at Louisville, it was agreed that if a National Clay Products Exposition was held in Chicago the following winter, we would hold our twenty-sixth annual convention there at the same time. The clay products show will eventuate March 7 to 12 next. The great Chicago Coliseum has been leased for the occasion, and it is anticipated that it will be an exhibition which will reflect credit upon the entire clay industries of the country and prove a source of interest and profit to every clayworker in the land, and hence will insure the largest attendance in the history of our organization. Consequently, it has been decided to hold our twenty-sixth annual convention in Chicago March 6 to 9, 1912.

Hotel Annex Headquarters.

Owing to its proximity to the Coliseum, its immense capacity, and the splendid facilities it affords, Hotel Annex has been selected as headquarters during the convention and exposition. All convention sessions and functions will be held in the Hotel Annex. Its numerous convention halls, beautiful banquet and reception rooms, all of which will be at the disposal of the Association, will afford unexcelled facilities. The Hotel Annex is one of the largest and finest hotels in America, and will comfortably accommodate our entire membership. If, as it is hoped, the attendance is double that of previous conventions, all who attend may find satisfactory accommodations under its roof, and those desiring luxurious quarters for entertainment purposes, etc., will have no fault to find with the service, which is par excellence in every respect. The ladies, particularly, will be delighted with the parlors, cafes, library and lounge rooms, all of which are elegantly appointed.

Convention Sessions.

As usual, the N. B. M. A. sessions will begin Wednesday, March 6, at 2:00 p. m. Succeeding sessions will be held from 9:30 a. m. until 2:00 p. m. on Thursday, Friday and Saturday. By holding one session a day only, the members will be given ample time and opportunity of visiting the Clay Products Exposition and indulging in sight-seeing trips, as suits their individual fancy. A series of able papers will be presented and the program of events, which will provide for a busy and profitable week for all who attend, will be announced in due time.

The National Paving Brick Manufacturers' Association will meet at the same time and place. Their first session will be held in Hotel Annex, Monday, March 4, at 9:00 a. m. For program of full particulars, those interested should communicate with Will P. Blair, secretary, 824 Board of Locomotive Engineers building, Cleveland, Ohio.

The American Ceramic Society, too, will meet the same week as in former years, beginning their sessions Monday a. m., March 4. Prof. Edward Orton, Jr., secretary, Columbus,

Ohio, will give full particulars as soon as he has completed preliminary arrangements and program.

The Building Brick Association of America will hold its regular annual meeting in the assembly room of the Annex Wednesday, March 6, at 9:30 a. m. The general publicity meeting will be held Thursday at 9:30 a. m. in the main convention hall. Secretary J. Parker B. Fiske, Flatiron Building, New York City, will be pleased to correspond with those desiring further information in regard to the aims and work of that, our publicity organization.

All other allied organizations, whether manufacturers of or dealers in clay products of any sort or character, are cordially invited to hold meetings during the exposition period, and ample accommodations will be afforded each and all who will do so. The executive officers are requested to communicate with Secretary Randall relative to time of meetings, etc., in order to avoid the interference of one organization with another.

Our members are invited to suggest topics for discussion and subjects for formal papers touching on various important phases of the business in which they are interested. Those desiring information as to the requisite of membership in the N. B. M. A. or other particulars as to the convention or exhibition, are requested to address the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
Charles M. Crook, President.

Theo. A. Randall, Secretary.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its annual convention at Fort Dodge, Iowa, January 23, 24 and 25. Secretary C. B. Platt, of Van Meter, Iowa, is now at work on the program, which he will be pleased to mail when completed to those desiring same.

The Wisconsin Clay Manufacturers' Association will hold its annual convention at Milwaukee, Wis., early the first week in March. This time has been selected in order that the members may go from this convention directly to Chicago and take in the sessions of the N. B. M. A. and the Clay Products Exposition. Prof. Samuel Weidman, of Milwaukee, will gladly give information to those interested.

The National Paving Brick Manufacturers' Association will hold its annual convention in Chicago, Ill., March 4 and 5, at the Annex Hotel. Secretary Will P. Blair, 824 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio, should be addressed for further particulars.

The American Ceramic Society will meet in annual convention at Chicago, Ill., March 4, 5 and 6. Hotel headquarters have not yet been announced. For information regarding membership in the society, program, etc., address Prof. Edward Orton, Jr., secretary, Columbus, Ohio.

The National Clay Machinery Association will hold its annual meeting at Chicago, Ill., March 5 and 6, at the Annex Hotel. For further details, write W. N. Durbin, Anderson, Ind., secretary.

The Building Brick Association of America will hold its annual convention at Chicago, Ill., March 6 and 7. The sessions will be held in the Annex Hotel. For program and details as to membership, etc., address J. Parker B. Fiske, secretary, Flatiron Building, New York.

The National Builders' Supply Association will hold its thirteenth annual convention in New York City, January 30 and 31, with headquarters at Hotel Astor, where all sessions will be held. Further particulars can be had by addressing R. Dinsmore, secretary, Wilmington, Del.

OBITUARY

CARL CAPPEL CALLED BY DEATH.

It is with deep sorrow and regret that we chronicle the death of Carl Cappel, of Pittsburg, Pa., which occurred November 10, following an operation for appendicitis. It was thought at first that his recovery was assured but early in the morning following the day of the operation, his strength began to fail and he sank rapidly. A widow and seven children, five sons and two daughters, survive him.

He was one of the best-known brickmakers in Pittsburg, being president and largest stockholder in the Central Brick Company. Although but forty-five years old he was prominent in the business, civic and political affairs of Pittsburg, where he had lived for twenty-two years. In addition to his interest in the brick business, he was also president of the Columbia Improvement Company, and of the Southside Turners Association, and was an active member of a number of fraternal organizations.

Mr. Cappel was an old and enthusiastic member of the National Brick Manufacturers' Association, and rarely ever missed a convention. While he was not prone to take a prominent part in the convention discussions, he was usually the center of a group of button-holders in the lobbies between sessions. He seemed to radiate good fellowship and his



The Late Carl Cappel.

genial presence will be sadly missed at future conventions. In his death, not only the Pittsburg brick manufacturers, but clayworkers generally have suffered a great loss.

AN ASHLEY MEMORIAL CERAMIC SOCIETY.

So well beloved was the late Harrison Ashley that the ceramists of East Liverpool, Ohio, and vicinity bought all of his ceramic books and have used the same as a nucleus of a ceramic collection to be known as the Ashley Memorial Ceramic Library to be formed in the Carnegie Library at East Liverpool. It is the intention of the committee, which is composed of Mr. Thomas Sant, of East Liverpool, and Mr. Ernest Mayer, of Beaver Falls, Pa., and others, to increase this collection from year to year until finally it shall consist of all the ceramic literature. Mr. Ashley, as one of the foremost technicians in the ceramic field, made many valuable contributions to ceramic and engineering societies. This memorial is a fitting honor to the memory of one who served the ceramic world so well.

BUILDING IN NEW JERSEY.

Comparison of reports from several of the larger centers in New Jersey with those from other sections of the country shows that Jersey is not behind others in building development.

Paterson gained five per cent in the value of money ex-

pended in proposed building operations, during the ten months of the year as compared with the corresponding period last year.

Newark lost nine per cent for the same time. For the entire area the loss was five per cent. The aggregate loss for the month of October was eight per cent. Newark's loss for October was eight per cent. Newark's loss for October was sixteen per cent, and Paterson lost forty-seven per cent.

The comparison for the month of October is bad, because big gains for that month were made by a number of cities in which building operations have been held up for some time.

The monthly loss for Greater New York, for example, was sixteen per cent, the same as Newark. Brooklyn helped with a gain of ten per cent. Philadelphia lost eleven per cent last month.

The comparison is not, therefore, especially discouraging to New Jersey, though the opening of the season promised better things. In Newark, factory building promises to be increased with the coming year. It has been a bit slow the past year as compared with some previous seasons. Boards of trade and other commercial organizations are taking cognizance of the reduction in building and will exert more or less effort, as circumstances permit, to bring it back to its former level.

OUTLOOK BRIGHT AT ALFRED UNIVERSITY.

The State College of Ceramics, at Alfred, New York, opened the season of 1911-1912 with a large registration. The incoming freshman class is the largest in the history of the college. The teaching staff has been reinforced by the engagement of Dr. G. K. Daghljan as instructor in physics and industrial chemistry, and assistant to the director. Dr. Daghljan comes from Columbia University with a high record in scientific achievement, and is a distinct acquisition to the field of ceramics. Some important research is being undertaken with his assistance.

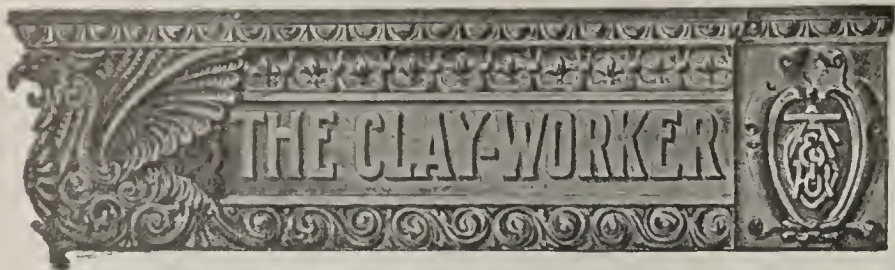
Early in November the senior and junior classes made a study visit to a number of the clayworking plants in the vicinity of Buffalo. The managers and superintendents of these plants are always glad to receive the boys and everything is open to their inspection. The problems of the work are discussed at the plants and there are always some technical questions to be taken home and investigated in the laboratory. At one time a sample of doubtful water was secured for analysis, at another there was a query whether a certain stratum of material should be used or rejected. The school stands ready to investigate and, if possible, solve problems such as these which confront the manufacturer. Some of the students who are able to obtain summer work bring back problems arising out of their experience, and these are made subjects of discussion in the class room.

The department of designing and modeling is in the charge of Miss Binns, the eldest daughter of the director, Chas. F. Binns. This work is taken up, for the most part, by young women who expect to qualify as special teachers of design and clay work.

The school is filled with enthusiastic workers and the outlook is bright.

BRICK AND ROOFING TILE MACHINERY

Is the title of an interesting catalogue from Mueller Bros., 1436 Macklind avenue, St. Louis, Mo., containing numerous illustrations of their brick and tile machinery, including pug mills, clay feeders, cutting tables, clay crushers, brick and tile dies of all sorts, and special roofing tile presses. They have had years of experience, both in the manufacture and use of machinery of this sort, and are prepared to make special machinery for clayworkers desiring something out of the ordinary. They are now making a small-capacity auger brick machine which the reader will find illustrated on page 703 of this issue.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

LVI. DECEMBER, 1911. No. 6

CURRENT COMMENT.

"At Christmas play and make good cheer,
For Christmas comes but once a year."

Our Merry Christmas Greeting is not a mere form of words but a sincere wish that the best and merriest of holiday joys will come to every CLAY-WORKER reader.

The building of brick veneered houses does not hurt the brick business. It will be followed by the building of more brick houses. So, encourage both ideas.

The fact that the man who makes poor paving brick is consciously or unconsciously an enemy to the paving brick business is now pretty generally admitted.

The increasing tendency to the smaller farm and more intensive farming is making more and better opportunities for tile drainage and for drain tile to use in sub-irrigation.

Frost may be a poetic thing on the pumpkin, but it is a dangerous thing on tools and out-door equipment. Thaw them out before putting them to use and avoid breakage.

We are thankful that the political pot boiling is over for the time being, but at the same time we can see signs of people gathering fuel for a bigger pot boiling than ever next year.

We generally think of our little neighbor, Cuba, as a producer of cigars, oranges, mahogany logs, Spanish cedar and Spanish singers, but we are now informed that it is some pumpkins as an iron ore producer. Cuba is now the fifth largest producer of iron ore, being exceeded only by the United States, Germany, the United Kingdom, and France. Yet it is only a little spot on the map of the Atlantic ocean.

If you are ever, ever going into the show business, get into the Clay Products Show at Chicago.

It is said the government has found a kindling wood trust. Of course, it is not expected that it will be much trouble to split it.

For a month at least now we can change the problem and instead of figuring on the cost of living, figure about the cost of giving.

Instead of doing the annual swearing-off stunt in the old-fashioned way, why not amend it for this New Year and adopt the Dutch treat plan?

If some of the auto people would only invent a motor dump cart for brick that would automatically unload them gently, we could all be happy.

A modern vision of dear old Santa Claus is pictured in our Christmas poem on page 655, which will be read with delight by our readers, old and young.

The manufactures of the United States can now be spelled with a big M, because it is estimated that the total export of manufactured goods will exceed the billion-dollar mark for the year 1911.

The United States Geological Survey announces the appointment of Waldemar Lindgren as chief geologist to succeed C. Willard Hayes, who recently resigned from the Survey. Mr. Lindgren has been a member of the Federal Survey since 1884 and is the author of many reports published by the Survey.

And now, if reports are to be believed, wireless telegraphy is to be followed by waterway wireless telephoning. A story comes from England about the invention of implements that will enable people to telephone to each other, using the water as a medium of transmission. Here's hoping that it is true and does not get itself developed into a water-logged stock jobbing scheme.

THE OPEN SEASON FOR SENTIMENT.

Back in the days before the birth of Christ and the teaching of Christianity as we know it today, there was some beautiful primitive sentiment attached to the mid-winter celebration that is now called the Christmas season. Those who had vied with each other during the year and had had the glory of conquest of accomplishment, met with the less fortunate ones and divided the gleanings of the year with them. It was the glory of gathering that they fought for and not the spoils. At the mid-winter season they exemplified their faith in the sun conquering the cold earth and making it produce for them again, by dividing with each other their gleanings for the season.

Since this mid-winter season has been Christianized and turned into Christmas, it still has attached to it beautiful sentiment, some of it much more refined in form than the old primitive kind, but out of the practices developed by the sentiment have evolved a multitude of different emotions, of thoughts and ideas about the Christmas season. Some people look forward to it with dread and wish it was over; some make of it a season of wild hilarity, some do one thing, and some another, and perhaps those getting closest to the original sentiment are the fathers and mothers of small children who play Santa Claus to them and surreptitiously provide them with gifts surrounded with much mystery as to where and how they came.

Christmas is really and truly the open season for sentiment,

and one may find much to criticise and much to commend, depending somewhat on the mood and how and where one looks. Out of it all, however, there are two bits of sentiment that may be recommended for special attention. One of these, and really both of them are based on the idea of peace and good-will.

The first one is this: That you forgive and seek to be forgiven. It is the time for clearing off the slate of animosity. You may not be able to see how you can love your enemies. Perhaps you will not be able to go that far. But you can do this, you can forgive them to the extent of foregoing any desire you may be nursing for revenge, and to get even, and foregoing this and treating them in a friendly way and burying the hatchet, you will not only feel better, but you will be better off and you will then be in position to ask and expect the same treatment of others.

The other bit of sentiment pertains to the modern idea of co-operation between employer and employe and the making of deserving employes partners in the business. Devise some plan for selling them stock or letting them earn it as a premium and get thereby a proprietary interest in the business. We have reached an age in the world where the antagonism between the men that work and the men that pay often reaches the breaking point, and for the welfare of both, some better system or arrangement must be had for the future. The one idea that suggests itself as being most feasible is co-operation by arranging for deserving employes to take on proprietary interest and thus share the profits and general welfare of the business.

Give this idea serious thought, plan out the details to suit yourself or your business, or that seem to suit it best, and carry it out along whatever lines that suggest themselves as most fitting to the occasion. The main thing is to get the right sentiment about this and put it to work.

SECRECY'S DELUSION.

That the practice of secrecy, or the maintenance of secrecy about one's manufacturing methods, is a delusion the average man will willingly admit, especially when the secrecy is practiced by someone else. Too often, though, when he thinks he has discovered a little special wisdom of his own and developed a process that no one else knows about, he wants to keep it a secret, and the first thing he knows secrecy has deluded him.

There is not, as a rule, a great deal of secrecy in the brickmaking business, but in some of the other lines of clay-working there is a disposition to keep the lid on, the doors shut and the "Keep Out" sign working. The people that do this perhaps think they are wise and taking just business precautions. Yet, while they are thinking this, they are often standing in their own light and failing to make the progress they should in their industry. It is not merely a matter of letting the other fellow learn. It is a matter of learning yourself.

There is a story told by a progressive potter recently. He said that when they changed from the old fashioned way of jug making by hand to the moulding of jugs, they had a great deal of trouble with them cracking up at the top shoulder. They made a good many shoulder jugs with offsets in them and they were joining the jugs right at the shoulder. Their workmen were very secret about it, wouldn't even let themselves into the room where the work was being done, and guarded the secret of making this joint as if their life depended upon it.

One day, in casting about for some way to solve the trouble of so much cracking around the shoulders, they brought a new man in from a distant part of the country who, as soon as he took a look at their jugs, told him that they were making a mistake in trying to join them at the shoulder whereas they ought to join them lower down.

When he called his men and explained it to them they

were astounded to think that this man could tell this at a glance when they thought they had the secret to the only sure process of joining moulded jugs and had been guarding it for years. Meantime, they had been sitting down holding their secret and the world had been going on, and when they woke up they found that they were behind the times.

It is the same case everywhere in every line of industry. When a man adopts secrecy as a safeguard to his business progress he may think he is shutting the world out from a knowledge of his business, but he is really shutting himself in from the knowledge of the world. Secrecy is a delusion and while a man sits nursing his secret the world goes on without him and because of this very illusion, or delusion, many a man who thinks he has the world by the tail with a secret process, wakes up to find that he has nothing but a tail holt and the world has gone off and left him with it.

Secrecy is really a delusion and a snare, and while it is a natural one and one that we are all tempted into from time to time, it is a thing to resist. Knowledge is gained by giving knowledge, and knowledge is one thing we can give and still retain. So, make up your mind that you are going to cut out the secrecy business and not be deluded. Show the other fellow what you are doing and find out what he is doing, and you will both be better off in the end.

CLAY IN THE RICHMOND TERRITORY.

Special attention has been given to a study of clay and earth deposits in the vicinity of Richmond, Va., in a bulletin recently issued by the United States Geological Survey entitled "Economic Geology of Richmond, Va., and Vicinity," by N. H. Darton.

He says there are extensive deposits of loamy clays in this region, some of which are not utilized for brick making and others, he believes, are suitable for this purpose. He says the brick produced from it are not of especially high grade, but they are used locally and not enough has been produced yet to supply the local demand. He says the clay runs from six to eighteen feet in thickness and he thinks there is room for considerable development in brick making in that territory.

Mr. Darton also found considerable deposits of diatomaceous earth about Richmond, which so far has not been utilized. This is chiefly used for cleaning and polishing, either in the form of powder or mixed with soap. It is an effective non-conductor of heat and has been used in various compounds for covering boilers and steam pipes and in safes and fireproof cements. It belongs to that class of clays used by paint manufacturers for making wood fillers, also boiled with shellac it is made into records for talking machines. It is said to be used for tile glaze and many other purposes.

INTERESTING THE CONTRACTORS IN BRICK VENEER.

Brick for house building has been receiving much more attention the past year from contracting and building papers than ever before. One of the late propositions to interest the carpenter and builder in the brick veneered house is an offer of a ten-dollar prize by the "National Builder," of Chicago, Ill., for the best article on brick veneered houses, their advantages and disadvantages from a constructional standpoint.

There is no better way to get a man to inform himself about a thing of this kind than to tempt him into writing about it. When the contractor and builder goes to studying these things with a view to writing about them he studies them more carefully and with more interest than under any ordinary conditions and the result should be the concentration of enough favorable interest on the part of the carpenters and contractors to make quite a boost for the brick veneered house.

Moreover, once the interest is turned toward brick in

this way it will likely be followed by more interest in brick for house building generally on the part of carpenters and builders, and this in turn should encourage materially the greater use of brick. This is an interesting feature of recent development among the building papers that may contain an idea worth while to other promoters of building brick.

It may be worth while to get some competitive offerings from building contractors in the way of plans and specifications for what is considered the ideal in a modest cost house. There have been developed many of these already, but there is always room for more. There is no danger of getting too many of these plans. The brick people are several years and several thousand plans behind the lumber people already in this work, and the more interest we can get centered in it the merrier and the better it should be for the future of the building brick interest.

THE VOCATIONAL EDUCATIONAL PROBLEM.

The really earnest people who are interested in promoting what is termed industrial education have several problems before them aside from that of awakening more general interest in the subject of having the boys properly trained to do skilled work.

There enters into the matter the question of night schools, of trade schools pure and simple, of vocational training in our public schools, and of specific instruction in the factories themselves where formerly apprenticeships were served.

Each of these ideas has much that can be said in favor of it and perhaps no one of them will apply in a general way and fit every condition of the country. It looks like we are going to have more or less of all of them, and the great question is to sort out and figure up what one idea may be applied better than the other.

THE AMERICAN STEAM SHOVEL.

There is a reason, in fact twelve reasons, states the American Hoist and Derrick Company, in their ad. on page 685 of this issue, why the "American" Steam Shovel will prove a source of profit and satisfaction to clayworkers who want a thoroughly dependable clay-digging equipment. Write them at their main office, St. Paul, Minn., stating the character of your clay bank and capacity of machine desired, and you will receive full particulars relative to an equipment especially adapted to your needs.

THE KNOWING SANTA CLAUS.



Wise Santa Gives the Best Presents to Owners of Brick Houses.

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The Richardson-Lovejoy Engineering Company.

[See page 703.]

FOR SALE, WANTED, ETC.

WANTED.

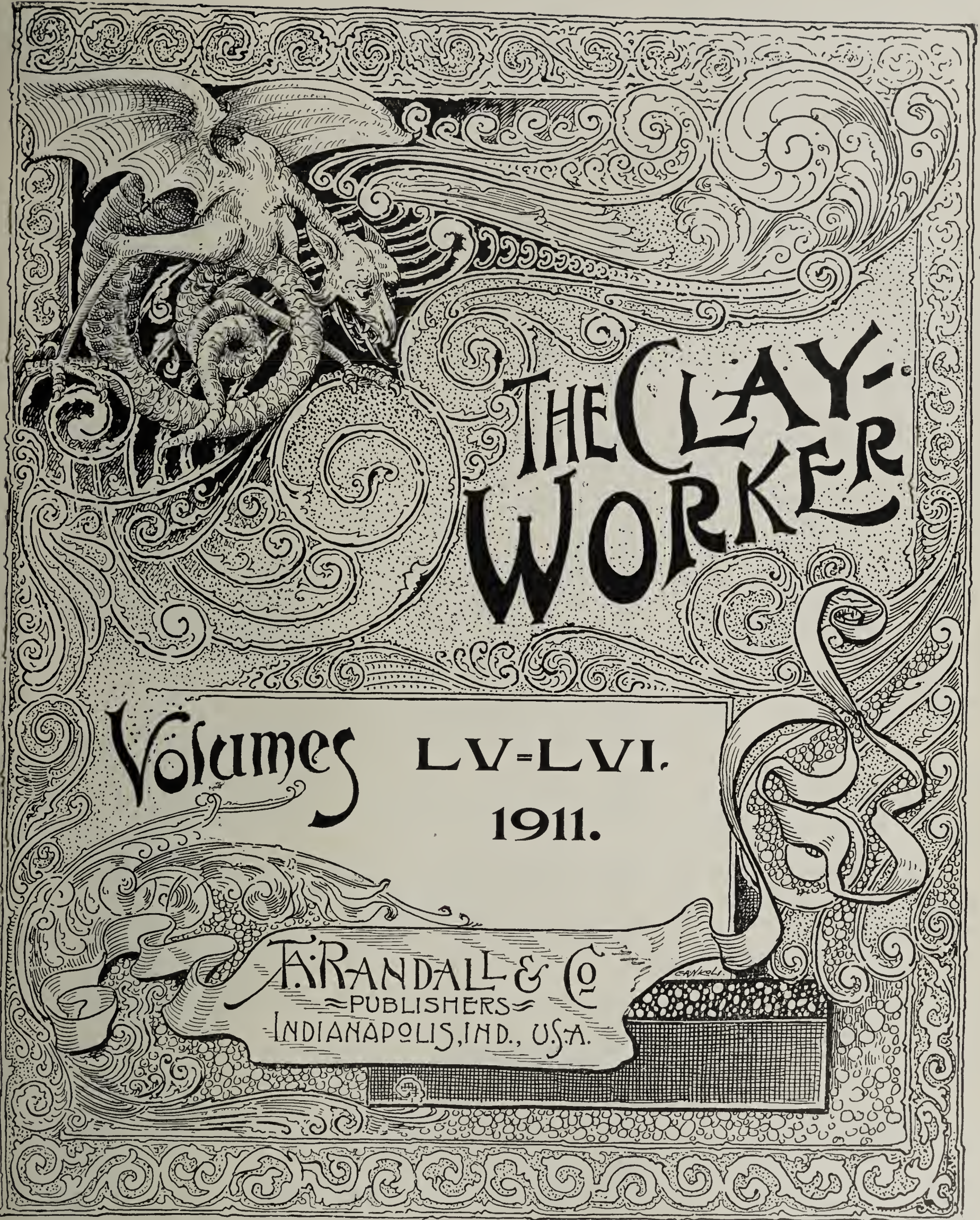
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THE ELECTRICAL MAINTENANCE CO., 12 1 cm Youngstown, Ohio.

For Sale, Wanted, Etc., Ads Continued on pages, 690, 691, 692 and 693.



THE CLAY- WORKER

Volumes

LV-LVI.

1911.



A. RANDALL & CO
PUBLISHERS
INDIANAPOLIS, IND., U.S.A.

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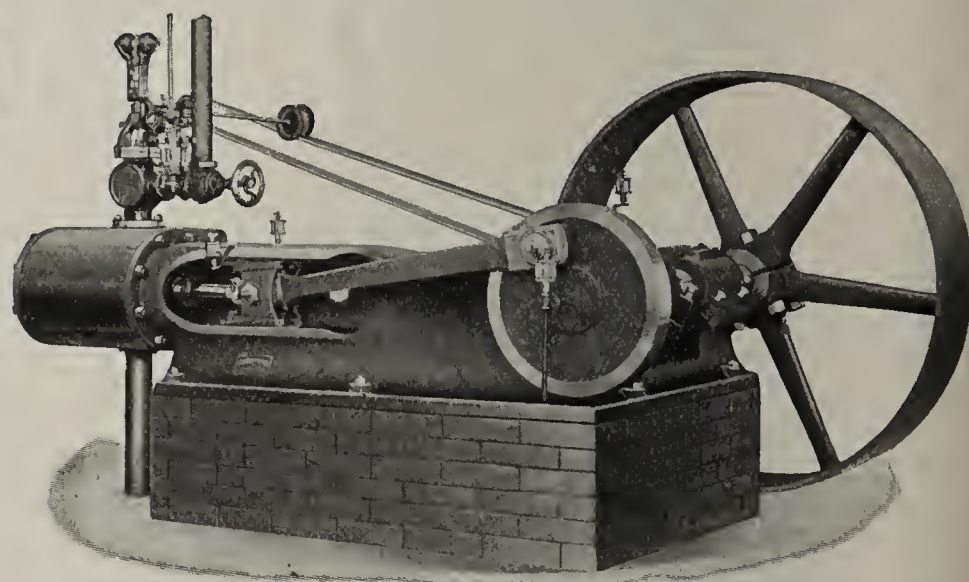
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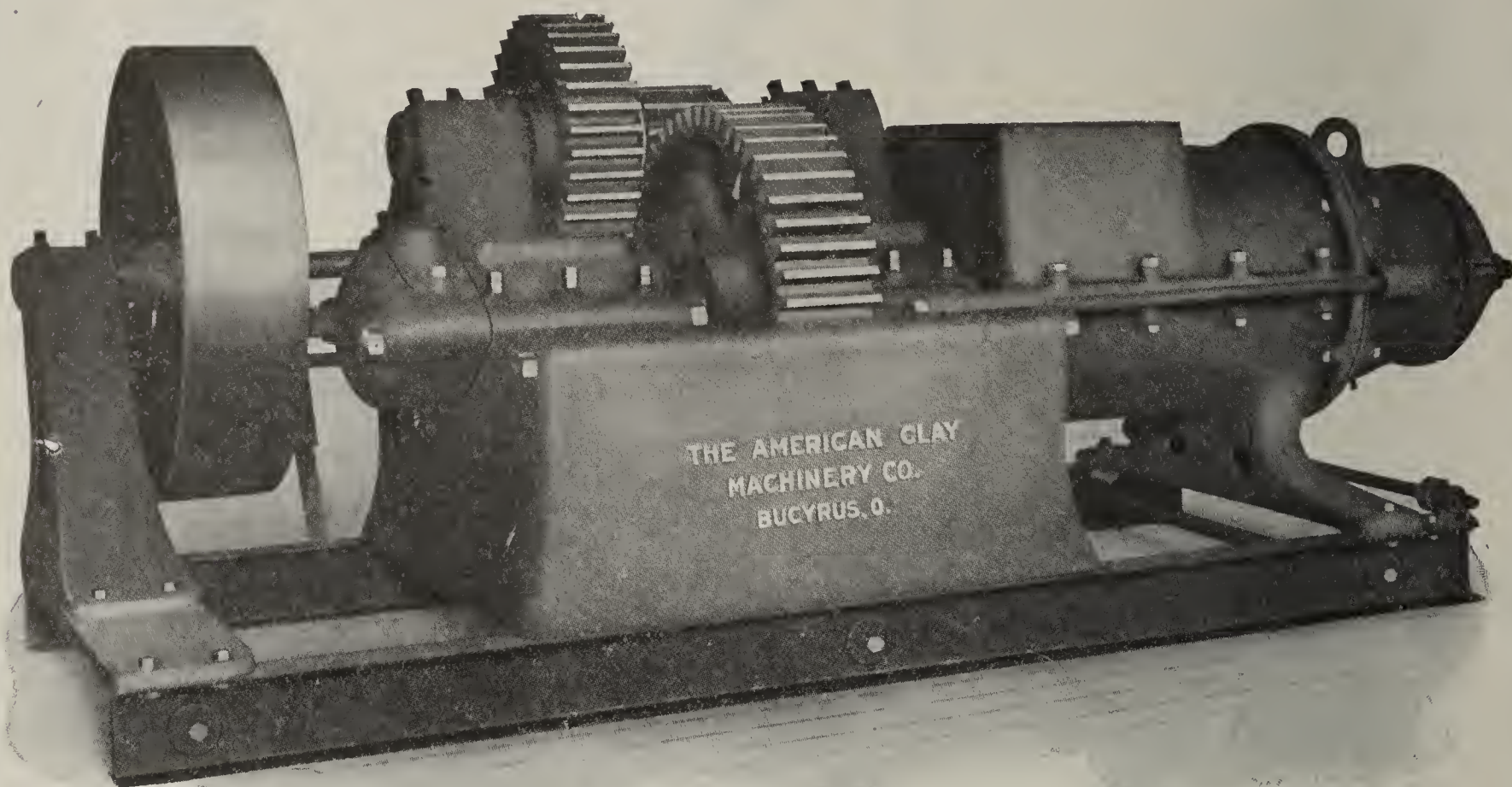
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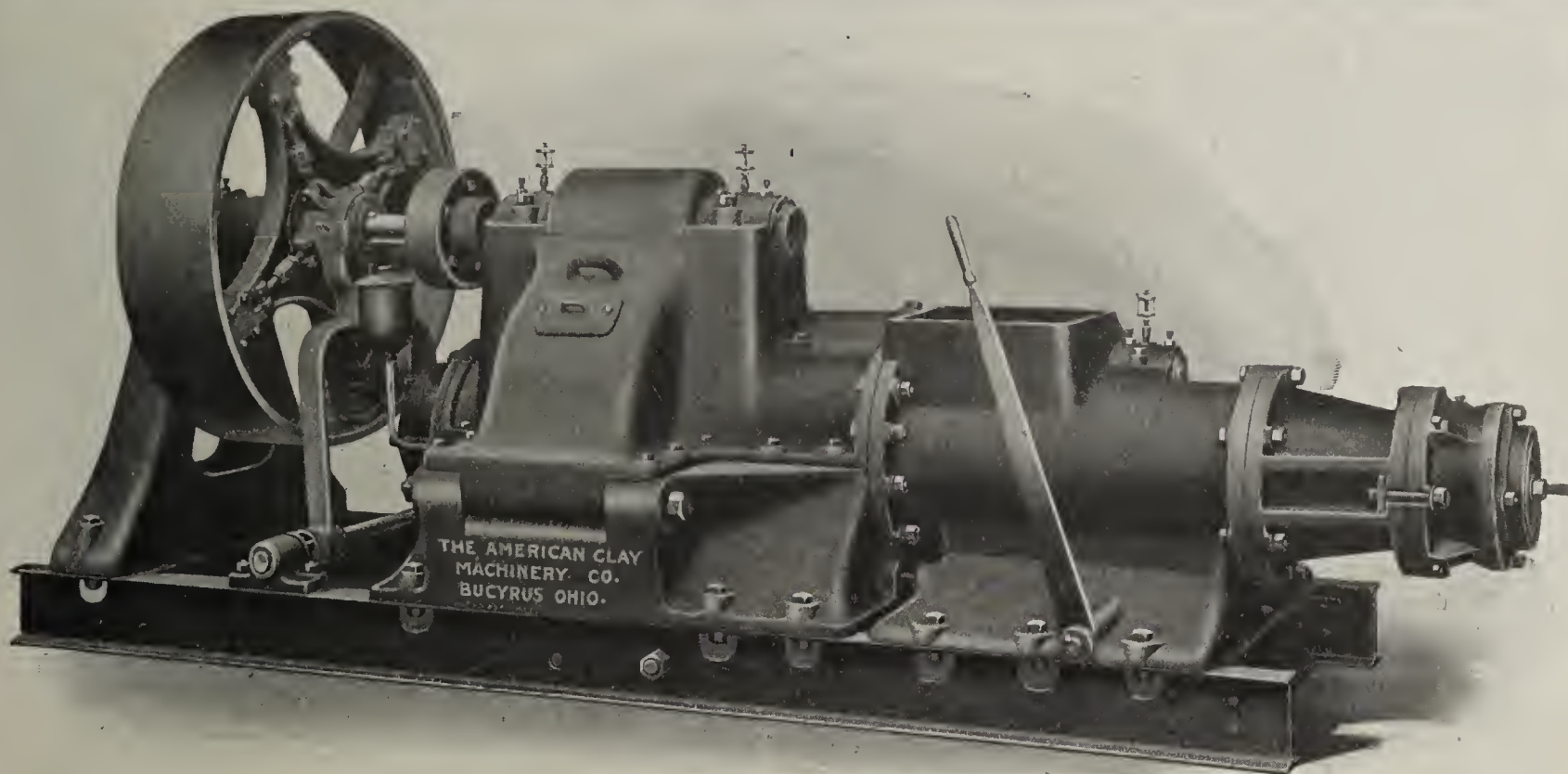


The American Clay Machinery Co.,
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LOOK AT THE FIGURES

Let the figures talk!

If we can sell you a machine that will make you 50,000 4-inch tile in 8 hours and do it easily and smoothly the year round without any repairs, wouldn't that machine be worth more to you than a machine at any price which would groan under a capacity of 30,000 tile or less in ten hours, and have to be rebuilt every year or two?

When we make you 20,000 more tile a day

When we save you two hours operating time and expense each day

When we save you big repair bills each year

When we cut your power a half

Why wouldn't our machine be well worth a whole lot more to you?

That is what quality in machinery means.

As a matter of fact our machines cost you little, if any more, at the start and are a great deal cheaper in the long run.

Our No. 218 tile machine has a capacity limited only to the ability of your force to take care of the tile.

In it friction losses have been reduced to a minimum and careful tests in actual service have demonstrated that it will deliver a given capacity at a remarkable saving in horsepower over any other machine.

We have just sold four of the No. 218 Tile Machines to the largest manufacturers of drain tile in the West. After using other machines for years they promptly discarded them and welcomed the new No. 218 as ideal, after thoroughly investigating its merits.

If you want capacity and quality, both quality of product and quality of machine, we can give it to you in the No. 218.

Let us hear from you concerning your needs, as we can furnish the **Best** for the Clayworker in every branch of the clay trade.

We build every machine and appliance for the manufacture of clay products by all processes. Write today, it means dollars saved.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.

"A Quality Above All Others in Clayworking Machinery."

Ideal Dryer Low Cost No Upkeep

Too much care can not be taken in laying out and constructing your Dryer. That is why we maintain an engineering department competent to successfully carry out this work. It is no more expensive to be right, in fact, it eliminates a great deal of operation trouble and expense. Our engineering department will look over your plant and give you the proper layout. Our factory will deliver to you an equipment for the dryer which is faultless in material and manufacturing. With these attributes of success your dryer trouble will be eliminated.

The American Patented Steam Pipe Rack Dryer is designed by specialists in this class of dryers. It is constructed of the very best material in a thoroughly workmanlike manner, under the direct supervision of the best Engineering and Manufacturing Departments in the clayworking field.

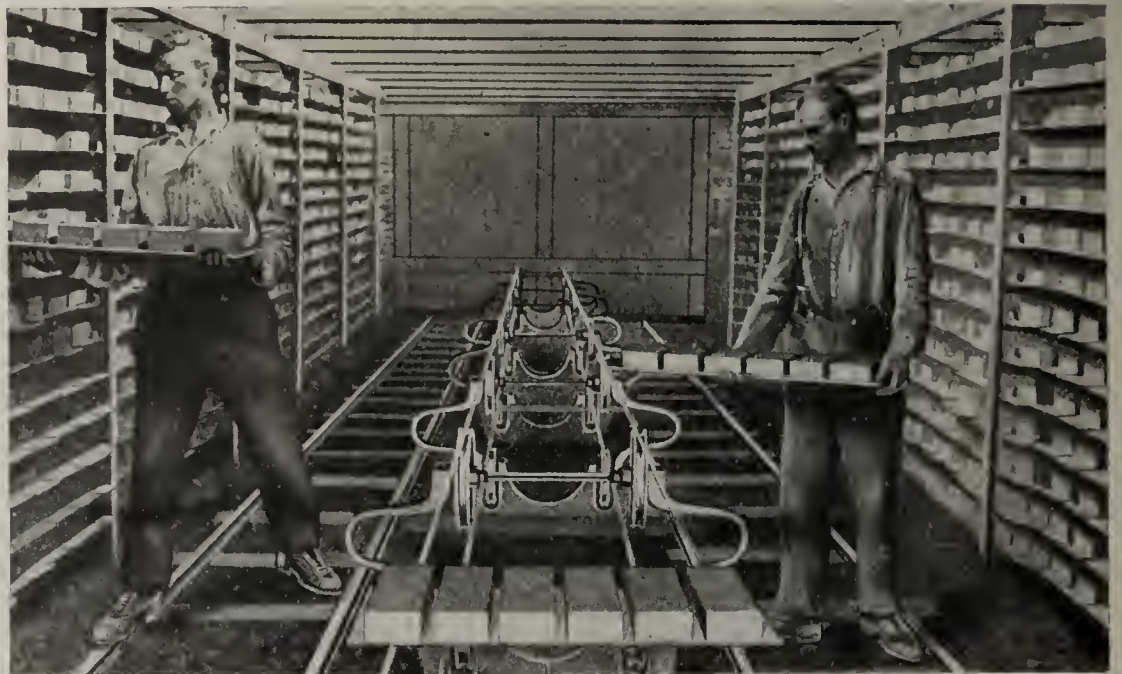
It is the **ideal dryer** with **no cost of maintenance** and the **lowest possible cost of operation**.

The Cable Delivery System **Saves Labor, Protects the Product and Economizes Space.**

We own and control the vital patents which make the Steam Pipe Rack Dryer a success and will protect with a surety bond any user of the American Steam Pipe Rack Dryer who has fears of interference.

We have just received a number of additional patents on this dryer which place it still further in advance of others. We will be glad to correspond with you relative to this or any other Dryer. We build every type of dryer and are prejudiced in favor of none. Your clay and its drying properties govern us in recommending a dryer.

We build every machine and appliance needed for the production of every class of Clay Products by any process.



The American Clay Machinery Co., Bucyrus, Ohio, U. S. A.



Grinding Mills for Sand Lime Brick

For the manufacture of Sand Lime Brick Wet and Dry Grinding Mills do much to improve the quality of the brick and thus popularize this type of brick and extend its market.

Our special style F, 9 ft. wet and dry grinding mill which we have developed for use in the sand lime brick trade is made in two sizes, 8 ft. and 9 ft., which designates the diameter of the grinding pan. Where more than one mill is required, to obtain the desired capacity, the mills can be furnished either in a duplex setting, where both are joined together, or in single independent settings.

Many features in the construction of these mills are the direct outgrowth of our long experience in grinding silica sands, crushed rock, and similar substances, and more particularly in mixing and grinding sand and lime in their preparation for the manufacture of sand lime brick. The use of these mills enables the manufacturer to combine the several operations of moistening, mixing and grinding into one, thus greatly simplifying and improving the method of sand lime brick making. The mills possess the further advantage of so grinding the sand that it is given the sharp and gritty consistency which is essential in obtaining a perfect bond between the sand and lime, and this is necessary to secure a high grade product. The abrasive action of the mullers by virtue of which the sand is broken up into sharp angular particles instead of a fine and granular powder, explains the high efficiency of the machine.

By the use of these wet and dry grinding mills the highest quality of brick yet made in the United States has been produced, and factories throughout the country are being rebuilt and rearranged so that the advantages of these special machines may be utilized.

More than twenty of these machines have already been installed in sand lime brick plants throughout the United States and have in each case proven more than satisfactory.

We build every machine and appliance required for the manufacture of Sand-Lime Brick.

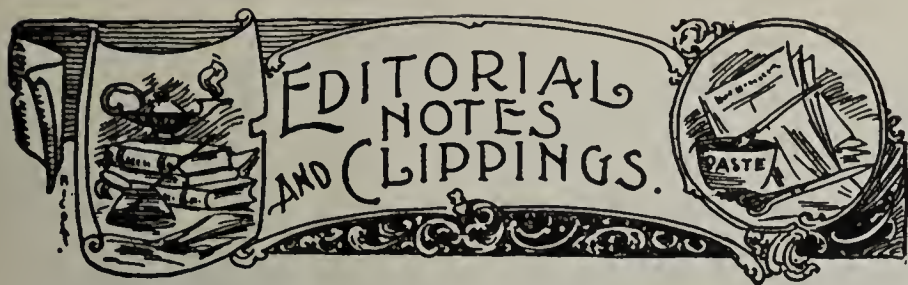


The American Clay
Machinery Company

Willoughby, Ohio

Much the Largest Manufacturers of Clayworking Machinery in the World.

Mention THE CLAY-WORKER.



The Buck Brick Company, of Ft. Smith, Ark., contemplate installing equipment for making enamel brick.

Jos. W. Wilson and Charles Gowler are building a factory at Georgetown, Dela., for the manufacture of pressed brick.

The National Brick Manufacturing Company is constructing a plant at Delson Junction, near La Prairie, Quebec, Canada.

The Pacific Sewer Pipe Company, Los Angeles, Cal., is planning to add to its five plants already in operation, a sixth, which will cost \$350,000.

Samuel B. Felker, of Rochester, N. Y., is preparing to establish a brick plant near the Worcester, Nashua & Portsmouth railroad tracks at Rochester.

Construction has been started on the new plant of the Jeannette Brick and Tile Company, at Grapeville, Pa. The capacity of the plant when finished will be 50,000 brick per day.

The Richard Murray Brick Company, of Berlin, Conn., has been incorporated with \$75,000 capital stock. Catherine M. Murray is president; Richard B. Murray, treasurer, and J. M. Murray, secretary.

Articles of incorporation have been filed by the Clark Coal and Brick Company, of Pittsburg, Pa. The incorporators are Charles B. Clark, Pittsburg, Pa.; Ralph C. McConnell, Washington, Pa., and Campbell Jones, Bethany, W. Va.

C. B. McCullough, one of the heaviest stockholders of the Marthaus Fire Brick Company, of Lock Haven, Pa., recently purchased the plant at a receiver's sale and will organize a new company to operate the plant in the near future.

H. E. Purinton Company, of Bangor, Me., has purchased the property of the Bangor Brick Company at Bangor, Me. The plant has an annual output of about 4,000,000 brick, and will be operated in connection with the Purinton yards at Bangor.

Joseph B. Kendall, of Byron, Minn., whose brick yard was destroyed by fire some time since, caused by alleged negligence of the employes of the Northwestern Railroad, has been granted a verdict of \$6,912 against the company in the United States Court.

John H. McKenzie and associates, of Augusta, Ga., have purchased a brick plant at Rockmart, Ga., and will spend close to \$150,000 in improving and modernizing same. A company has been organized under the name of the Rockmart Brick and Slate Company.

Simon Kline, one of the best known brick manufacturers of Pennsylvania, died at his home in Reading, November 20, aged eighty-one years. He had been in the brick business in Reading since 1855 and still had an active interest in the management of the plant. A wife and six children survive.

The brick manufacturing plant of Joseph Kentz, of Mobile, Ala., was badly damaged by fire recently. The loss is estimated at about \$9,000, and is quite a serious blow to Mr. Kentz, as he had just completed arrangements to enlarge the capacity of his factory. They carried very little insurance.

Suit for \$10,000 damages has been filed against the New England Steam Brick Company, of Barrington, R. I., by the widow of Guiseppe Cingoranella, who was killed while working for the company in 1909. He was running a train of dump cars to the sheds when a coupling between the engine and the cars became detached, it is claimed, and the man was thrown off and killed.

Directors of the Purington Paving Brick Company have approved a proposition to install between \$40,000 and \$50,000 worth of new machinery at the Galesburg, Ill., plant, it is reported. The improvements include double deck cars with a capacity of 700 brick for the dryers. This necessitates the rebuilding of all the dryers and installation of electric transfer trucks throughout the entire plant. Other improve-

ments contemplated are rebuilding the machine rooms and installation of new represses and the building of more kilns.

L. M. Decker and H. T. Page, of Alford, Pa., have purchased the plant of the Spencer Brick Company, at Spencer, N. Y.

The West Point (Va.) Brick and Tile Company will establish a brick plant this winter and have it ready for operation in the early spring.

The Clay Products Company, of Sioux City, Iowa, has been incorporated with \$1,000,000 capital stock. The incorporators are Geo. N. Fairchild, Charles M. Stillwell and D. C. Shull.

Ground has been broken for the large brick manufacturing plant of Beck, Hockman & Warner, at Waynesburg. Wm. H. Johnson, of Fairfield, will be the superintendent of the plant.

The Cheyenne Brick and Tile Company, of Cheyenne, Wyo., will make a number of improvements in its plant in the near future, the chief of which is the building of a tramway to facilitate the loading of shale.

The plant of the Watsontown (Pa.) Brick and Clay Products Company was badly damaged by fire recently, which started in the screen room. The loss is estimated at about \$30,000, and the plant, which is partially insured, will be rebuilt at once.

The officers of the Fairmount (Minn.) Drain Tile and Brick Company have selected J. W. Lowe, of Fairmount township, as a director to succeed Geo. Murray, resigned. Mr. Lowe has a large amount of stock in the concern and is vitally interested in the affairs of the company.

The plant of the Hub City Company, of Centralia, Washington, was completely destroyed by fire November 27. The blaze was probably started by tramps sleeping in the building. The loss is estimated at \$8,000. The plant was a new one, having been erected in 1910. It will be rebuilt at once.

A branch office of the Bibb Brick Sewer Pipe Company, of Macon, Ga., has been opened in Atlanta, with offices at 1610 and 1611 Candler building. It is one of the largest manufacturers of brick and sewer pipe in the state. John Kelly, of Atlanta, will be sales manager for the Bibb Brick Sewer Pipe Company in Atlanta.

The Spokane Pressed Brick Company will double the capacity of its sand-lime plant at Mead, Washington, during the winter, and in the spring expects to be in shape to turn out 50,000 brick a day. The company has increased its capital stock from \$150,000 to \$200,000, in order to care for the purchase of new machinery, including a new brick press.

The Melcher tile plant at Montezuma, Ind., was completely destroyed by fire November 20. The damage is upwards of \$50,000. The largest stockholder in the company, Samuel C. Cowgill, is at present in San Venito, Texas. The plant has been operated for some time by the National Drain Tile Company. The plant will probably be rebuilt within a very short time.

Edward B. Reed, representative of the Clearfield Brick Company, of Clearfield, Pa., has announced that it is the intention of his company to build a large brick manufacturing plant near North Tonawanda, N. Y., next spring. This new addition will mean much for Niagara county, as at present all brick and tile must be shipped there and to the other Niagara county cities from distant points.

Finley Mutchler, former president of the Moxahala Brick Company, Columbus, Ohio, was found guilty several weeks ago of obtaining money under false pretense from Joseph Wilds, of Minnesota, and has been sentenced to serve two years in the penitentiary. Mr. Mutchler was charged with having sold stock in the Moxahala company to Mr. Wilds when he knew the stock was practically worthless. Mr. Wilds, after finding that he had been "buncoed," appeared before the grand jury with his story.

It cost the Stiles & Hart Brick Co., North Haven, Conn., something in excess of \$1,000 when Eugene Lewis, aged 14, and John Rogers, aged 11, opened the doors of the kilns and cooled off the brick. The boys had no idea why they opened the doors, but they confessed that they did open them, to Judge Fox, at a session of the juvenile court the next morning. The boys opened the doors of twenty-five kilns, allowing the cold air to sweep over the bricks. It was several

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

hours after that employes of the company discovered the doors open and closed them.

J. Rollins & Co., of 3730 Delmar boulevard, St. Louis, Mo., are organizing a company to establish a terra cotta plant at that place.

The Rio Delta Clay Products Company has been incorporated with \$100,000 capital stock by Sam Householder, W. D. Carpenter and E. W. Watts.

Leon Soisson, a retired brick manufacturer at Connells-ville, Pa., died November 20 at his home in that city. He was the father of fifteen children, twelve of whom survive.

The sixty-acre farm owned by W. E. Hartman has been purchased by the Bloomsburg Brick Company, Bloomsburg, Pa. Ever since the plant started, the company has been getting shale from this farm.

The James River Brick Company, of Norfolk, Va., has been incorporated by James E. Barry, president; Thomas E. Ferguson, vice-president, and Fred R. Barry, secretary and treasurer. They certify to a capital stock of \$25,000.

The El Campo Brick Company, at El Campo, Texas, is turning out brick at its new plant. Such a demand for drain tile has grown up in that territory that they expect to add a tile machine to the plant in the very near future. Dr. Chandler is the proprietor.

The Zumbrota Tile and Brick Company, of Zumbrota, Minn., recently purchased a thousand brick cars of the Nutting Truck Company, at Faribault, Minn. This is a metal dryer car which the Zumbrota company consider especially adapted for their use.

Francis N. Burdick, a pioneer brick manufacturer at Racine county, Wis., died at his home recently in Racine after a prolonged illness. He had lived in that city nearly sixty years, and fifty-two years of that time he had manufactured brick. He is survived by a widow, four sons and three daughters.

The Athens Pottery Company, which has purchased the pottery plants of P. E. Miller at Athens, and the Winfield Pottery Company at Winfield, Texas, will install new machinery and enlarge the plants. This company was recently incorporated with \$100,000 capital stock. P. E. Miller is at the head of the concern.

The Union Mining Company, proprietors of the Mount Savage Fire Brick Works, Mount Savage, Md., has recently taken a lease on a commodious suite of offices on the eleventh floor of the new Fidelity Trust Building, Baltimore, Md., where the president's offices, as well as those of the sales department, are located. The general accounting, laboratories and manufacturing departments will remain at Mount Savage.

The Corning Brick, Terra Cotta and Tile Company, of Corning, N. Y., has started the erection of a new brick kiln. This, when completed, will make twenty kilns for the company, ten brick and ten terra cotta kilns. The new brick kiln will have a capacity of 100,000 brick. Business has been exceedingly good with this company during the past year, and the increasing demand for their paving brick has made necessary the erection of this additional kiln.

Angelo Villainy's right hand is valued at \$20,000 in a suit filed against the Washington Brick, Lime and Pipe Company, Spokane, Wash. Villainy alleges that he was a laborer at the Clayton plant of the corporation during March of 1911, was caught between a truck-load of brick and the side of an elevator shaft. In an effort to save himself he caught the cables that operated the lift, but the wires so mangled his wrist that the hand had to be amputated. His complaint blames the negligence of his employers for the accident and its results.

H. N. King, of Adrian, Mich., has recently received a patent for a new silo building block which he stated he will soon begin to manufacture. The new block will be made of vitrified clay to be bound together without cement. The blocks themselves are hollow with curved edge both outside and in. They are bound into place by tie pins grooved to fit into the top walls of the blocks. Each overlaps the other, making a solid wall entirely of vitrified clay construction. Mr. King states that the strength of the wall thus formed is sufficient to sustain a column of water within it. At the same time it is moisture proof. According to the present plans the blocks will be manufactured at Akron, Ohio, in a

large tile plant. Mr. King believes that the silo has come to stay and is planning on an extensive manufacture.

D. Saenz, of Allentown, Pa., advises us that he is interested in brick-making machinery, and would very much appreciate catalogues, etc.

F. L. Hinton, Plummers' Landing, Ky., writes that he desires to purchase a drain tile machine, and will be glad to receive catalogues, etc.

The Rapid City Land Company, of 1228 Stahlman building, Nashville, Tenn., contemplate the erection of a brick and tile plant at Dixon, Tenn., of 50,000 daily capacity.

O. C. Vorce, Taft, Cal., is in the market for a portable stiff mud brick machine, one that can be used on a small scale, he says, and moved from place to place as desired.

The officers of the Entress Brick Company, of Pittsburg, Pa., assisted by John F. Entress, president, entertained the stockholders at dinner recently at Hotel Dercam, Pittsburg.

In remitting for THE CLAY-WORKER, the Uniontown (Pa.) Brick Company says: "We enjoy reading your magazine very much. It is a very welcome visitor, and we read it from first page to cover."

The Pennsylvania Clay Products Company, of Pittsburg, will spend a large sum of money in improving its press brick plant at Butler, Pa. Several new kilns will be constructed during the winter season.

The main plant of the Atlas Press Brick Company, at Ferris, Texas, was completely destroyed by fire November 14, causing a loss of \$10,000. The blaze was caused by an overheated bearing in the line shaft in the engine room. The plant will be rebuilt at once.

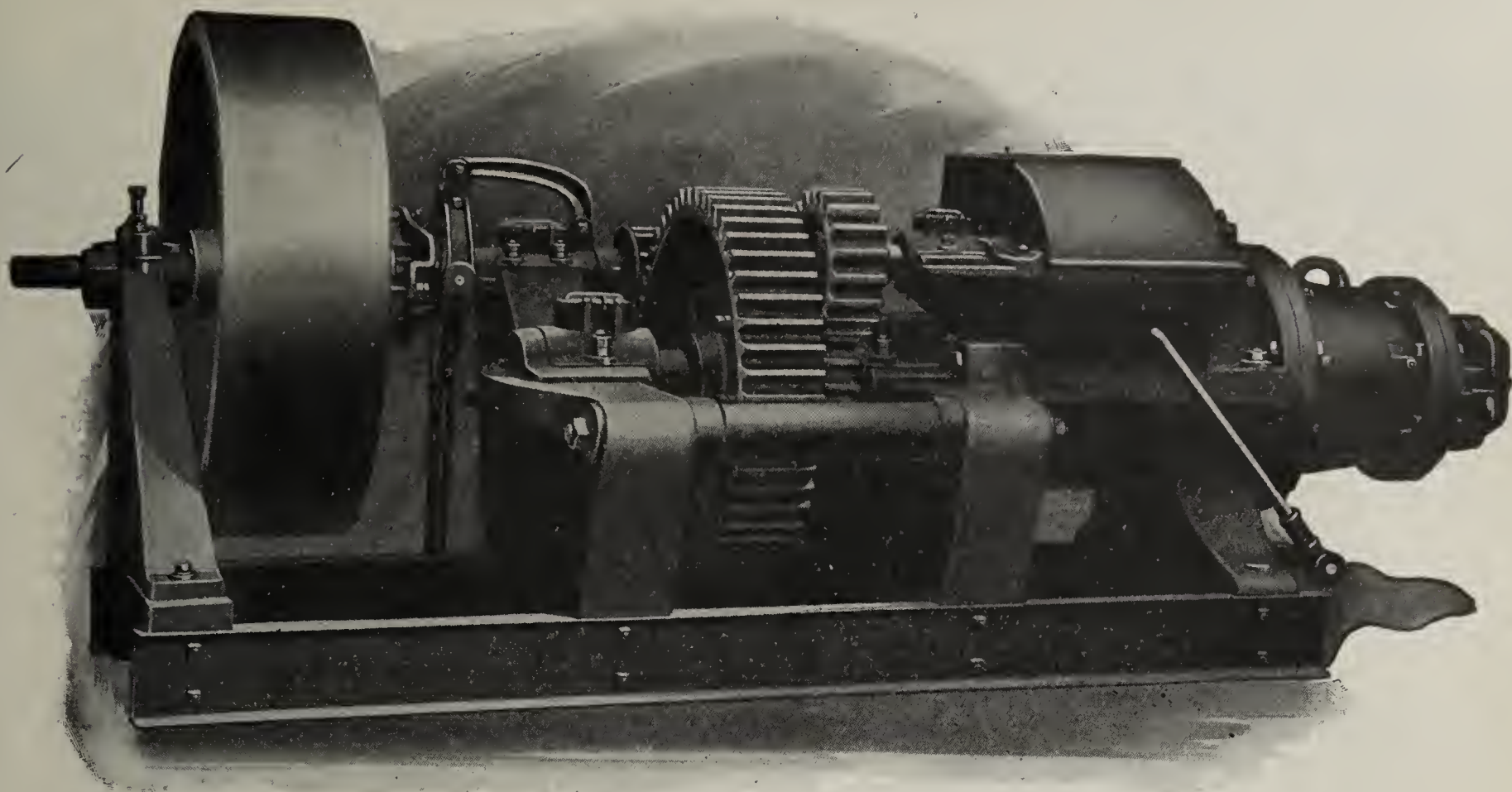
Douglas & Valentine recently purchased the plant of the Pocatello Pressed Brick and Manufacturing Company, at Pocatello, Idaho, at a receiver's sale. A large force of men has been placed at work and the plant will be operated to full capacity from now on. The plant is one of the most complete and modern in that section.

Henry Henrickson had a rather close call at the tile factory at Estherville, Pa. His clothing got caught on a shaft and before the belt could be thrown off, his clothes were all torn off his body and he fell naked down into the sand pit. It was a very cold day and his clothes were all torn to shreds, so he was compelled to wait in the engine room while new clothes were procured and then went home.

The Ohio Face Brick Company, of Columbus, which was recently incorporated with a capital of \$70,000, has taken over the plant of the Ohio Terra Cotta and Brick Company at Fredericksburg, Ohio. The company has organized by the election of J. B. Hammond, of Bolivar, Pa., president; L. P. Halderman, of the Kentucky Fire Brick Company, of Portsmouth, vice-president; C. J. Peterman, of Fredericksburg, secretary; John McGratty, of Akron, treasurer, and W. A. Shoemaker, of Columbus, general manager.

C. K. Holloway, who has been secretary of the Oakland Paving Brick Company since its formation, has taken a fifteen-year lease on the new plant at Decoto, Cal. This plant has been operating in a rather desultory manner for the last few months, but several defects were found in its construction or design, and many alterations will be made, besides which machinery will be installed for roof and partition tile, face and enamel brick, terra cotta, etc. This plant has produced little or no satisfactory paving brick, but has sold quite a lot of off-grade pavers to San Francisco sewer contractors.

The Redcliff Clay Products Company, Ltd., Redcliff, Alberta, Canada, a recently organized company, is building a large plant for the manufacture of high grade face brick; the construction work on the buildings, kilns, etc., is well under way, and the machinery is now being installed. Mr. F. F. Woodcock, managing director of this concern, who is an expert mechanical engineer with large experience in the brick business, recently visited the States for the purpose of investigating machinery for the plant, and purchased from the Chisholm, Boyd & White Co., Chicago, complete brick-making equipment, consisting of a standard four-mold Boyd brick press, standard nine-foot dry pan and other machinery. The buildings are arranged to double capacity, and sufficient power will be installed to operate another four-mold press and outfit of grinding and mixing machinery, which will be installed in the near future. The Redcliff shale is of a superior quality for making face brick, and comes out of a mine. Natural gas will be used for power and burning of the brick.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 724-727.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



TOLEDO is the only one out of forty-five of the leading cities of the country to show an increase in building operations during the month of October, according to figures compiled by building experts. Toledo's increase for October amounts to twelve per cent and for the nine months ending October 31, Toledo's gain in building was twenty-three per cent as compared with 1910 figures. In the remaining forty-four cities there was a net loss of eight per cent in building operations for October, and a net loss of five per cent for the nine months. While November did not keep up to the standard set in October, there was considerable business and, according to plans now under way, the spring outlook for brick men is exceptionally flattering. Besides the million-dollar structure of the Second National Bank, now assured, a quarter of a million dollars will be expended in the erection of the new Toledo Club, Inverness Club and the additions to the Country Club. The Simmons Boot and Shoe Company is contemplating the erection of an eight-story block, plans now being under construction, and there are many other plans under way of buildings of lesser importance to be constructed in the early spring, which will aggregate some nice business for brick men.

Just at the present time there has been something of a slump in the brick business and but few calls are coming in for either building or paving brick. But one of the local brick yards is in operation and there are about 15,000,000 brick accumulated in the various local yards. Weather conditions recently have been bad, as there has been much snow and generally inclement weather, making outdoor work well nigh impossible. The slump in demand naturally resulted in some overstocking of yards, as all the local factories have been running up to the last week, some closing this week and one still being in operation. The vast number of brick on hand naturally had a depressing effect on prices, which have reached bottom at \$6 for building brick and \$16 and \$18 for paving brick. The slump was wholly unlooked for here, as it had been the intention of the local brick concerns to operate throughout the winter. Many reasons, including weather conditions, the political situation and a tendency on the part of local officials to experiment with other paving materials, are given for the unlooked for condition. Said one prominent brick man: "While politics, weather and other incidents no doubt had their share in creating the present condition, my judgment is that there is an over-production of brick which has had more influence than anything else in bringing about the present stagnation and consequent low prices. Because the season has been good and prospects for spring trade seem promising, brick men seem unable to overcome the temptation to see how many brick they can make. While orders are coming in and considerable brick going out, they are too busy to notice that the brick are piling up in their yards. Then, when a bit of cold weather or some other cause produces a dropping off in orders, Mr. Brick Manufacturer awakens to the fact that he has a great many more brick than he cares to keep over. He then makes a frantic effort to dispose of his surplus stocks, and there you are! Prices slump and the bad man to pay."

While the city of Toledo has been disposed this season to do considerable experimenting in various paving materials, the smaller surrounding municipalities, however, have stuck closely to brick, and not only city streets but rural roads have been paved with brick, creating a demand very gratifying to Toledo brick men.

Winter weather has proven no formidable obstacle to the progress of paving work at Bellevue, Ohio. Despite the snows and the inclemency of the weather, the contractors

proceeded with the paving of North West street until completed. The Modern Construction Company has the job, and has been heartily commended by the citizens of the town for its persistency.

Plans are being prepared for a nice job of sewer construction at Chicago Junction. The work will consist of 18,000 lineal feet of 36-inch sewer, which will be constructed by the B. & O. Railway Company.

William G. Nichols, of Toledo, has been appointed receiver for the Fox Clay Products Company by United States Judge Killits, succeeding James F. Fox, of Toledo, who recently resigned to accept a position in another city. Mr. Nichols immediately qualified by filing a \$5,000 bond.

The Hydraulic Press Brick Company, of Toledo, last week closed its factory for the winter. This concern has a full stock of brick on hand and does not expect to manufacture any more before spring.

Many of the smaller municipalities of this locality are placing orders for paving brick, which seems to be in high favor for pavement purposes. The city of Canton, Ohio, has arranged for practically 100,000 square yards of brick paving, for which bids will be received early in the spring. Cambridge, Ohio, is busy on plans for two miles of brick road on the Clark and Steubenville roads; Circleville will put in 13,000 square yards of brick pavement with concrete base and sand cushion on Main street; Belle Valley has an \$11,566.25 job in 4,580 feet of road to be paved with brick; Chicago Junction has 10,000 square yards of brick paving, for which an ordinance has been introduced at council, authorizing the work; Painesville has two roads for brick paving in the spring; Bellevue has 11,000 square yards of brick paving with concrete base and sand cushion; Fremont has 16,500 square yards of the same; Clyde, 7,920 square yards, and Crestline has 7,000 square yards of brick paving with crushed stone base and sand cushion. Thus brick men can look forward to a practical certainty of about 200,000 square yards of brick paving which is now planned for early spring work. This will furnish brick contracts of no mean proportions, and competition for the business is keen.

The Collingwood Brick Company, of Toledo, is still in operation and expects to continue until the first of the year at least. This concern has practically finished up its orders and is now busy accumulating stock against the expected heavy spring orders. The company has now in its yards about 4,000,000 brick.

The city of Elyria, Ohio, will let contracts in the near future for the construction of 2,200 feet of eight-inch vitrified tile pipe sanitary sewer, estimated to cost \$3,000. About 4,800 feet of fifteen and eighteen-inch tile ditch will also be constructed at Bucyrus, and 1,300 feet of twenty-four-inch vitrified tile storm sewer at Lorain in the near future.

T. O. D.

WEALTH IN KANSAS CLAYS REVEALED BY TESTS.

Three million dollars worth of brick and tile are turned out every year by the Kansas clay industries. This amount could be increased many times if the commercial value of the clays in the state were known. To test these clays and report upon their usefulness will be the work of the clay laboratory just being completed at the State University at Lawrence. The department of ceramics will also report upon the value of the clays for making pottery. The classes in clay modeling have turned out many beautiful and durable articles made from the Kansas clays.

Tile Underdrainage.

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

Why. the Wire-Cut-Lug Block is Best

and

Why It Meets Favor

Not injured by repressing.

Uniform lugs mean absolutely uniform interstices.

Admits free flow of bonding material.

Greatly reduces percentage of culls and seconds.

Square edge brick make the smoothest pavement possible (rounded edges being entirely unnecessary and a distinct disadvantage in securing a perfect surface.)

Less cost to manufacture than repressed brick.

Increased profits due to increased yardage per thousand blocks.

These plants now using the Dunn System successfully and selling all they can make of the wire-cut-lug block at increased profits.

Corry Brick & Tile Co., Corry, Pa.

United Brick Co., Conneaut, O.

Sterling Brick Co., Olean, N. Y.

Kushequa Brick Co., Kushequa, Pa.

Reynoldsville Brick & Tile Co.,
Reynoldsville, Pa.

Danville Brick Co., Danville, Ill.

Patterson Clay Product Co., Clearfield, Pa.

We Do Not Manufacture, We Merely License the Manufacturers to Make this Block.

Over 400 Cities Endorse Wire-Cut-Lug Blocks

WRITE FOR LIST

The Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio

Patented in the United States and Foreign Countries

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE QUIET SEASON is on for the brick trade, and it certainly is quiet now. December is seldom a month of much activity, although there are times when foundation work is started for new structures of size for the next season, which call for quantities of common brick. And there are times when contracts are placed for quantities of face brick for new buildings to go up with the early spring. This December does not seem to be of that class, although developments may come up which will give a decidedly different air to conditions. As things now stand, there are comparatively few projects being considered, at least publicly, aside from several public and quasi-public enterprises. The few of the larger structures of this class, however, give a big start for the building for the new season, in Minneapolis. There is the new \$500,000 high school, for which contracts have been let, which will have common and fire brick for wall work, as well as pressed brick for facing. The new \$750,000 postoffice building will also call for a large quantity of common brick for the interior wall partitions and backing. The new art museum, to cost from \$350,000 to \$500,000, will also allow for a good quantity of brick.

In St. Paul, a new union depot is about a certainty for the coming year, although no plans have been reported drawn, but there are fewer details to be overcome than in Minneapolis, so that work may be taken up without delay. There are several projects in the way of factory plants which will allow for a quantity of common brick and some pressed brick as well. Several new churches are planned, which will call for pressed brick, with hollow brick for interior walls. Some other projects have also been started which will doubtless develop before the spring rush opens, although they have not been given out as yet.

All this gives a good assurance that there will be an active period for the brick business during the next few months, and promises a good start for the year 1912, which will go a long way toward assuring an active season as a whole. There is some feeling of depression because at the present time there is so little in the way of new work to figure. But this is usually the case, especially when late fall work has been held up by an unusually early winter, as was the case this season.

Conferences were recently held in the Twin Cities on the subject of accident prevention in industries of all kinds. In St. Paul, the meeting was held December 7. Among the speakers was J. W. L. Corning, of the Chaska Brick and Tile Company, of St. Paul. The subject is one which is arousing a great deal of interest among all manufacturers and firms employing machinery. Doubtless the discussion over the subject of compensation for industrial accidents accounts for the increased interest. It is a matter of great importance to every user of machinery, no matter how simple. There will undoubtedly be an accident compensation law passed at the forthcoming legislative session, and employers will find that they are held to a responsibility which they do not have now.

The work of the Minnesota State Fire Prevention Association in extending the doctrine of avoiding conditions which offer a chance for fires to spread, is doing much toward urging the wiser plan of building with fireproof materials. And when it comes to really fireproof construction, there is a growing sentiment that nothing else compares with brick. The concrete boosters have done a great deal of claiming for their wares, but the public is slowly coming to a realization that clay, properly burned, is the real answer.

There has been an unmasking of the situation in the matter of alleged competition for creosoted paving block work in the Northwest, showing how the article is completely dominated by a combination which makes prices which every bidder shall ask, and apportions the territory so that only certain bidders are to have the work in the different towns. Perhaps this will tend to break up the inclination which so many city councils have had towards using that material to the practical exclusion of all other materials. Brick for pav-

ing has been practically eliminated from the Twin Cities, because of the peculiar trend toward the blocks in Minneapolis, and asphalt in St. Paul. Minneapolis has expended \$600,000 in paving during the year, and of this sum but \$30,000 went for brick, although there are many sections where no other material can serve the purpose as well as brick. Minneapolis has few grades of any consequence, but in the business districts, especially the wholesale section and that approaching the freight depots and yards, there is no material like brick. The blocks prove slippery and unsteady footing and during the frosts of the early part of winter, there were many accidents to trucks, horses, and auto trucks because of the unsatisfactory footing offered by the blocks. Brick offered a first class footing and afforded a good demonstration of what it would do. St. Paul has avoided the blocks, but has taken to asphalt rather freely. Brick has been used on some of the grades, as have sandstone blocks. The entire satisfaction of brick should cause their greater use.

H. N. Leighton, a general contractor of Minneapolis, recently tendered his resignation as a member of the board of education of Minneapolis, in order that his firm might be permitted to bid on the erection of the proposed \$500,000 high school. As his firm was high on the job, he was induced to withdraw the resignation and so remains on the board. Mr. Leighton is a very competent man to have on the board, and it is a source of satisfaction that he remains on it.

The Zumbrota Brick and Tile Company, of Zumbrota, Minn., has recently placed an order with the Nutting Truck Company, of Farbat, Minn., to furnish 1,000 brick cars, double decked, 3 x 7 feet, for its plant.

Pike & Cook, of Minneapolis, received the general contract for the erection of the new high school building at Fourth avenue and South Thirty-fourth street in Minneapolis, at \$398,000, using matt brick for facing above the water table. This job will run \$500,000 and is expected to prove one of the most striking in school house construction and architecture to be found in the Northwest. William B. Ittner, the famous St. Louis architect, planned the building.

The Northwestern Knitting Company, of Minneapolis, has started work on the erection of a five-story brick factory addition to its knitting works plant at Aldrich and Western avenues. The work will cost \$100,000, including a water purifying plant and other equipment. The John Wunder Company is doing the work.

R. R. Betcher, of Minneapolis, has had work started on a brick and tile apartment building at 84 Spruce place. It will consist of thirty-seven apartments, and will be three stories and basement, modern throughout, costing \$40,000.

The H. N. Leighton Company, of Minneapolis, was awarded the general contract for the new Minneapolis postoffice building, to be erected on the city square bounded by Second street, Second and Third avenues, South and Washington avenue. Their contract price was \$565,000. The exterior walls will be of gray granite.

C. Howard Parsons, architect, of Minneapolis, has prepared plans for a modern brick school building to be erected by the board of education at Sauk Center, Minn., at a cost of \$30,000.

Hoy & Elzy, of St. Paul, have the general contract for rebuilding the club building for the Elks of St. Paul, on Washington street, between Fourth and Fifth streets. The old walls of the burned structure will be used as far as possible, and there will be new work of pressed brick and cut stone, interior fittings and equipment, etc.

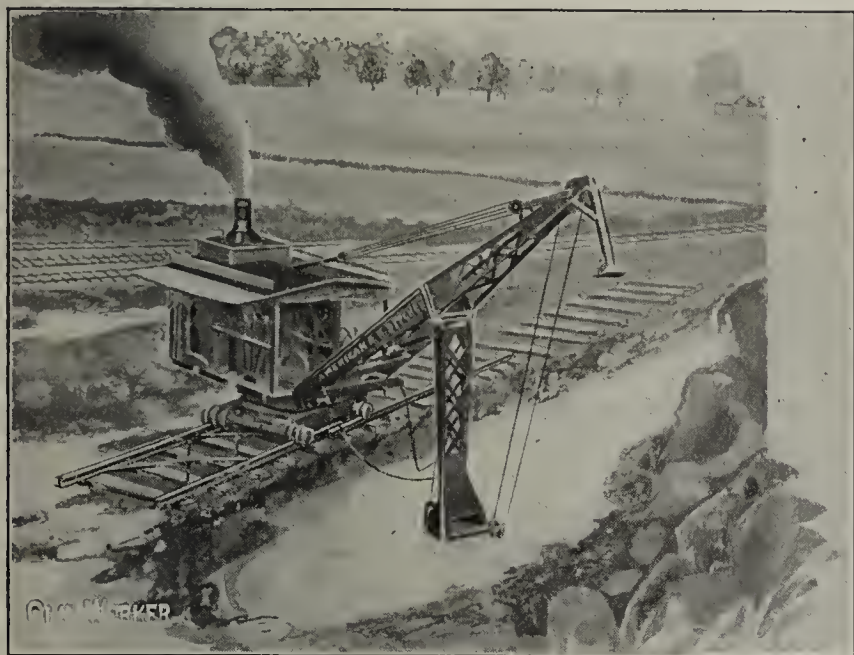
Friedman Brothers, of Minneapolis, have started work for the construction of a row of brick apartments at Franklin and Aldrich avenues. The building will be three stories and basement, exterior walls of common and pressed brick, hollow tile, etc., and will cost \$70,000.

Libby & Nelson, of Minneapolis, received the contract for an addition to the building for the college of engineering to be erected at the University of Minnesota, in Minneapolis. The structure is of pressed brick and cut stone.

The American Terra Cotta Company, of Chicago, will furnish the terra cotta work for the front of the new building to be erected in connection with the Emporium Department Store at Robert and Seventh streets, St. Paul. The addition will be five stories, with 125 feet frontage on Seventh street. Buechner & Orth, of St. Paul, are the architects. T. WIN.

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AMERICAN HOIST & DERRICK CO.
ST. PAUL, MINN.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



WISCONSIN BRICK MANUFACTURERS are highly interested in the fact that the State Supreme Court has sustained the constitutionality of the new Wisconsin workmen's compensation law in a test case brought by Milwaukee manufacturers. The opinion, signed by all the members of the court and written by Chief Justice Winslow, was especially notable in that the court broke away from precedent and decided the case from the standpoint of present-day conditions.

While the law went into active operation on September 1, only one or two brick manufacturing concerns in the state went in under the new law, as they preferred to determine the validity of the act. It is expected that most of the clayworking concerns in the state will now go in under the act, especially in view of the fact that the casualty companies carrying this class of risks have seen fit to increase their rates for Wisconsin business. Several mutual organizations have been formed by manufacturers in various lines to carry risks arising under the compensation law, and it is hinted by one or two brick manufacturers that this matter will receive attention at the coming annual convention of the Wisconsin Clay Manufacturers' Association. While some brick manufacturers claim that the element of risk is not especially predominant in brick manufacturing operations, most of the concerns carry liability insurance, and it is felt that it will be more desirable to carry it under the new state law.

The Wisconsin workmen's compensation law is entirely optional for both employer and employee. In case of injury, the employee working under the new law receives 65 per cent of his wages during the period of total disablement. When the injury does not disable the employee so as to prevent his working, he receives 65 per cent of his loss in wages. In case of death, when total dependents survive, the employer must pay four times the annual wage with a maximum of \$3,000 and a minimum of \$1,500. When partial dependents survive a deceased employee, these partial dependents are to receive four times 65 per cent of the annual amount devoted to them before the death of the employee. When the employee is totally disabled and so helpless as to require the services of a nurse, the weekly compensation is 100 per cent of his wages for three months. At the end of three months it drops to 65 per cent.

Now that the active season has closed, Wisconsin brick manufacturers are finding time to look over their books and estimate the past year's business. The annual inventories have started at most plants and the figures which are being disclosed are entirely satisfactory in most cases. The amount of building which was carried on in the state during the past twelve months, while hardly up to the predictions made early in the year, was considerably in excess of the previous year. Investigation shows that in Milwaukee alone the use of brick made satisfactory gains. Where concrete was used in the erection of large buildings, it was generally reinforced and the call for facing brick was strong.

Prospects for 1912 are indeed bright. Contractors, architects and brick men say that there has not been a time in years when so many big structures have been planned for Milwaukee. Among the big buildings which have just been started or will be erected during the coming year are the Northwestern Mutual Life Insurance Company building, a \$2,000,000 home office building; the Marshall & Ilsley bank, a new bank building, the Merchants' and Manufacturers' bank, a new bank building; the First National Bank, new twelve-story structure for bank and other purposes; the Somers' interests of Cleveland, Ohio, who have leased the Plankinton block in Milwaukee and will erect a new hotel, theatre and office building.

Paving work on streets now torn up in the northwestern

section of Milwaukee will be completed this winter in spite of the cold weather, according to Charles A. Mullen, superintendent of construction.

"The contractors are all agreed that no evil effects will result from laying the paving this late in the season," said Supt. Mullen. "Anyway, even if damage resulted, the city would lose nothing by it, because the contractors are responsible for all work until it is accepted and paid for. The risk of a late finish is always with the contractor."

News has reached Milwaukee that Mrs. Schwarz, mother of George J. Schwarz, well-known member of the firm of Ricketson & Schwarz, dealers in brick and general building material, Milwaukee, passed away at the home of her daughter in Chicago on November 25. Mr. Schwarz left Milwaukee on November 6 for a flying trip abroad and is not expected to return until December 15 or later. As he would not reach Chicago in time for his mother's funeral, the family will not notify him of her death until he reaches New York.

Prof. A. V. Bleininger, University of Illinois, was the leading speaker at the first meeting of the 1911-12 season of the American Chemical Society, held some time ago in the Germania building. Prof. Bleininger gave an illustrated lecture on the chemistry and manufacture of pottery. The speaker is a leading exponent of the new field of ceramic engineering, and his address was listened to with interest.

The city council of DePere, Wis., has decided to pave seven blocks in West DePere during the coming season.

The city of Sheboygan, Wis., laid more than four miles of paving during the past year. The mileage is divided about equally between brick, macadam and concrete.

A. BADGER.

BUILDING AND BRICK NEWS FROM DETROIT.

BUILDING CONDITIONS in Detroit during the past month were better than those of the same month of 1910, as shown by the comparative records of the department of buildings, the permits issued for last month showing 412 new buildings and 102 additions, amounting to \$1,522,595. Included among the permits were several good-sized structures, but by far the greater number were flats, residences, stores, etc. Among the larger structures were the new fireproof grand stands, pavilion and bleachers for the Detroit baseball park; large brick foundry and power building for the Cadillac Motor Company; six-story fireproof store building for Posselius Brothers, and a large brick factory building for the Kelsey Wheel Company.

Work has just been commenced to raze the old buildings at the corner of Fort and Griswold streets to make way for Detroit's largest skyscraper, i. e., the twenty-story fireproof office and bank building to be erected by Edward Ford. This building is to be known as the Dime Savings Bank building, which bank will occupy the ground floor. It is estimated that the building will cost approximately \$2,500,000.

Contractors in all lines report work advancing under the best conditions, and a large number are nearing the completion of their work for the season.

Having spoken generally in the previous issue of the common brick situation in this city, the writer desires to call attention to the large amount of pressed, enameled, glazed and terra cotta brick used in facings and fronts of flats, residences, stores, etc. The number of buildings constructed wholly or partly of these materials is very noticeable, and it is estimated that about 25,000,000 of this class of brick is used annually.

WOLVERINE.

The agricultural reports from the Census Bureau should be encouraging to the machinery manufacturers, because in almost every case it shows an increased use of small power units in the form of gasoline engines and electric motors, and these, of course, carry with them the use of power appliances of machinery in some form or other.



Barrett's PAVING PITCH



Fifth Avenue, North, Nashville, Tenn., Granite Pavement Filled With Barrett's Paving Pitch in Spring of 1892.

A Story of its Wonderful Durability

A competitor advertises that pitch is short-lived. Here is his answer in an instance which is not unusual but absolutely typical of experience with Paving Pitch.

In 1892 Fifth Avenue, North, between Church and Cedar Streets, Nashville, Tenn., was paved with Granite, the joints of which were poured with Paving Pitch.

A recent excavation for laying an electric conduit necessitated a trench the full length of the pavement. This gave an opportunity to observe the condition of the filler.

It was found that the 19 years of service had not impaired it in the slightest. It has never been renewed or given any attention. It was found by

physical test and examination to be as pliable and plastic as when originally poured in 1892. In fact, if it had not been for the expense of scraping it off the blocks, the pitch could undoubtedly have been heated up and used over on a new job.

Can any other filler on the market show 19 years of durability?

The best Paving Pitch, the kind we have always made, and which was used 19 years ago in the above instance, is Barrett's Paving Pitch.

Paving pitch has many other merits besides long life. It provides for expansion and contraction, makes cracks and breaks impossible and gives perfect waterproof protection to the foundation.

Booklet on request.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
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Written for THE CLAY-WORKER.

NEW YORK BRICK MARKET.

S EVEN DOLLARS a thousand for Hudson common brick is an uncommon price; that is a figure at which they are held and at which they will be held during the remainder of the season. It is years since common brick have brought seven dollars per thousand at the dock in New York. This high and stable price is due entirely to the influence of the Greater New York Brick Company. The announcement which was made when the company was formed, to the effect that it would put prices on a higher level and keep them there, has already been fulfilled. If the organization is able to hold prices steady, especially under dull building conditions such as have existed during the past month or two, surely there will be no difficulty in maintaining a moderately high level of quotations during the rush of the busy season.

Certain conditions combined to make the brick market in New York unsatisfactory during September and October and a large portion of November. Briefly, certain restrictions were imposed by the building department of New York City which prevented the development of a large amount of structural operations. It was only a little detail and effected only the building line of these structures, but that was sufficient to hold up more than fifty million dollars worth of construction for several months. An agreement was reached late in November by which these restrictions were compromised. As a result, the operations were put into the market and an immense quantity of brick was purchased to supply the necessary material.

There were thirty-five million dollars worth of brick in

Manhattan alone which was held up by this restriction. All of this has been released and it now looks as though the building trades would pass a busy winter.

The last barge loads of brick have come down from the upper Hudson. There will be some from the district immediately around New York to come later, but navigation will close before very long and everything after that will have to come by train. The management of sales under the new system has been so perfected that there is never a sufficiently large surplus in the market to disturb prices. This, of course, exerts a beneficial influence in all departments, and has much to do with maintaining a higher price of common brick.

Conditions otherwise are not essentially different from what they have been for the past two months. With these building operations ready for development, the outlook is extremely encouraging and most structural interests expect activity throughout the winter, so far as the weather will permit.

Buyers as well as sellers are expressing their satisfaction with the new plan of selling, and even though prices are higher, the quality of the brick is better and there is less waste in deliveries. One of the principal benefits of the change has been the elimination of the light hard grade, which was an important factor in holding down prices on all that came from up the Hudson. These will not be sent to this market any longer. More care is exercised in sorting and the color of barge and schooner loads runs much more evenly than it did under the old system of selling. All these are important factors in the market situation in and about New York and they all have their influence in holding prices at the present high level.

Burton.

HOW ABOUT THAT INCOME OF YOURS?

Is it Sufficient, are You Perfectly Satisfied with it, or would you like to Augment It with a Little
EASY MONEY?

How Would \$500 or \$600 a Year added to the Credit Column Fit You
Especially if it might be acquired by a very Small Investment and almost

NO LABOR RATHER A PLEASURABLE PASTIME

Sit you down and harken to me.

There is, positively no other honest industry that lends itself so unconditionally and generously to the requirements of the average man or woman as does the production of Superior Quality Poultry Products, and this is doubly true when one employs those most lovable and beautiful of all domestic fowls, the

SINGLE COMB BUFF ORPINGTONS

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They Stay

They Pay

The above sum can easily be realized the second season from a start with one pen of birds of good quality by any person of fair intelligence, and that on a back lot—a farm is not required—40x40 feet is ample.

NOW IS THE TIME TO START

I can supply you with Breeding Stock from a strain that has won 75 per cent. of the prizes, for which it contended, for the past six years; including such shows as Madison Square, Chicago, Pittsburg, New Orleans, etc., etc., and at prices such as you are not likely to be offered soon again.

March and April Cockerels that weigh up to Standard. Birds scored by one of the most critical judges in the association from 90 to 94. A limited number to let go—pullets, (many now laying), \$3.00 to \$8.00. Cockerels, \$5.00 to \$25.00. Order from this ad. or write for any information concerning them.

If they are not worth more than your money, YOU THE JUDGE, you can trade back, and I mean it.

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213 Hudson Street

Indianapolis Ind.

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Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

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Cost of drying reduced to less than 4 cents per thousand.



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Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

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Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

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11 4 cm Bloomington, Ill.

FOR SALE.

Brick plant, 123 acres of clay and shale, some fire clay and coal. Capacity, 44,000. Canton, Ohio, in center of paving brick district. One of the best propositions in the territory. Railroad siding. Will sell plant as it stands. Hollow block building, two houses, machinery and equipment. Splendid opportunity for paving and face brick manufacturer. For terms of sale, address,

T. TURNBULL, JR.,
835 Western Ave., N. S.,
11 3 cm Pittsburgh, Pa.

FOR SALE, LEASE OR MANAGEMENT.

A modern brick plant, fully equipped, with inexhaustible deposits of shale and fire clay, plenty of coal to burn the product; making paving brick and front brick; favorable inducements to buy a controlling interest or all on easy terms, or to lease for a term of years, or to manage with cash investment. A good chance to the right man. Owners having other business requiring all their time and attention. Address

HERBERT,
11 2 d Care Clay-Worker.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa.

DE WITT BRICK & TILE CO.,
11 8 c DeWitt, Ia.

FOR SALE.

Six piano wire screens, used only a short time. In good shape; cheap. Address BOX 10-IRON,
10 3 c Care Clay-Worker.

FOR SALE.

Ten thousand white pine pallets, 34 x 10. One second-hand, rebuilt Hercules horizontal soft mud brick machine.

THE HENRY MARTIN BRICK MACHINE MFG. CO.
12 1 l Lancaster, Pa.

FOR SALE.

REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14½x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

Engines—Throttling.

18x24 Atlas, 14x18 Sinkers-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.

72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

Boilers—Fire Box.

100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 horsepower, etc.

Heaters.

All sizes, open and closed.

Pumps.

All sizes, single and duplex.

Electrical.

30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

Miscellaneous.

Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1733 Powers St. Cincinnati, Ohio.

Classified Advertisements—Continued.

FOR SALE

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. Address
BOX 10—BOSTON,
10 3 cm Care Clay-Worker.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address
BOX 6—B. T. CO.,
6 tf d Care Clay-Worker.

STEAM DRY PAN FOR SALE CHEAP

Practically new; only 60 days' use; 60 inches wide by 55 feet long; 3-inch steam space; pan good for 100-pound pressure; has drag chain, complete, to stir and drag the material over the pan. This pan is suitable for drying clays, shales, brick and minerals. Will sell cheap.

TAMMS SILICA CO., Tamms, Illinois.

FOR SALE.

One 60 h. p. Boiler. One 45 h. p. Engine. One 3 roll Griffin Mill, grinds hardest rock to any mesh wanted; condition absolutely guaranteed. Will sell cheap to quick buyer. Further information upon application.

HANCOCK SHALE BRICK CO.
10 3 cm Hancock Md.

BRICK PLANT FOR SALE.

Owing to ill health of manager, a practically new plant, having down-draft kilns, brick and steel buildings, located near Pittsburg, Pa. Plant now in operation, plenty of shale and fire clay for the manufacture of facing brick, common red brick or block. Capacity 25,000 per day. Do not overlook this opportunity. Address

BOX 12—ALLEGHENY,
12 1 d Care Clay-Worker.

FOR SALE \$12,500

Large acreage of tested Brick Clay.

Location: Forty-five miles east of New Orleans, fronting half mile on main line of L. & N. R. R., and on tide water bayou.

Chambers Brothers Company tested on one of their End-cut Auger Brick Machines, 9-foot continuous strata, including top soil, reporting that the clay tested produced good building brick, with deep red color, and that on this material their machine would give its full rated capacity.

A body of good brick clay in that alluvial and sandy section amounts to a practical monopoly. Address
MONT EYRIE ORCHARDS,
Blount Springs, Ala.

FOR SALE—An 8-foot dry pan in fair condition. Made about 12,000,000 brick. Will sell for \$300 at yard.

NEWPORT PRESSED BRICK AND
STONE CO.,
12 1 d Newport, Ky.

FOR SALE.

Four-mold Fernholtz dry press in first-class condition. For particulars address

W. G. BUSH & CO.,
12 1 d Nashville, Tenn.

FOR SALE.

1 Berg 4-mold dry press.
1 Frey-Sheckler combined brick machine, No. 23.
1 American No. 25 Automatic cutter.
2 Raymond 9-foot pug mills.
1 Bevel gear winding drum.
3 Wood side-dump clay cars.
1 No. 777 Raymond auger machine.
3 Victor represses.
2 Piano-wire screens.

THE FORT SCOTT BRICK AND TILE
COMPANY,
12 tf d Fort Scott, Kansas.

FOR SALE.

New Centennial brick and hollow ware machine, Madden & Co. hollow ware and brick machine, transfer cars, hollow tile-cutting table, hollow block or conduit cutting table, semi-automatic cutting table, 11 ft. off-bearing table, 10 ft. pug mill, 9 ft. dry pan, clay elevator, 115 double deck dryer cars, mine friction hoist, wagon scales, 3,000 ft. 12-inch T rail. Full equipment shafting, hangers, pulleys, belting, mine cars, etc. Must be moved at once regardless of price.

BRAZIL WRECKING CO.,
11 tf d Brazil, Ind.

WANTED

WANTED—Position as superintendent or head burner of brick plant. Know any kind of kiln. No. 1 references. Address
BOX 12—C. W. F.,
12 1 c Care Clay-Worker.

WANTED—PARTNER

To locate or operate tile plant in north-central Indiana. Get bonus. Investigate. Address
BOX 12—J. B.,
12 1 dm Care Clay-Worker.

WANTED

To get into communication with parties seeking good location for common and fancy brick, tile or pottery plant. Have clay in abundance, two railroads and four small common brick plants.
CALLAHAN BOARD OF TRADE,
12 1 cm Callahan, Fla.

WANTED—Position as superintendent or manager by one skilled in every detail of brick manufacture. The best of references. Address

BOX 11—L. I. H.,
11 tf d Care Clay-Worker.

FOR SALE—Dodge drive pulley, five-foot diameter, 33-inch face, iron center, wood-face split. Several others at bargain prices.

ATLANTIC MFG. CO.,
12 2 d Wilmington, Del.

WANTED.

To sell an interest to party or parties competent to take full charge and management of a large street paving plant and two coal mines, both mines equipped with compressed air machinery. Mine and ship our own coal. Address
A. B. CHARLES,
12 3 c Care Clay-Worker.

WANTED.

A clay pulverizer. Must be in good condition. Give name of manufacturer; state capacity of machine, how long in use, and quote lowest spot cash price. Address
BOX 10-K,
10 tf d Care Clay-Worker.

WANTED

As assistant to superintendent on a southern plant, an intelligent, industrious and strictly sober young man ambitious to fully learn the brick business. One who has worked with producer-gas-fired continuous kilns is preferred. State experience, age, references and salary expected to begin with. Address BOX 12—POWELL,
12 1 c Care Clay-Worker.

WANTED—POSITION.

Superintendent wishes re-engagement. Efficient in every branch of the trade. Have been superintending plants for fifteen years and am used to all makes of machinery, up and down-draft and continuous kilns. Guarantee to handle plant at least possible cost in fuel and labor. Would take charge either on salary or contract by the thousand. Address
BOX 12—FRED,
12 1 c Care Clay-Worker.

WANTED—For the Northwest, about January 1, 1912, capable superintendent to take charge of new plant manufacturing wire-cut brick, fireproofing and hollow building block. Must be thoroughly versed in all lines of manufacture, and understand fully waste heat dryer, and continuous kilns. Give age, references, experience and salary expected. Only a first-class man required. A man that has and can make good. A splendid opening for the right man.
BOX 11—A. E. N.,
11 2 d Care Clay-Worker.

(Continued on next page.)

Classified Advertisements.

WANTED, ETC.

WANTED—Party to take one-third interest in 40,000-capacity stiff mud brick plant on asphalt street in the heart of a city of 75,000. Hard coal region. Coal 50 cents, brick \$7.00. Finest of clays. Best of markets. It is worth investigating.

BOX 12—WILKES,
12 1 cm Care Clay-Worker.

SUPERINTENDENT WANTED.

A good position open for a capable and reliable brick yard superintendent of stiff mud plant, making paving blocks and face brick of both fire clay and shale; a man who can become financially interested preferred but capability and reliability are first qualifications that will be considered; send recommendations references and full information. Address

E. B.
11 2 d Care Clay-Worker.

WANTED—WORKING PARTNER IN BRICK PLANT.

One who can purchase an interest and practically competent to take charge, at a good salary, in a stiff mud and dry press plant with machinery capacity of 20,000 per day, but handicapped by reason of limited kiln capacity. At present burning exclusively fire brick and have refused more orders this year than have been filled. Purchase money to be invested in increase of plant and output. Will entertain sale of entire plant, but would much prefer a desirable associate. The plant is exceptionally well located in the very center of the industrial district of Los Angeles City. References required and given. Address

BOX 12—LOS,
12 2 cm Care Clay-Worker.

WANTED—POSITION.

Manager or superintendent of brick or tile plant where parties desire the services of an up-to-date practical man. Understand the business from clay pit to office. Thirty years' experience in erecting and operating largest plants in the country. Practical engineer and machinist, understand burning any kind of kiln, up or down draft, using wood, coal, oil or gas for fuel with best results. Understand all kinds of brick and tile machinery, can make plans, erect complete plant and kilns. Make any kind of brick, soft mud, stiff mud, wire-cut, vitrified paving, dry press, face and ornamental brick. Handle all kinds of labor, and know what a day's work is and how to get it. Am strictly sober. Will give 60 to 90 days' trial to demonstrate what I can do. Address

BOX 11—W. D. G.,
11 2 d Care Clay-Worker.

WANTED.

Superintendent at present in charge of a large paving and face brick company desires change, and would like to connect with a large progressive concern where services of a live wire as manager will be appreciated. Only those needing services of high grade man need answer. Would invest small amount as guarantee of good faith. Gilt edge references. Address

BOX 12—ST. LOUIS,
12 1 d Care Clay-Worker.

MISCELLANEOUS

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
965 Adams Express Bldg.,
10 tf d Chicago, Ill.

AN OPPORTUNITY.

A well equipped front brick plant in a good southern city desires to increase its business. A satisfactory party with \$10,000 to invest will receive a good position. Particulars furnished on application. Address

BOX 12—LON,
12 3 d Care Clay-Worker.

GET INTO THE ROOFING TILE BUSINESS.

It is the coming business and here is an opportunity for it at less than half price, with almost complete outfit and an abundance of clays that make the best of this product. It is worth your investigation. Address

A. H. MURRAY,
12 2 cm Cloverport, Ky.

BRICK YARD TO LEASE.

Twenty-five acres on the shore of San Francisco Bay, with both rail and water transportation, and only ten miles distant from San Francisco and the coming World's Fair in 1915. Brick manufactured at this plant have been used in some of the best buildings in San Francisco and other bay cities. This is undoubtedly the best brickmaking opportunity on the Pacific Coast. Address

BOX 12—THOMAS,
12 1 d Care Clay-Worker.

KENTUCKY FIRE CLAY LANDS.

Will sell or lease on favorable terms, or join with other parties in building a plant in eastern Kentucky. Good opening for people wishing to engage in this business or enlarge their present holdings. A good proposition for shipping crude clay for fire brick and glass pots; best quality; economical mining conditions; good shipping facilities, large and profitable market. Address

KENTUCKY,
12 1 d Care Clay-Worker.

PARTNER DESIRED AND POSITION OPEN FOR A MANAGER OR SUPERINTENDENT

of firebrick works, hand process, making first-class quality of fire brick for coke ovens and furnaces. A man desired who can buy an interest and assume greater part of management. Owners have other business requiring most of their time, and will dispose of part of their stock at favorable prices and on easy terms to a good party, well recommended, who can give the business competent, personal attention. State age, experience, habits, how much money you can invest within a year, and send recommendations and references. Address

FIRE BRICK,
12 1 d Care Clay-Worker.

THE BEST LOCATION FOR CLAYWORKERS

The raw materials of kaolin, ball clay, stoneware clay, slip clay, saggar clay, feldspar and silica are all found in various parts of the Southeastern States, in ample quantities to supply the largest possible demands.

Fuel is Amply and Cheaply Supplied in the Southeast.

In 1908 the U. S. Geological Survey estimated that the four states of Georgia, Alabama, Tennessee and Kentucky contained an available supply of coal, totaling over 69½ billion tons, and the average price at the mine in 1909 for the four states was \$1.15 per ton, the fuel and coking values of this coal being unsurpassed. Natural gas is also available in some sections at extremely reasonable rates.

Close investigation will satisfy interested parties that the Southeast is the best location for such industries. Write

M. V. Richards, L. & I. Agent

Southern Ry., Room 1369,
Washington, D. C.

Chas. S. Chase, Western Agent

or Room 700 Chemical Bldg.,
St. Louis, Mo.

Classified Advertisements—Continued.

WANTED! A MAN WITH SOME MONEY

to invest in the brick business and secure a good opportunity, with or without position. If a position is desired one can be secured either as superintendent, manager, salesman or corporate officer.

Several companies and individuals desire experienced, capable and trustworthy men, who are able and willing to invest money and become actively identified in the further development of established plants in different localities, making paving brick, fire brick and building brick.

Inducements are offered in undeveloped properties, carrying rich deposits of fire clay analyzing approximately 46% silica, 39% alumina; the best in the United States for brick for lining lime and cement kilns, coke ovens and furnaces. This property is well and favorably located for western and southern business. Parties having capital to invest and who are experienced and capable of filling positions of responsibility in such an undertaking will receive every encouragement in establishing such an enterprise.

Manufacturers contemplating the erection of new plants or enlargement of old ones, or seeking new locations are especially desired.

Splendid opportunity also for the manufacture of hollow-ware glazed pottery, crockery, enamel brick and sanitary ware, and almost any line of shale or fire clay products.

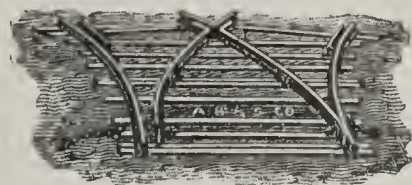
Unlimited supply of best raw materials at low cost. Cheap coal and plenty of gas at reasonable rates. Close to best markets and good railroad accommodations.

If this appeals to you and you can meet the requirements, write at once.

Address

INDUSTRIAL AGENT

Care The Clay-Worker



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

See additional ads under Table of Contents.

WESTERN AND PACIFIC COAST CLAYWORKERS ATTENTION

Clayworks engineering. Plans for common, face and paving brick, sewer pipe and pottery plants; for dryers; for up-draft, down-draft, continuous and other kilns. Clay deposits examined and tested. Machinery installed and operations supervised. Clayworkers' appliances, such as Engelhard pyrometers, Bristol recorders, draft gauges, watchman's clocks and others.

GEIJSBEEK ENGINEERING COMPANY,
Blake-McFall Bldg. Portland, Oregon.

RECEIVER'S SALE BRICK AND TILE FACTORY PORTLAND, OREGON

Sealed bids will be received until January 15th, 1912, at address given below for the purchase of a modern, completely equipped factory for the manufacture of excellent quality building brick, drain tile and building tile.

Failure of owners, due solely to mismanagement and lack of sufficient working capital. Plant located in the vicinity of Portland with a market which comprises this city and the rich Willamette Valley and Columbia River Valley farming districts. The right is reserved to reject any or all bids. Cash purchase or terms will be considered. Write to undersigned for full particulars.

G. M. AMBROSE, Receiver,
Henry Building,
Portland, Ore.

PATENTS

secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

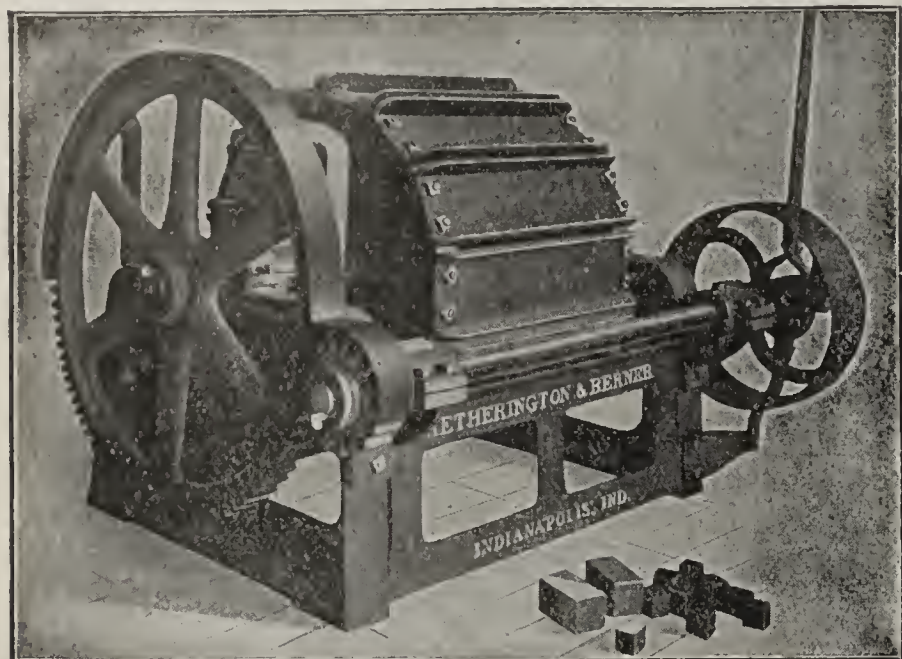
YOU CAN'T TRADE THEM
none like them
Cement, etc. Red, Brown, Purple and Black.
for Brick, Mortar,
MILWAUKEE, WIS.



Ricketson's PURE MINERAL Colors
The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

Books for Brickmakers

These Books Will be Mailed, Postage Prepaid, to Any Address
in the United States or Canada,
on Receipt of Price.

BRICKMAKERS' MANUAL	Morrison & Reep	\$3.00
CLAY GLAZES AND ENAMELS.....	Henry R. Griffen, C. E.	5.00
CLAYS; THEIR OCCURRENCE, PROPERTIES AND USES	Henrich Ries	5.00
BRICKLAYING	Owen B. Maginnis	2.00
VITRIFIED PAVING BRICK	H. A. Wheeler, E. M.	2.00
TABLES OF ANALYSES OF CLAYS.....	Alfred Crossley	2.00
BRICKLAYING SYSTEM	Frank B. Gilbreath	3.00
KILN RECORDS	W. D. Richardson	1.00
PRACTICAL FARM DRAINAGE	C. G. Elliott	1.50
ENGINEERING FOR LAND DRAINAGE	C. G. Elliott	1.50
TILE UNDERDRAINAGE	J. J. W. Billingsley	.25

Sold By

T. A. RANDALL & CO.
INDIANAPOLIS, IND.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.

Conveying, Elevating and Power-Transmitting Machinery.



The only perfect spiral conveyor. Continuous flight—no laps or rivets.
A Complete Line of the Best Supplies.

Belt, Chain and Cable Conveyors.

Ask for General Catalogue No. 34.

H. W. CALDWELL & SON CO., Chicago.

Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

Chicago Retort & Fire Brick Co.

"AJAX"
Fire Brick for
Building Kilns

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.,
CHICAGO, ILL.

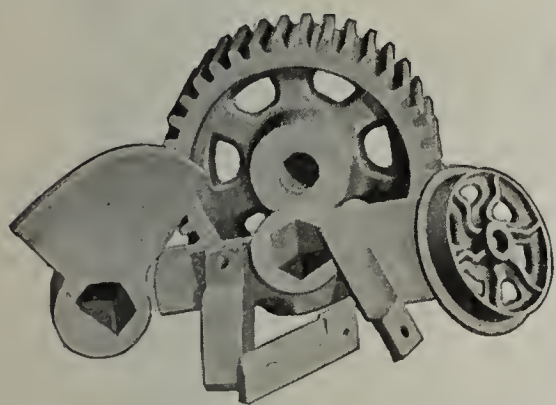
'Phone
Randolph 3601.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY SIZE **FIRE BRICK** ANY SHAPE

Write Us Now **Evens & Howard Fire Brick Co.**
St. Louis, Mo.



Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent
shut downs.

Let us refer you to other users.

The Wallace Machine and Foundry Co.
LAFAYETTE, IND.

\$2.00 THE CLAY-WORKER. **\$2.00**
ONE YEAR, (IN ADVANCE)

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for
practical and theoretical instruction in the
clayworking industries. Two courses have
been provided: the regular course of four
years; a short course of two years, designed for
the young man who has had practical experi-
ence in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Kilns Driers Processes

JULIUS J. KOCH

Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...

**You Want
to Sell
or Buy...**

Second-hand Claywork-
ing Machinery, Tile Mills,
or anything pertaining
thereto.

**If...
You Want
a Man**

for any position or a posi-
tion in any connection
with the Clayworking
Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay=Worker.**

RATES

For all transient advertisements, such
as "For Sale," "Wanted," etc., the rate
is 25 cents a line per insertion. Aver-
age of seven words to line. Head line
counts as two lines.

The Best, Quickest, Cheapest
Method of Securing Results.

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

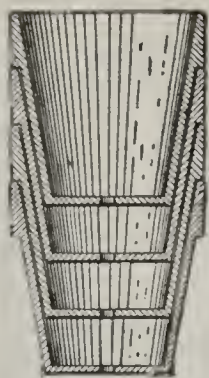
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

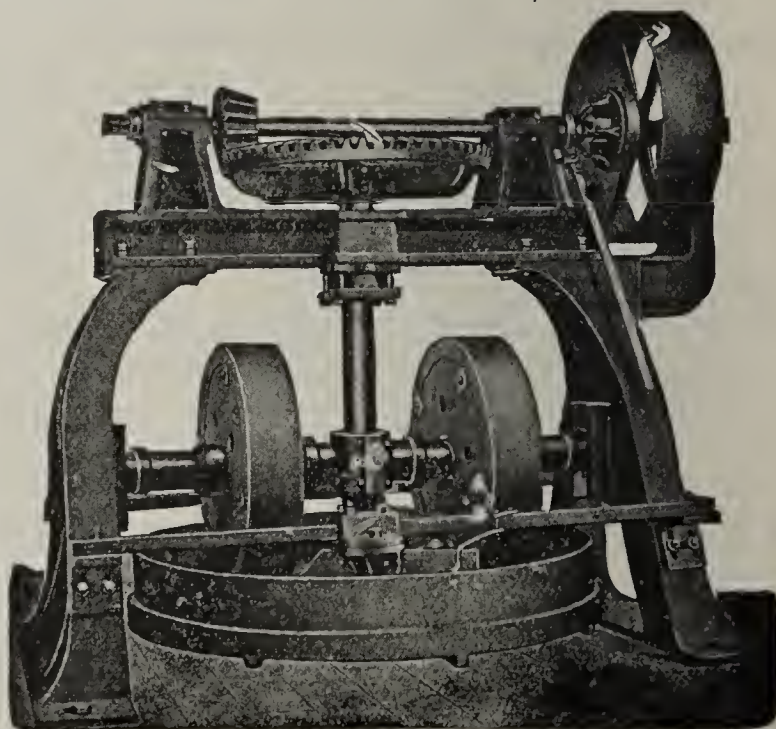
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

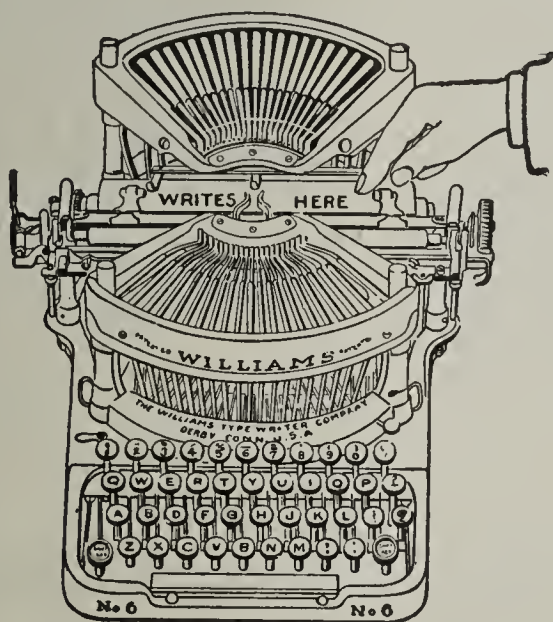
THE ANTON VOGT Latest Improved Down-Draft Kilns for Brick and Tile.

Write to
Anton Vogt, Lewis, Iowa.

SEEING

Saves the beginner time when learning
Saves the learned time when beginning.

New
Number
Six
Visible
Writer

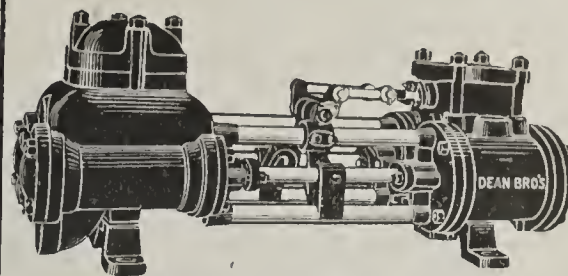


Saves time, energy, worry and money.
Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.
Old machines of any make taken in trade.
The Williams is sold under a positive guarantee and on easy terms.
If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.
Home Office and Factory, Derby, Conn. Old Machines Taken in Trade.

\$2.00 THE CLAY-WORKER **\$2.00**
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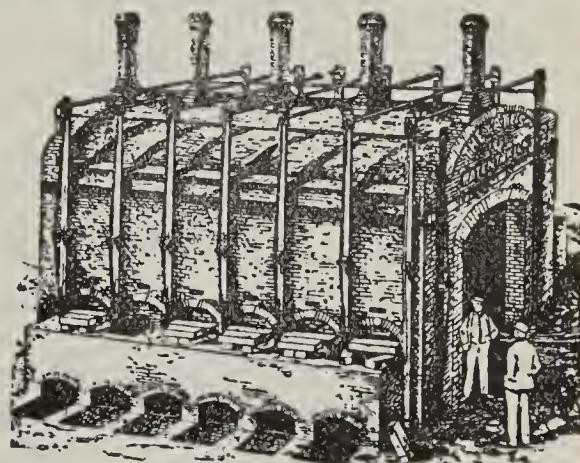
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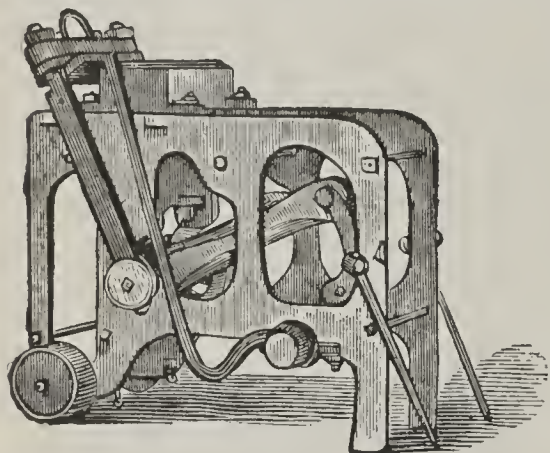
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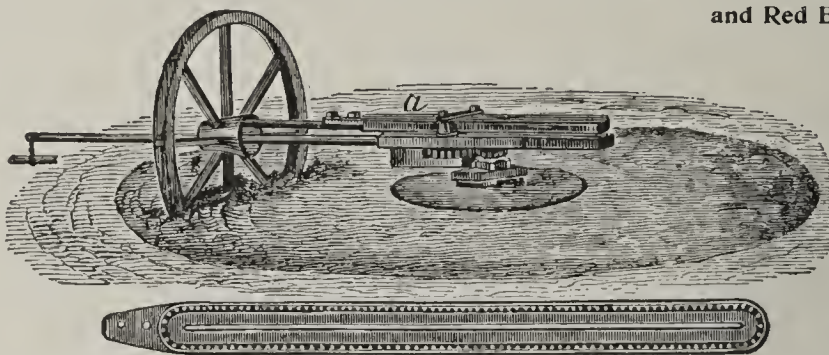


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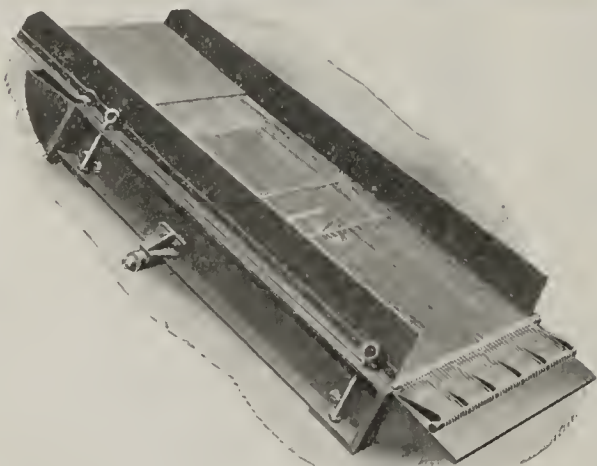


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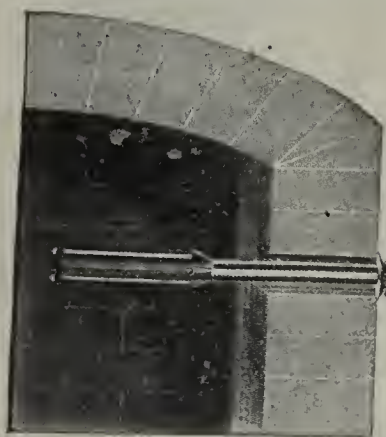
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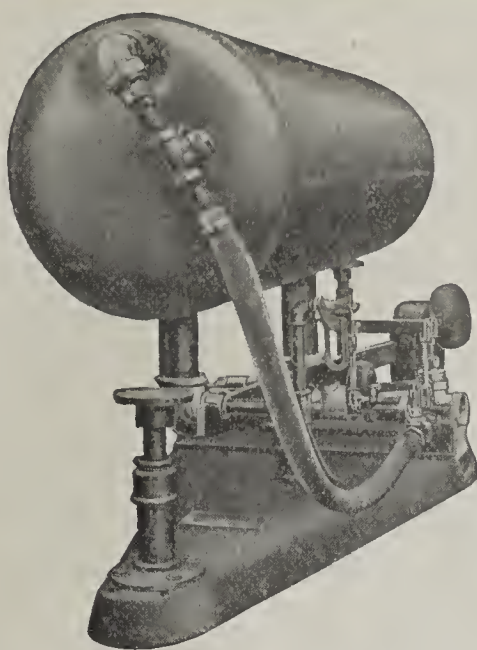


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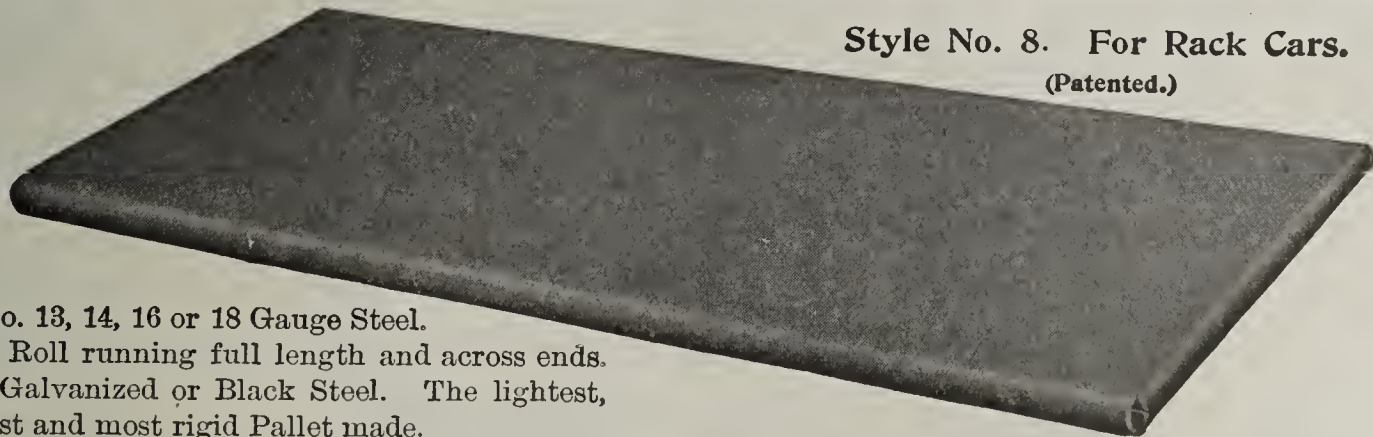


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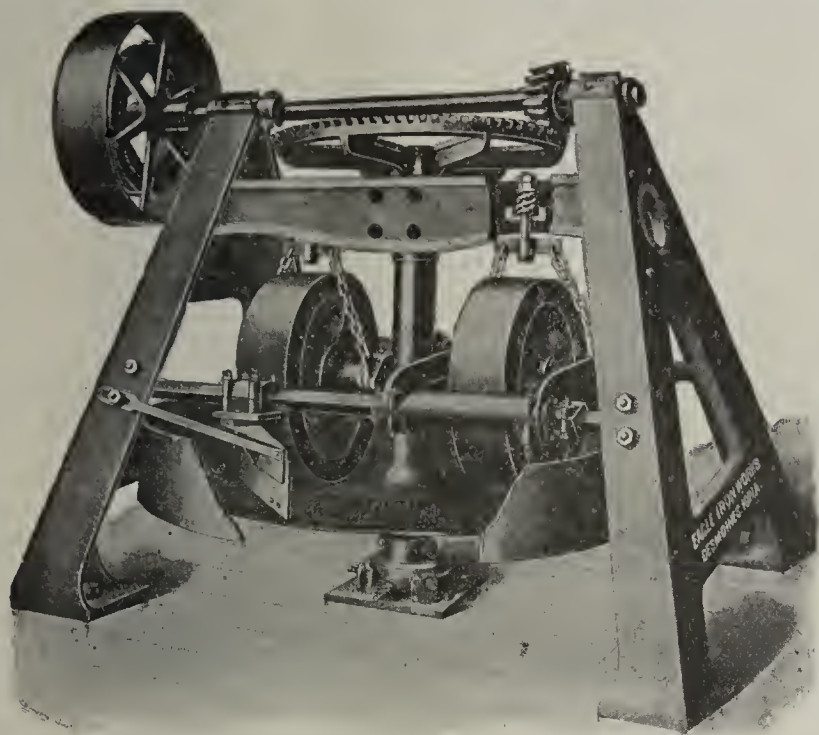
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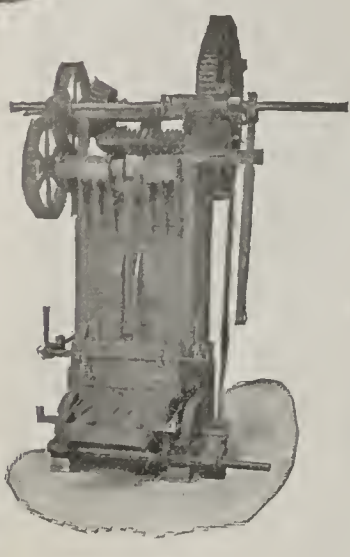
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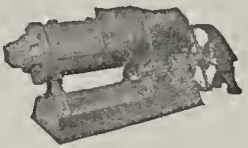
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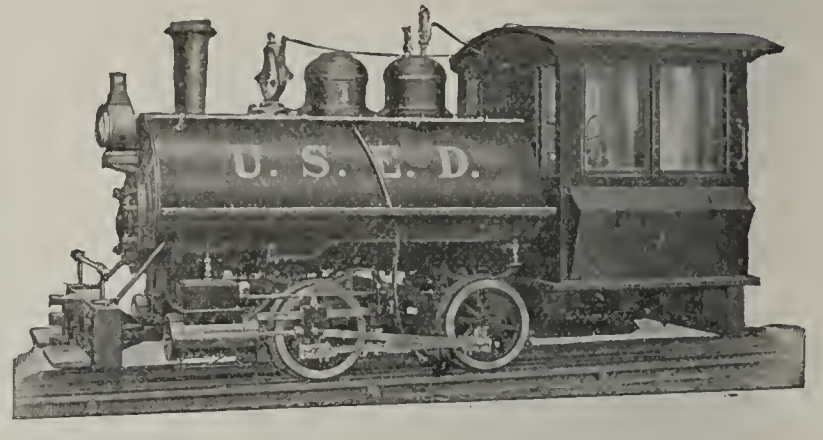
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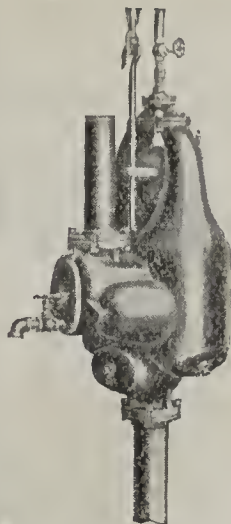
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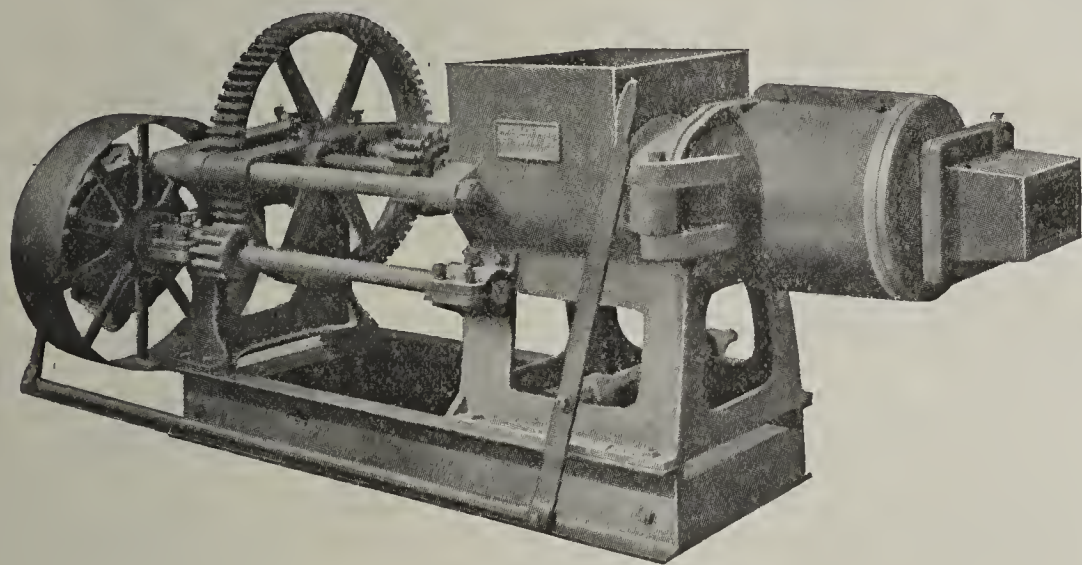
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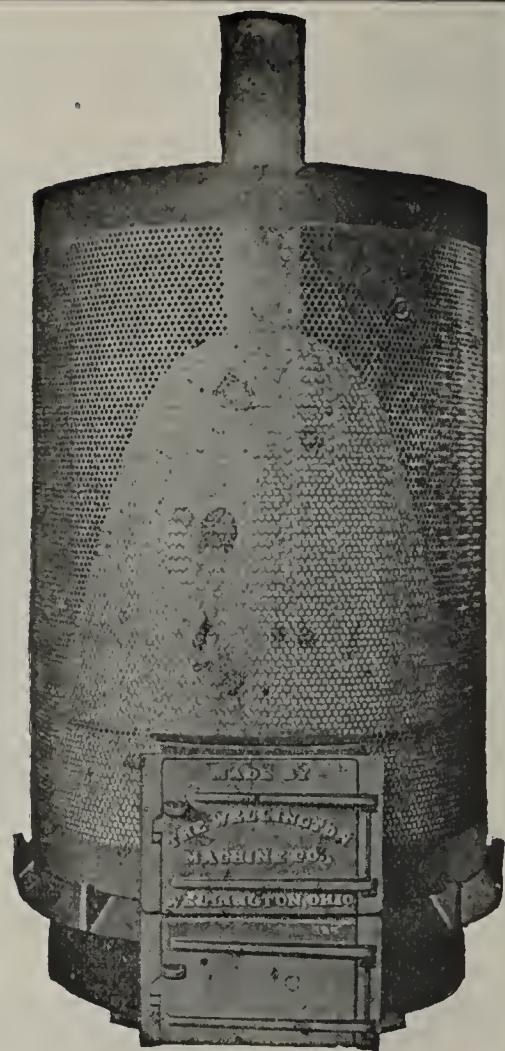


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An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of Vitrified Paving Brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen, and enable them to do difficult work in the best manner.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

THE LEAVENWORTH POST

ALBERT T. REID, PRESIDENT

THE POST

FRED W. JAMESON, SECRETARY



LEAVENWORTH, KANSAS

October 27, 1911.

The C. W. Raymond Company,
Dayton, Ohio.

Gentlemen:-

In response to yours of October 25th, we have sent you under separate cover to-day, six copies of our issue of October 19th. We will make no charge for these and trust you will find them useful.

The writer of this accompanied a delegation of prison wardens from all over the United States on a visit to this brick making plant and they were greatly interested in your machinery and well pleased with the quality of the brick turned out by it.

Senator Stillings, whose hobby is road building, has taken a great interest in the brick plant at the Kansas State Penitentiary, at Lansing, and was particularly delighted with the quality of the brick manufactured at the Military Prison, and could only attribute its superiority over the Lansing brick, which is from the same material, to the improved machinery used.

Yours respectfully,
THE POST PUBLISHING COMPANY.

Fred W. Jameson
Business Mgr.

"This is What They All Say—"

Leavenworth Post
Oct. 19, 1911
Leavenworth, Kansas

ARE MAKING FINE BRICK

Convicts at the Military Prison Are Turning Out a Superior Quality.

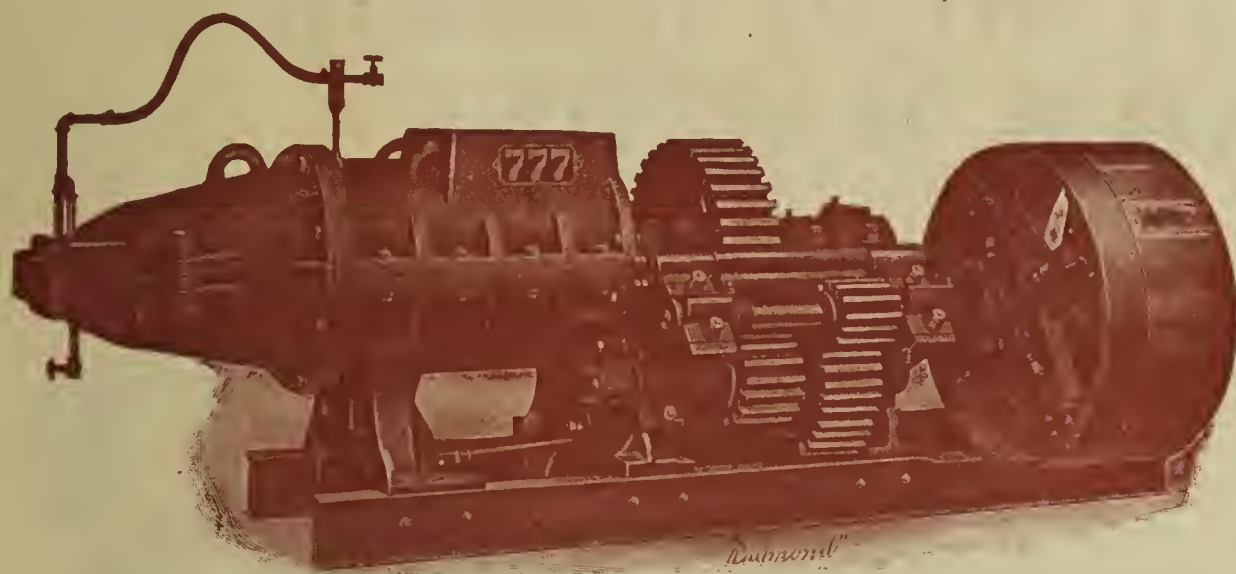
Yesterday a dozen prison wardens from various parts of the country visited the penal institutions here. All were particularly impressed with the fine quality of brick being manufactured at the United States Military prison at Fort Leavenworth. Senator Vinton Stillings who was in the party and who is a brick expert, pronounced them the finest he has seen in a long time. "I cannot understand why they are so far superior to the Lansing brick when the materials are the same," he said. "At Lansing we sometimes have a run of fine brick like this and then a run of poor brick. These seem to be uniformly good."

It is possible that the fact that the Fort Leavenworth bricks are made from dry powdered shale and clay accounts for their fine quality. The Lansing bricks are pressed from wet clay which is more difficult to burn. The brick plant at the military prison is one of the finest in this section, being superior even to the Federal prison plant. The capacity of the plant is 100,000 bricks a day but the plant is not run up to capacity because the bricks cannot be hauled off fast enough.

Raymond Equipment

Raymond Equipment

PRESS NOT RITUAL-JUST



The Brick Plant of The United States Military Prison

at

Fort Leavenworth, Kansas

is equipped with

- 2—Raymond 9 ft. Standard Dry Pans
- 2—Raymond Cup Elevators
- 1—Raymond Piano Wire Screen
- 1—Raymond 10 ft. Standard Pug Mill
- 1—Raymond "777" Brick Machine
- 1—Raymond No. 2 Automatic Cutter
- 1—Raymond Victor Repress
- 1—Raymond 10 Tunnel Radiated Heat Dryer

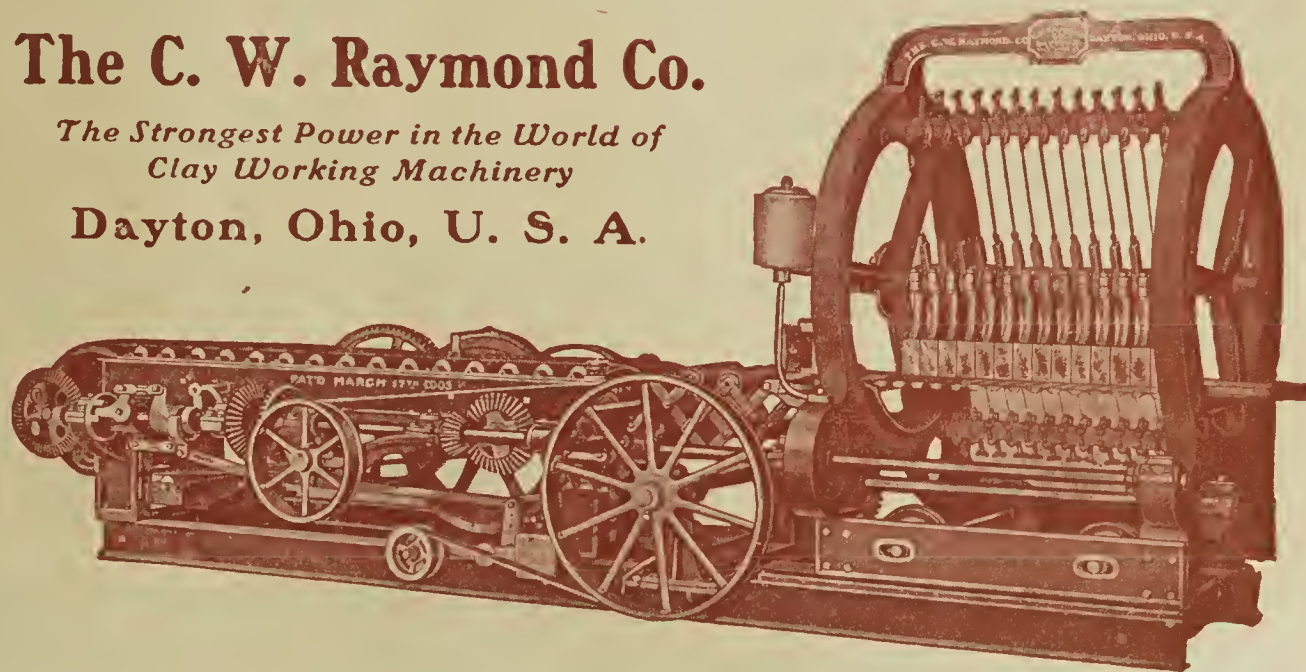
—And They Said,

“—particularly delighted with the quality of the brick manufactured at the Military Prison, and could only attribute its SUPERIORITY over the Lansing brick, which is of the same material TO THE IMPROVED MACHINERY USED.”

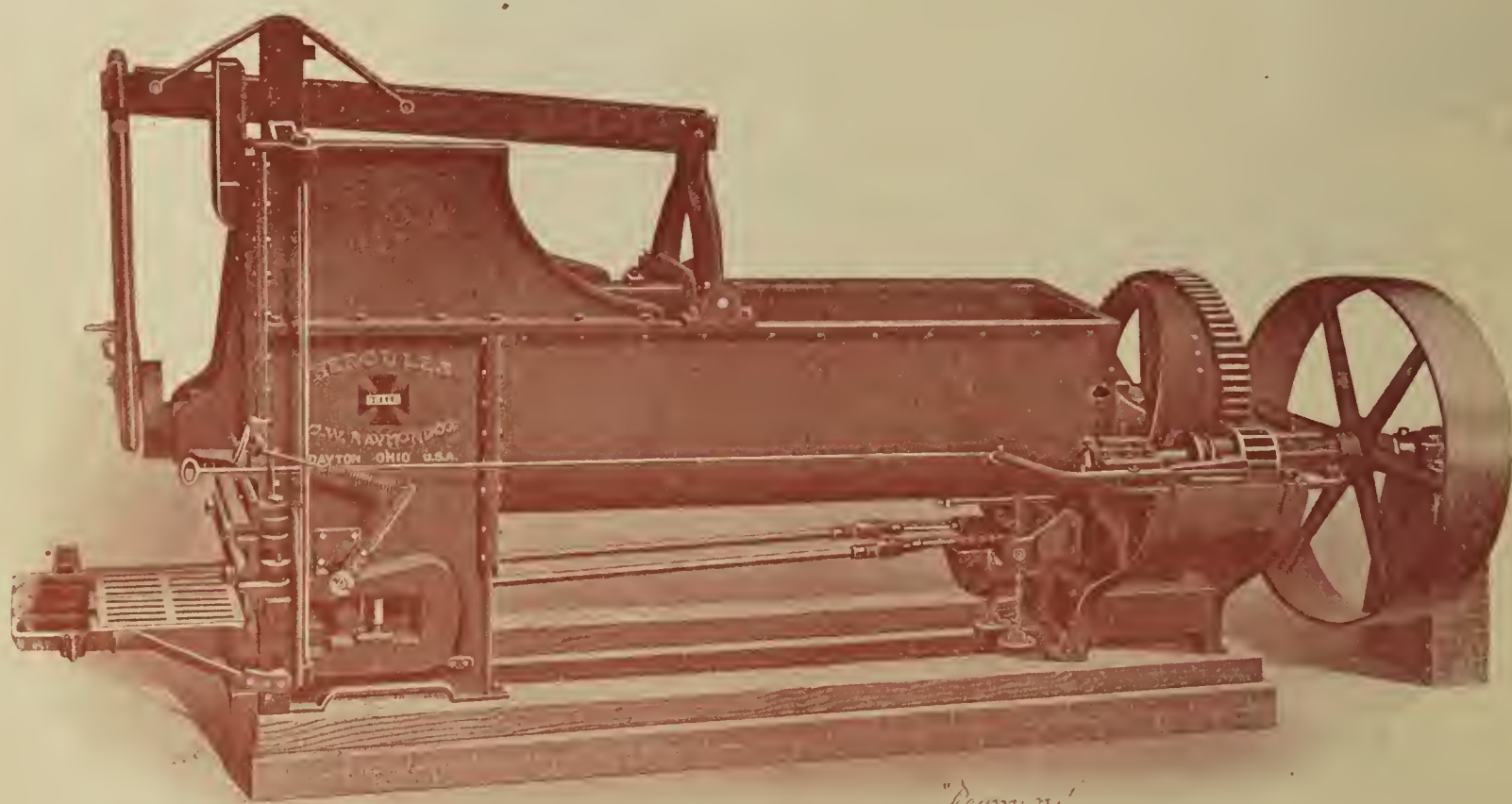
The C. W. Raymond Co.

*The Strongest Power in the World of
Clay Working Machinery*

Dayton, Ohio, U. S. A.



THE RAYMOND HERCULES BRICK MACHINE



"Hercules"

Among the numerous improvements made in our machines for the year of 1912 the Soft Mud machinery has come in for its full share and the Hercules Soft Mud machine is now constructed with a vastly improved pushout device, making a positive return and of such shape and size to insure sufficient bearing at this important point that it will not stick nor clog in any manner.

The safety feature of the pushout device has not been lost sight of, but has been improved over the old method by paying more attention to the workmanship and every part of the machine now is put together with the same care and precision as are the most careful adjustments on our Automatic Cutting Tables. The result of this is clear, making as it does a higher grade machine, smoother working, better product and longer life.

Photographs and full description of this improved machine are yours for the asking.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

"Mr. Clayworker—This is YOUR SHOW"



Go Where the Buyers Are

The man who has some brick to sell,
And tells his story down a well,
Will never reap the golden dollars
Of he who joins the show and hollers.

The Clay Products Exposition will be the opportunity of recent years to find buyers for your product. Architects, Contractors and Builders from all parts of the United States are taking the liveliest interest in the Exposition. They all want to see what the Clay Products people have to offer, and they will arrive in the Coliseum in March to be shown. These are the people most manufacturers would like to see and talk to, and the Exposition will afford the opportunity. It becomes important that displays of clay products which are creditable to the trade are shown in an attractive way. You should see that your best selling samples are there, and that they are backed by your best selling talk. A weakness anywhere along the line would be an unfortunate mistake. This is your opportunity to get business, Mr. Clayworker, so get busy. If you think you already have a pretty fair business you can either improve its volume or quality at the Exposition, and you can also prevent some other manufacturer getting a part of it away from you.

You Cannot Afford to Stay Out——This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in a suitable exhibit space for the inspection of

100,000 PAIRS OF EYES.

Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

INTERNATIONAL CLAY PRODUCTS EXPOSITION CO.

815 Chamber of Commerce Bldg., CHICAGO

Twenty-Five Years Ago

WE STARTED MAKING A SPECIAL
BELT FOR THE BRICKMAKER

TWENTY-SIX HUNDRED

Leading Brick and Clay Plants
Are Now Using the Sawyer Belt

SAWYER BELTS ARE MADE IN SEVERAL
DIFFERENT CONSTRUCTIONS FOR THE
VARIOUS CLASSES OF SERVICE

A PROPER BELT FOR EVERY CONDITION

What's the Use of Waiting?

Our next ad won't offer a better belt—
A better belt cannot be made——

Write your wants and troubles

To our

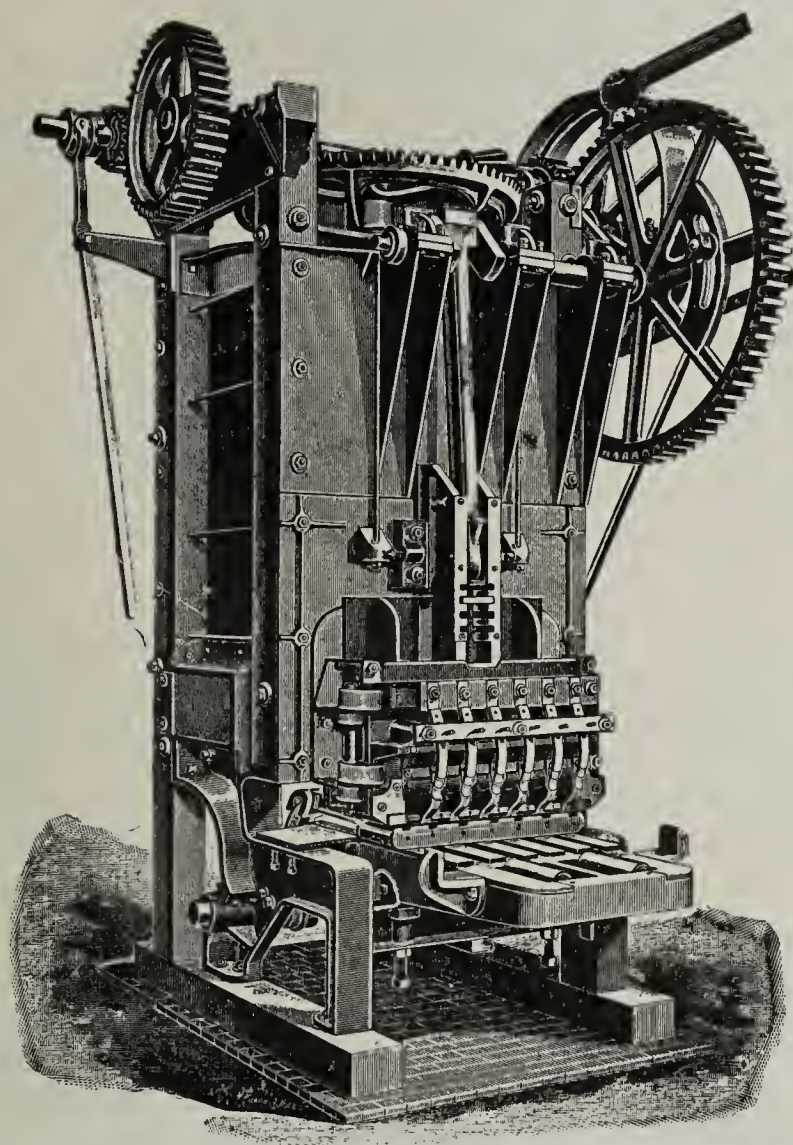
ENGINEERING DEPARTMENT

SAWYER BELTING COMPANY

CLEVELAND, OHIO

EARNING CAPACITY.

The thing which gives value to any machine is its earning capacity. The earning capacity of brick machinery depends as much on strength and thorough construction as anything. Most brickmakers have learned this in the expensive School of Experience. When a machine is broken down its earning capacity and its value is gone. Continued results, therefore, determine the economic value of a machine, rather than first cost. On this basis "New Haven" Machines have proven to be the least expensive on the market.



"New Haven" Vertical Brick Machine.

Because of their simplicity, unusual strength, and excellent construction, "New Haven" Vertical Brick Machines are seldom out of repair, and hence earn more and are much more valuable to their owners than the light weight affairs that break so often. They do better work than is possible with less powerful machines. It will pay any prospective buyer to think seriously about this matter of earning capacity, and look into the merits of the "New Haven" Machine from that point of view.

The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

The C.-W. Vest Pocket Kit

The
Handiest
Combination
Ever
Invented

18 TOOLS IN ONE.



AN ARTICLE OF REAL MERIT.
CAN BE USED IN A THOUSAND WAYS
AROUND THE HOME AND OFFICE.

This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

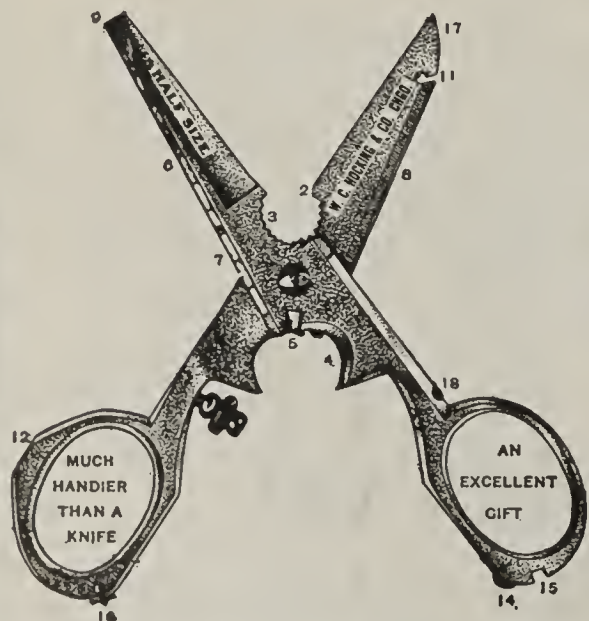
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every new subscription to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE C.-W. VEST POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued.

beginning with the.....issue. Enclosed find \$

Name.....

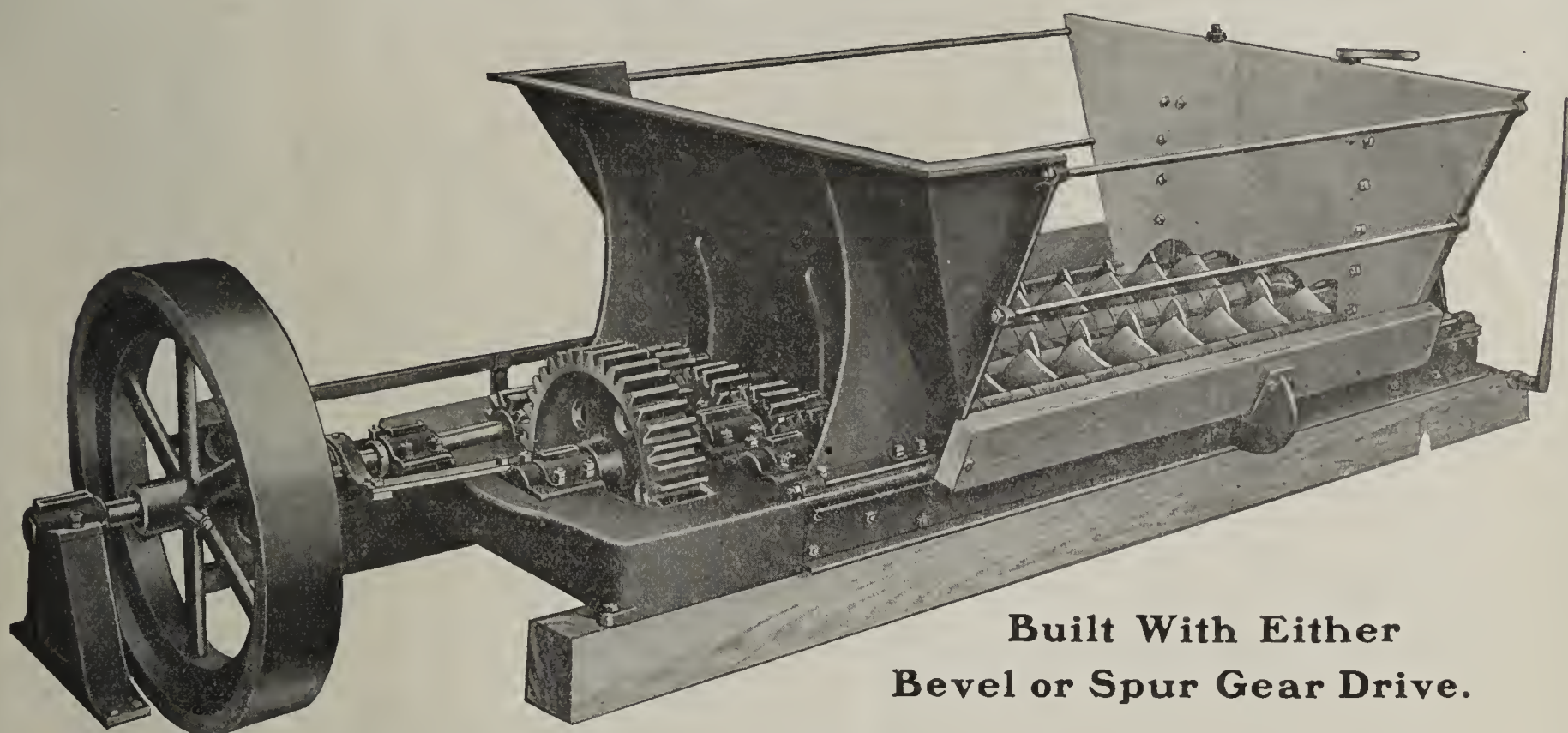
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County.....State.....

THE ARBUCKLE GRANULATING CLAY FEEDER.

A Great Addition to the MADDEN Line.

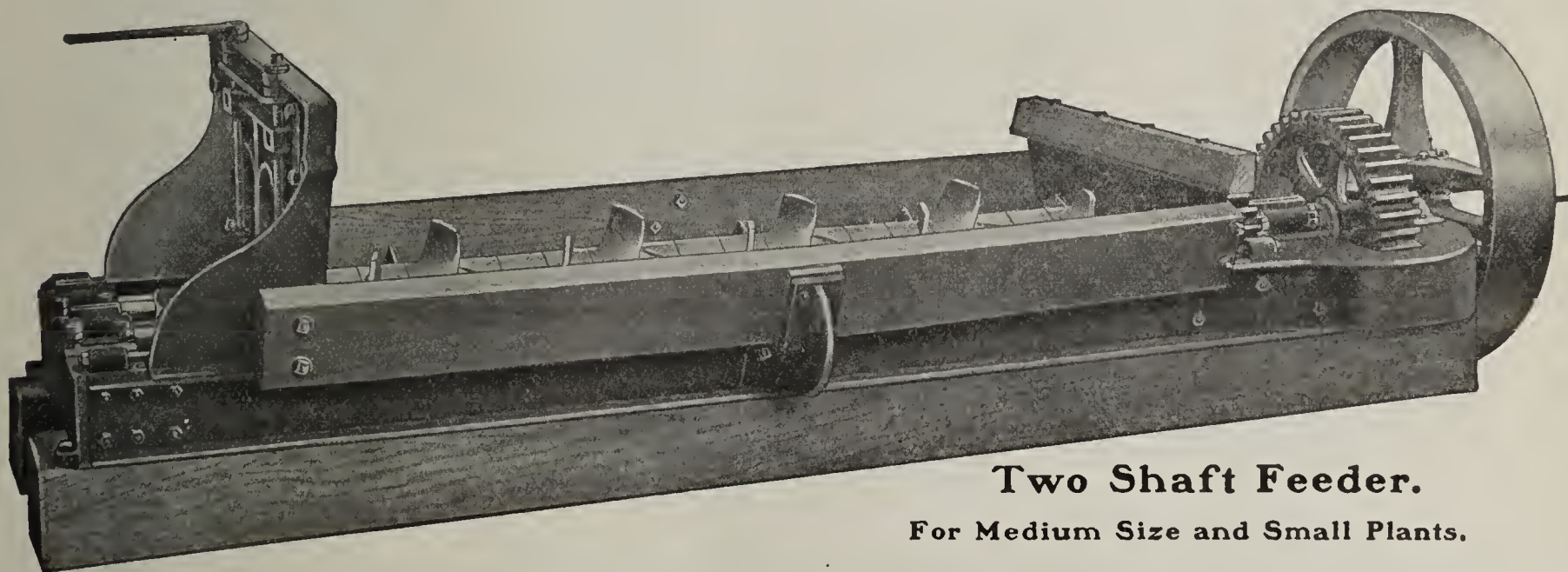


**Built With Either
Bevel or Spur Gear Drive.**

This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



Two Shaft Feeder.

For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 10,000 to 12,000 four-inch tile per day, or 15,000 to 18,000 brick, and will pug the clay up in fine shape.

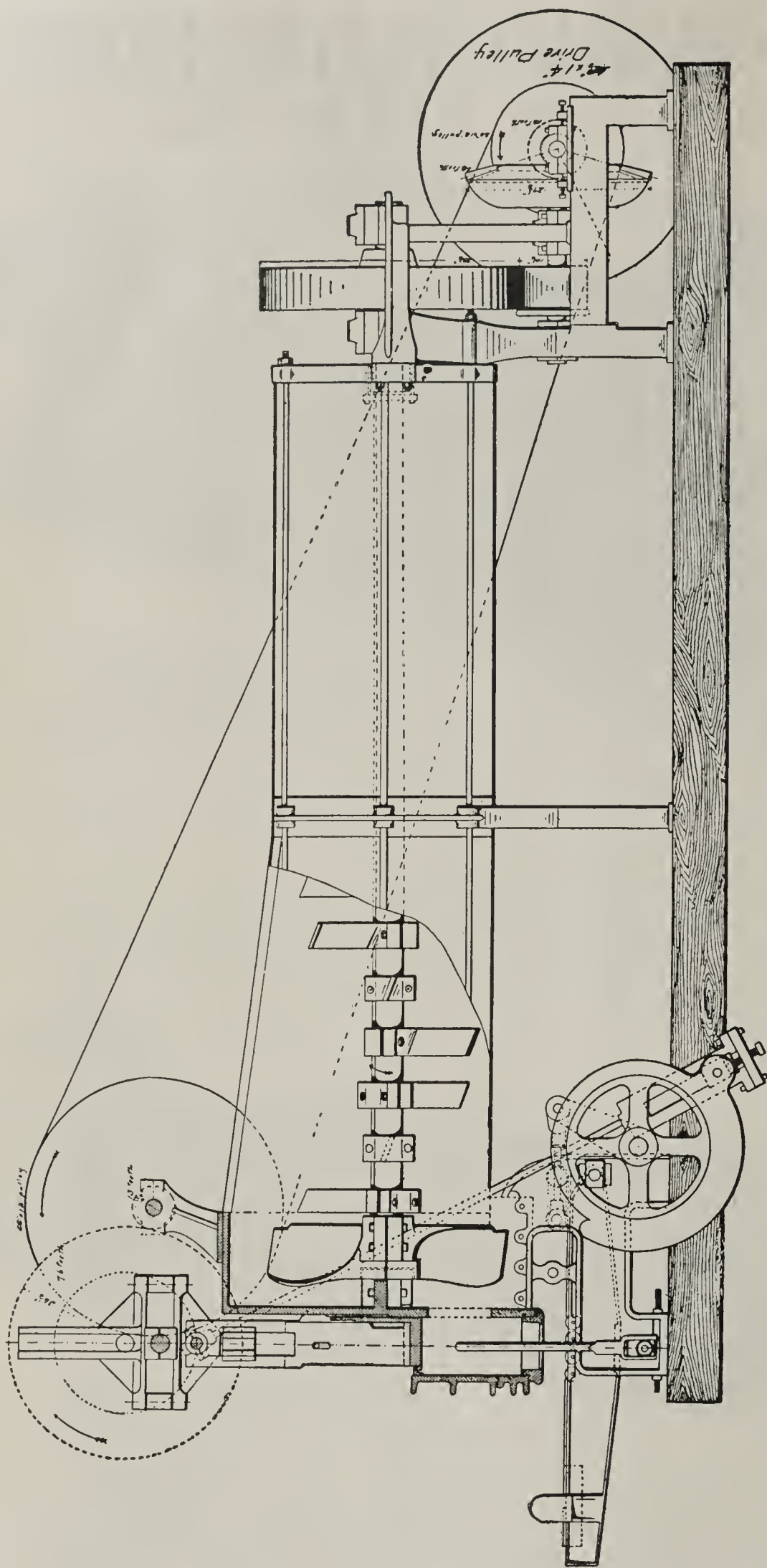
Note the heavy Gears, Granulating Knives. Hopper can be built up to any height, and it will feed the clay just as you want it.

It is low in price, and no plant can afford to do without one. Write for prices.

Builders of
Madden Machinery.

ARBUCKLE & CO., Rushville, Ind.

Sold by Scott-Madden Iron Works Co., Keokuk, Iowa.



Sectional View of the Potts All Iron Horizontal Brick Machine

Showing in detail the construction of this famous Brick Machine.

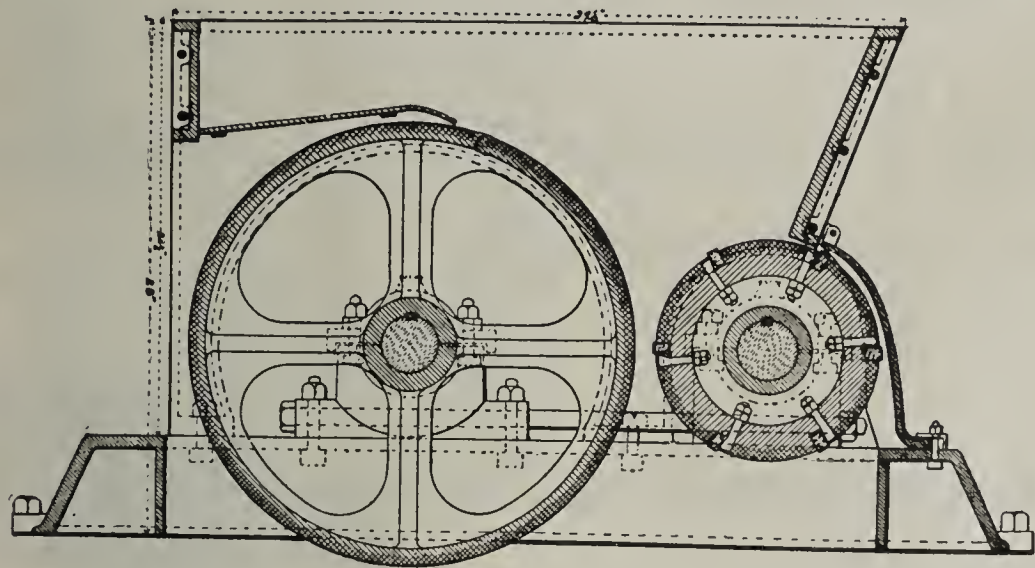
Note the size and weight of casting, size and weight of all gears, the long bearings and their protection from the clay.

Now is the time to make your improvements, getting ready for the coming season. If the machine you have used the past season has not been satisfactory, let us tell you about this one. You can make no mistake in purchasing a **POTTS HORIZONTAL**, the machine which holds the record over all on the Hudson River for **QUANTITY** and **QUALITY**. This is a machine to be depended upon to make a given number of brick every day.

Purchase now. Pay for it when started in the spring. Help us at the same time putting yourself in position for an early start the right way next year.

C. & A. POTTS & CO., Indianapolis, Ind.

Drawings Showing Detailed Construction of the FAMOUS POTTS DISINTEGRATOR



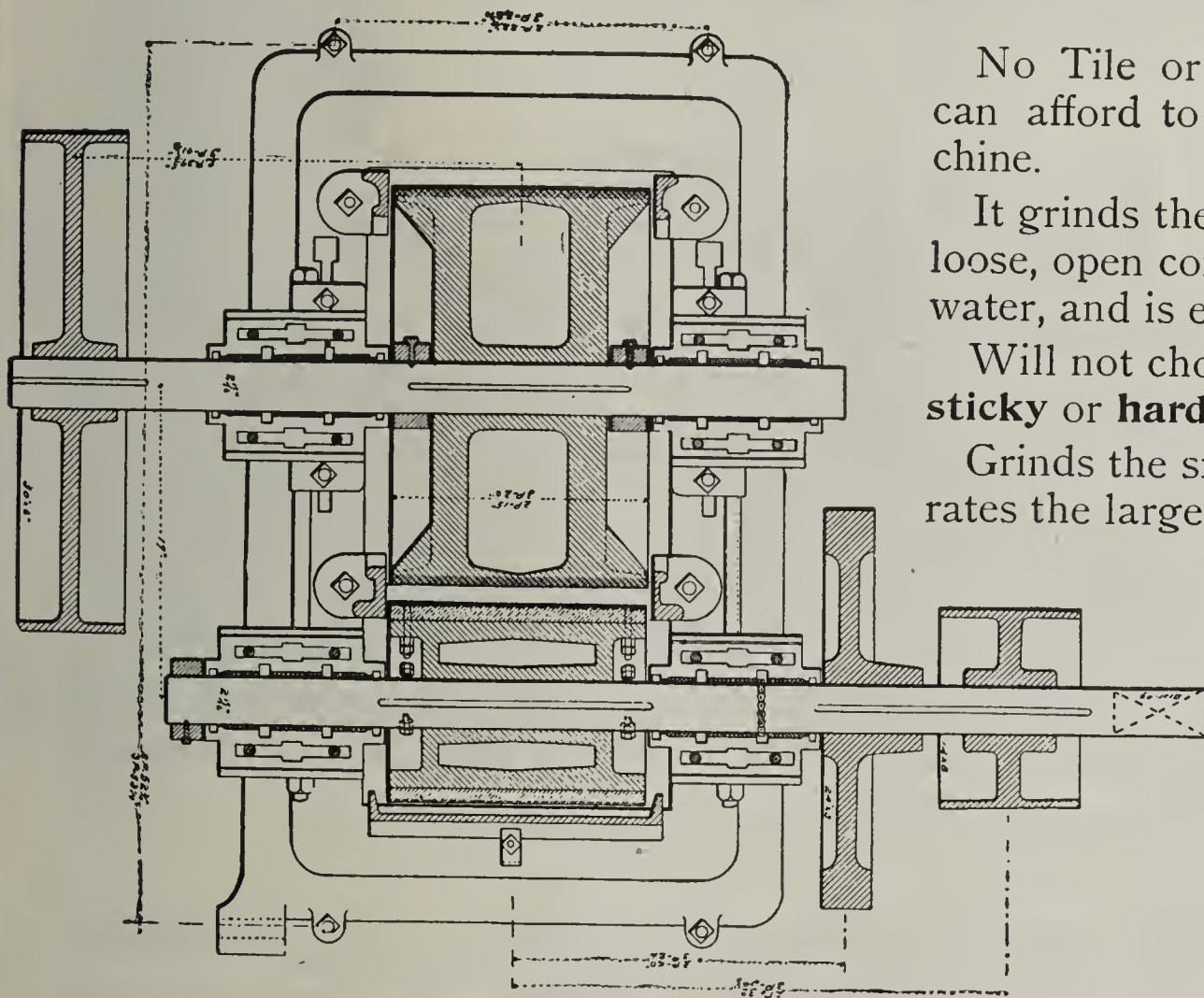
Note the heavy rolls which are thoroughly chilled.

Large shafts made of steel.

Ring oiling bearings, the best and latest pattern.

The heavy and rigid frame construction.

Nothing cheap or flimsy in the construction. It is a machine fully equal to do all claimed for it.



Sectional View of the Potts Disintegrator.

No Tile or Brick Manufacturer can afford to be without this machine.

It grinds the clay, leaving it in a loose, open condition so it will take water, and is easily tempered.

Will not choke or clog from **wet, sticky** or **hard, dry** lumps.

Grinds the small stones and separates the large ones.

We make a specialty of Disintegrators and Crushers, and are in position to furnish them of any desired capacity, Guaranteeing Results.

We manufacture Mold Sanders, Pug Mills, Granulators, Hoists, Cars, Trucks, Barrows and Molds.

Get our prices.

C. & A. Potts & Co.

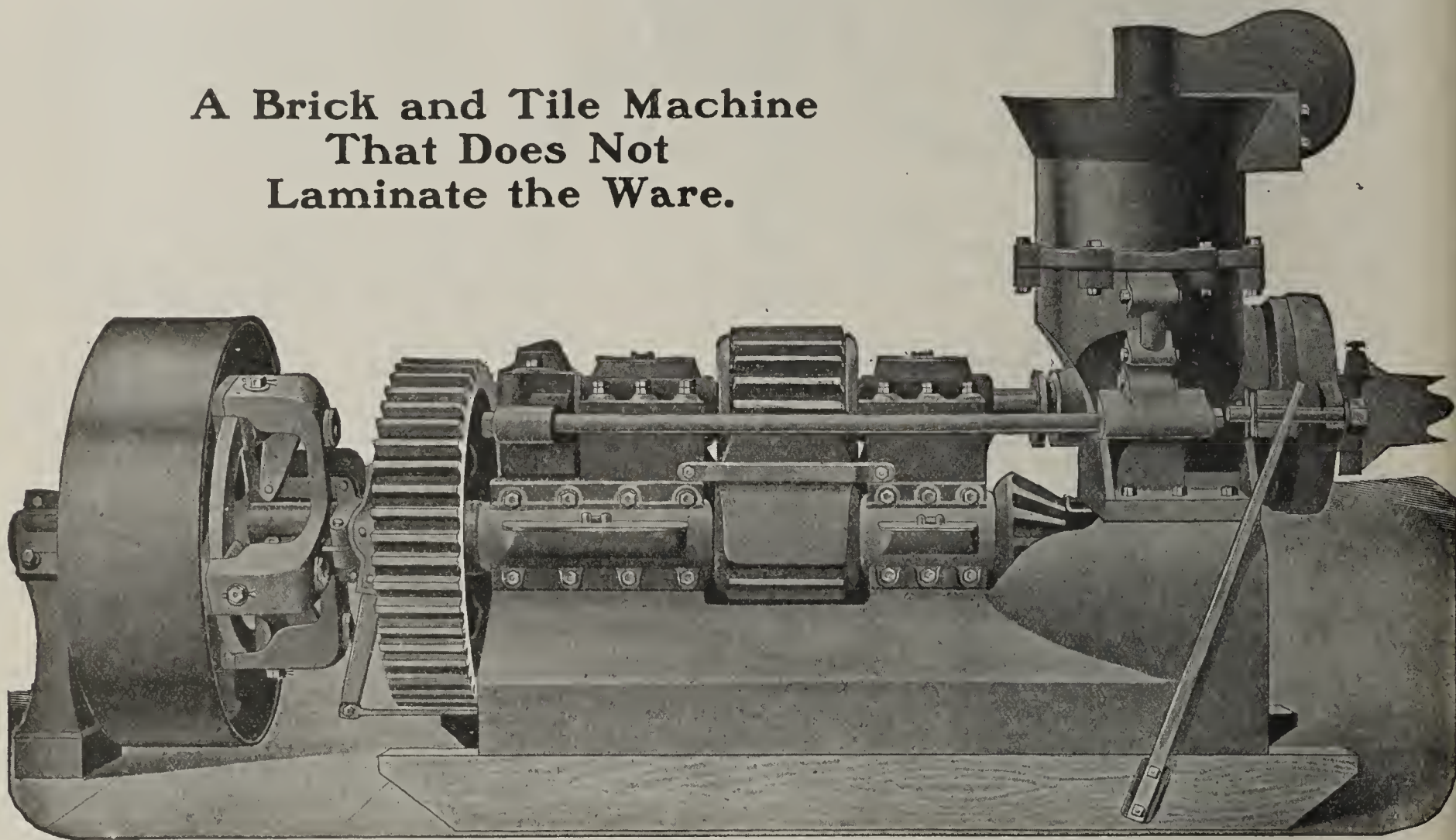
INDIANAPOLIS, IND.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

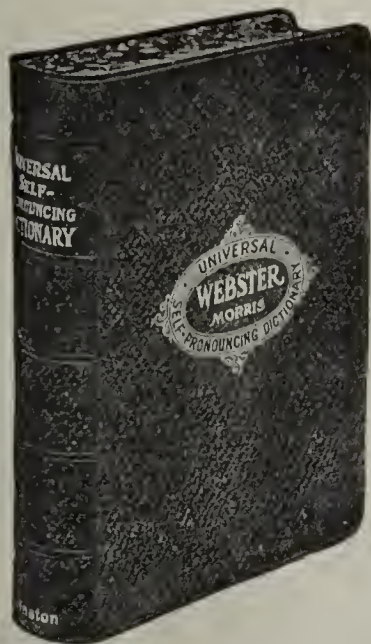
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THE WALLACE MFG. CO.,
FRANKFORT, IND.

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This superb self-pronouncing Dictionary, in substantial cloth binding with The Clay-Worker for 1911, for \$2.00. - Nothing nearly so valuable has ever been offered before. The flexible morocco binding, an elegant volume, will be sent for \$2.75, charges prepaid, together with The Clay-Worker for twelve months. **ORDER NOW.**

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==THE NEW UNIVERSAL== —SELF-PRONOUNCING— **DICTIONARY**

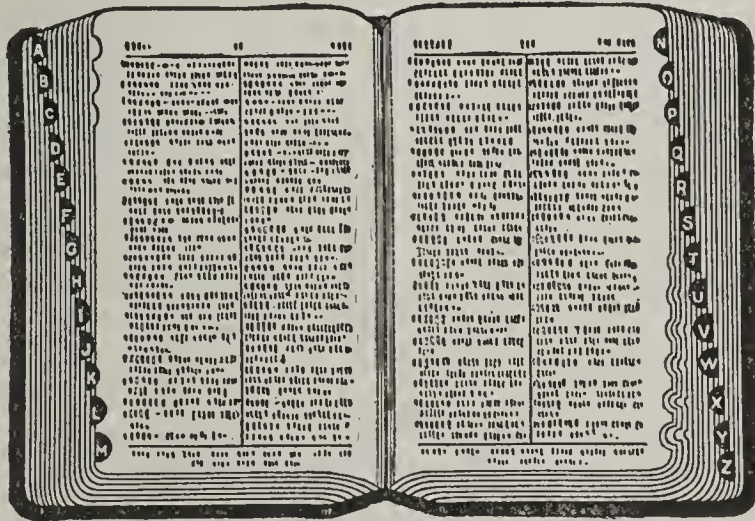
Based upon the Solid Foundation laid by
NOAH WEBSTER

and other Lexicographers, thoroughly modernized by
CHARLES MORRIS

In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

In the Home and School Its simple arrangement and clear definitions admirably fit it for this purpose. The bold type and the vast amount of general information it contains, commends it to Teacher, Parent and Child.

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Plates



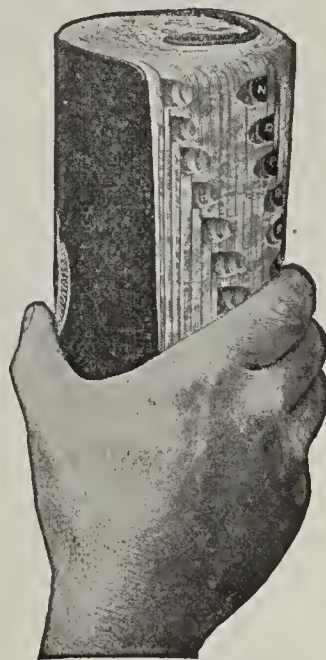
This cut shows Patent Thumb Index and how Dictionary appears when open. It lies perfectly flat. Size when open 8 x 11½ ins. Size when closed 5½ x 8½ ins. Contains over 1000 pages.

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- Among the noteworthy improvements are the following:**
- It Contains All the Words** in the English language in ordinary use, including the many new words that have recently come into use. The definitions are accurate and reliable and embrace all distinctions and shades of meaning.
 - Words Divided into Syllables.** Each index word is divided into syllables in the manner employed by the best writers.
 - The Proper Use of Capital and Small Letters** is clearly indicated. Proper nouns begin with capital letters, common nouns begin with small letters.
 - The Pronunciation of Each Word** is shown by a clear and properly accented system of phonetic spelling.
 - The Synonyms and Antonyms** are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.
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1000 PAGES

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The French Morocco binding is so flexible that the book may be rolled without injury to binding or sewing.

Needed Every Day at the Plant, the Office, the Home.

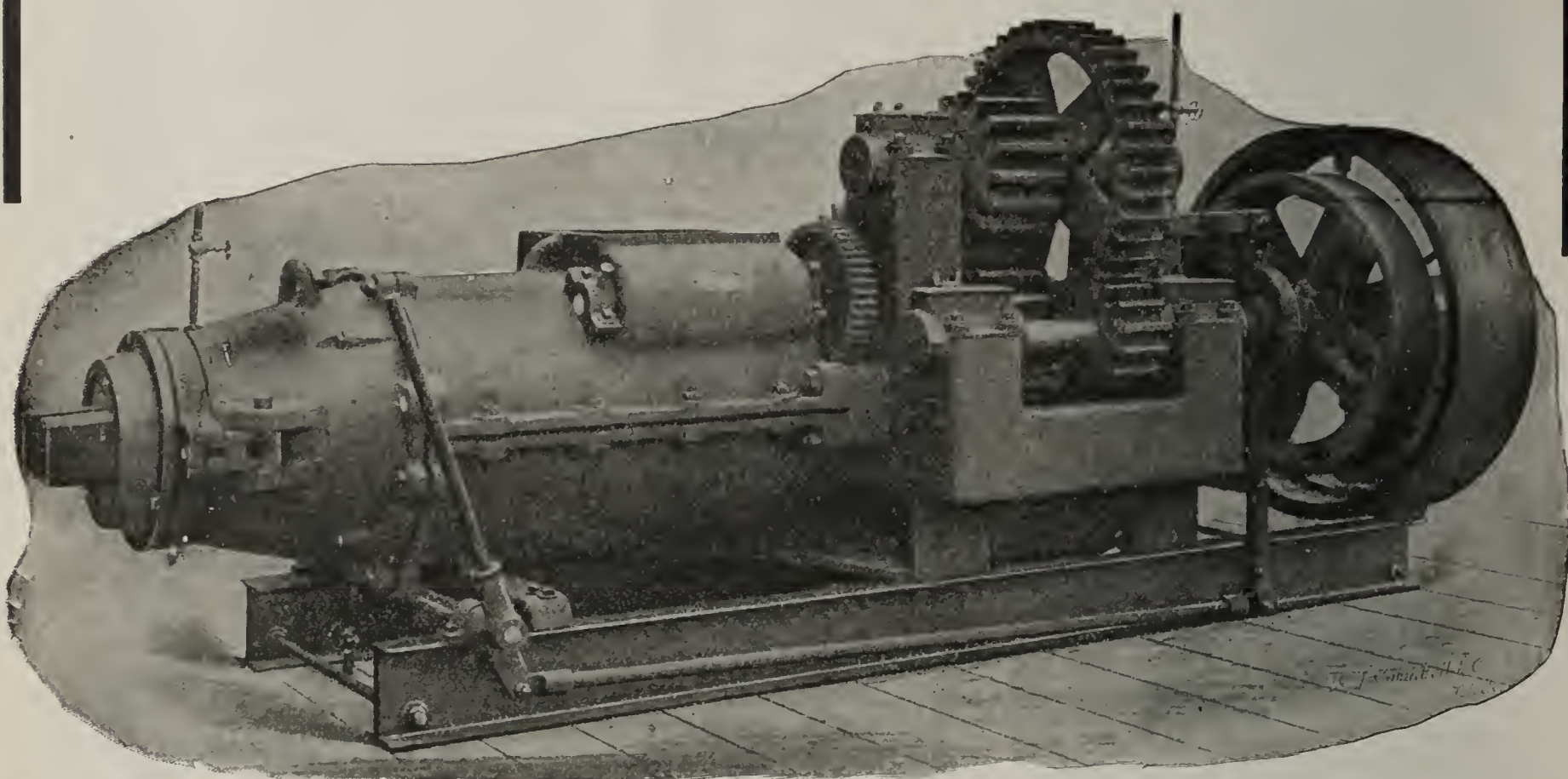
Remit by check or in any way most convenient to yourself.

T.A. Randall & Co. (Inc.), Publishers, Indianapolis, Ind.



HORIZONTAL BRICK MACHINES

Brewer Horizontal Brick Machines are built in three sizes, ranging in capacity from 2,000 to 5,000 bricks per hour, in weight from 5,000 to 14,000 pounds. In many cases the machine rated at 2,000 brick per hour is making 3,500 and the 5,000 machine 7,500. The rated capacity is low, the weights are high in proportion.



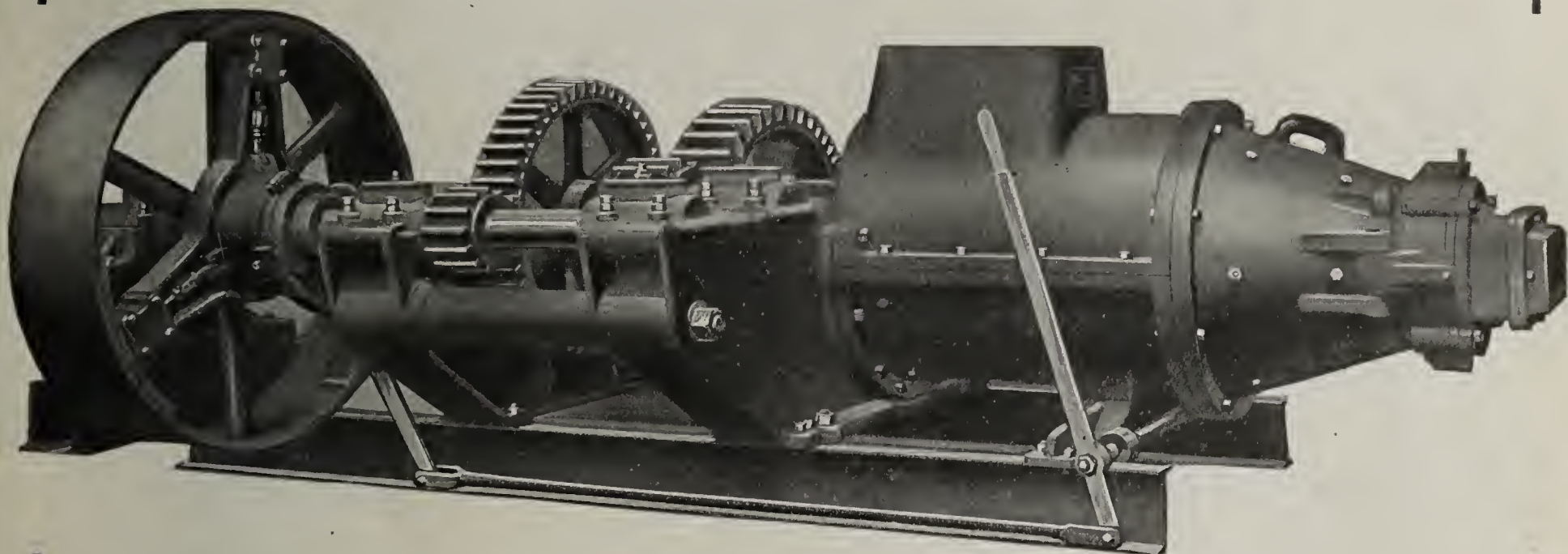
Some Features of Construction.

The knives are forged from hard, high-carbon steel; each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The backthrust bearings are self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

Full specifications in our catalog. Ask for it.

H. BREWER & COMPANY, Tecumseh, Mich.

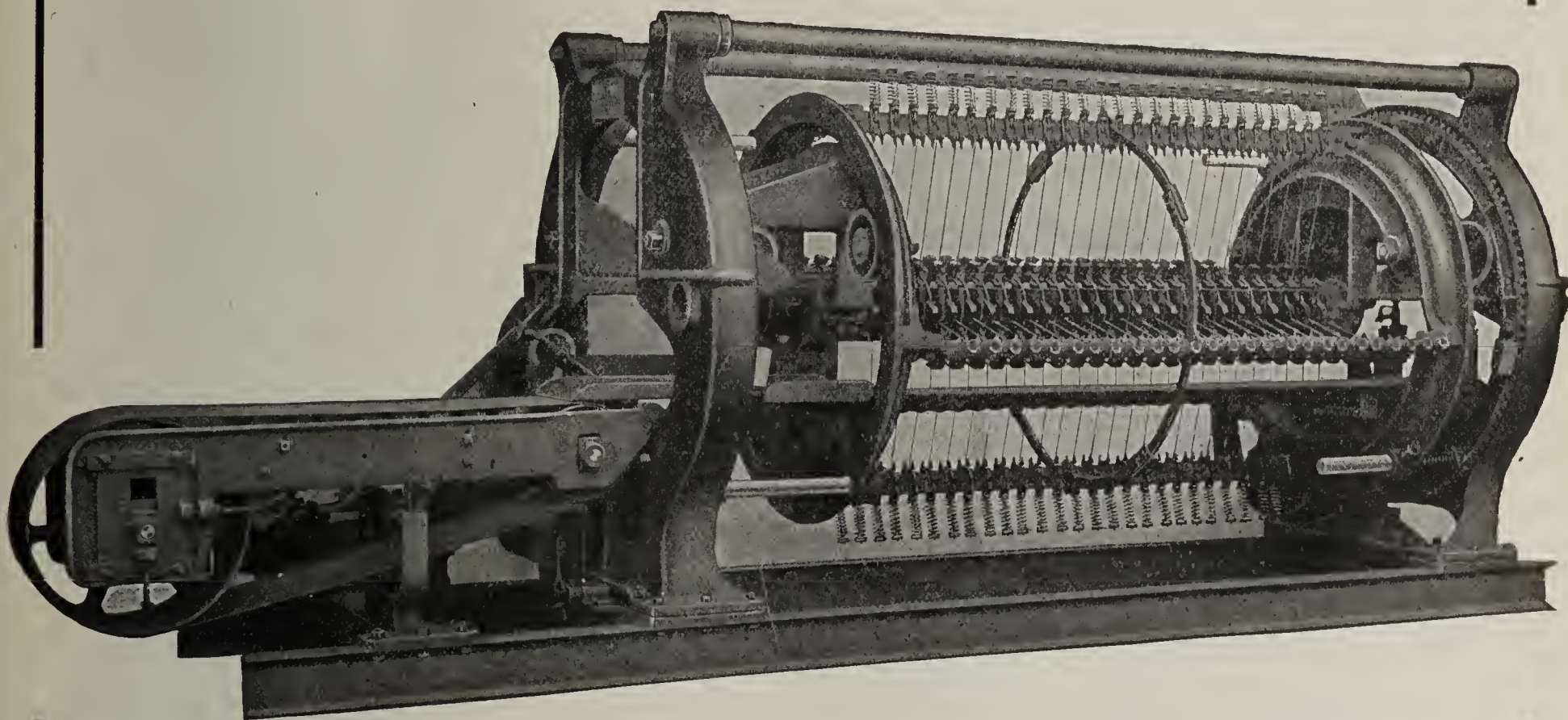
Bonnot Machinery for Satisfactory Service



No. 10 Auger Machine. Capacity 50,000 to 75,000 Brick in 10 Hours.

GET OUR CATALOG.

ASK THOSE WHO USE THEM.



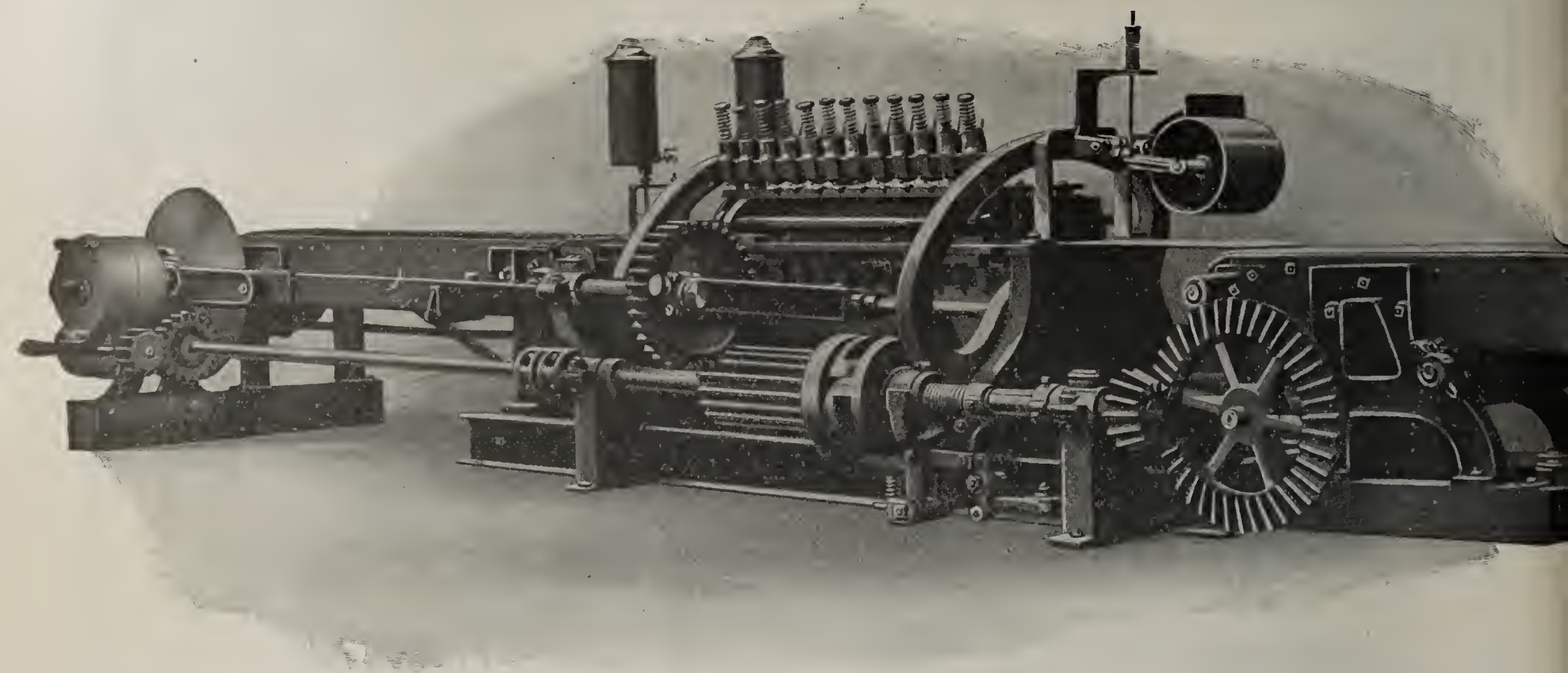
Only Rotary Automatic Cutting Table With Cutting Frame Next to Die of Machine.
Capacity 100,000 Brick in 10 Hours.

THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.



Size 50 Reciprocating Automatic Cutter

This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60," for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

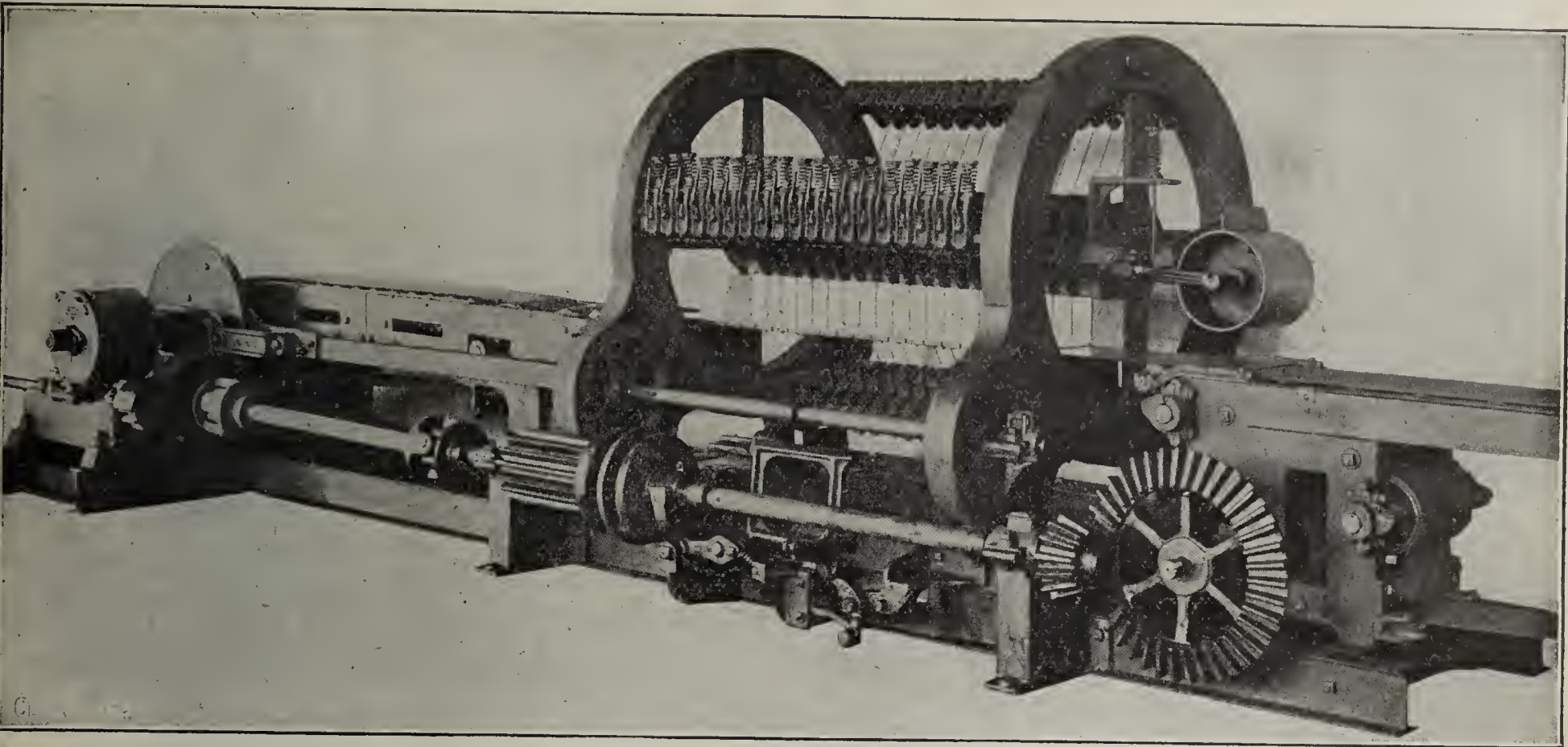
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick-machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

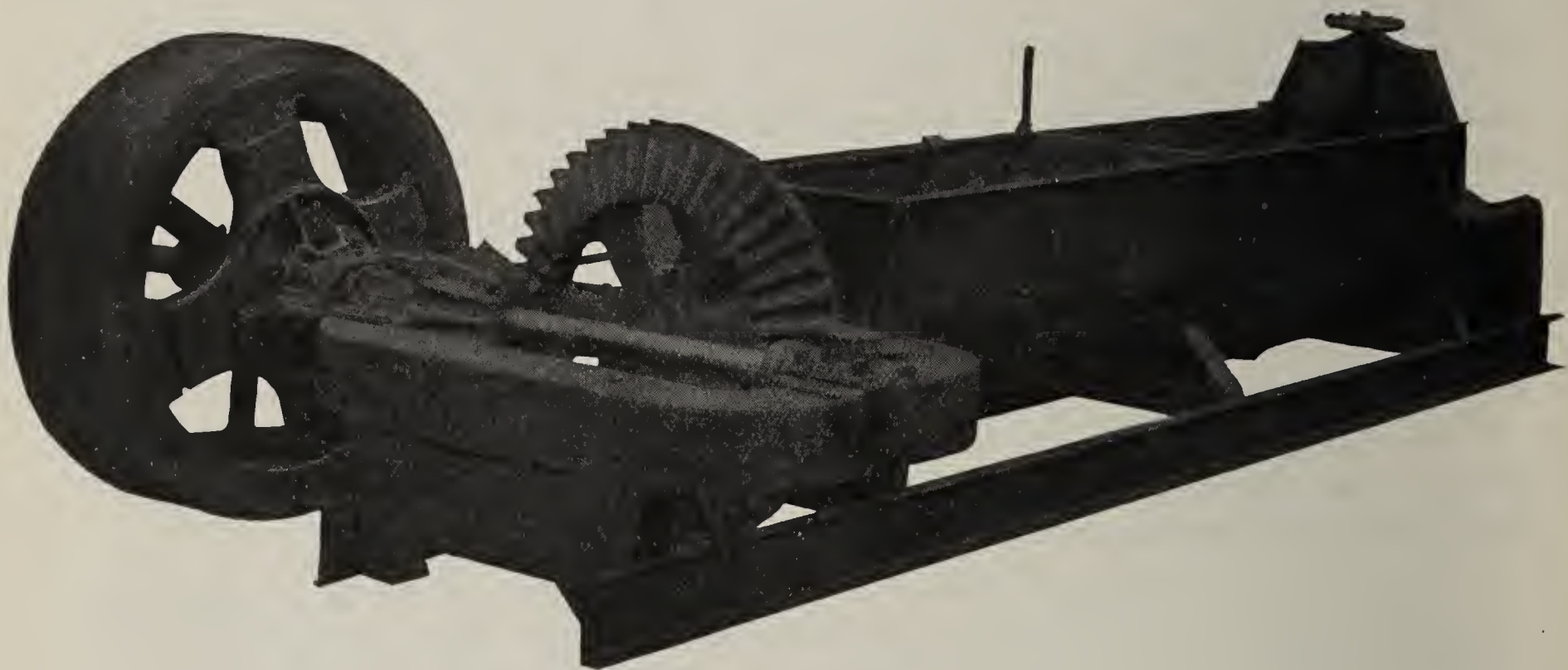
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.

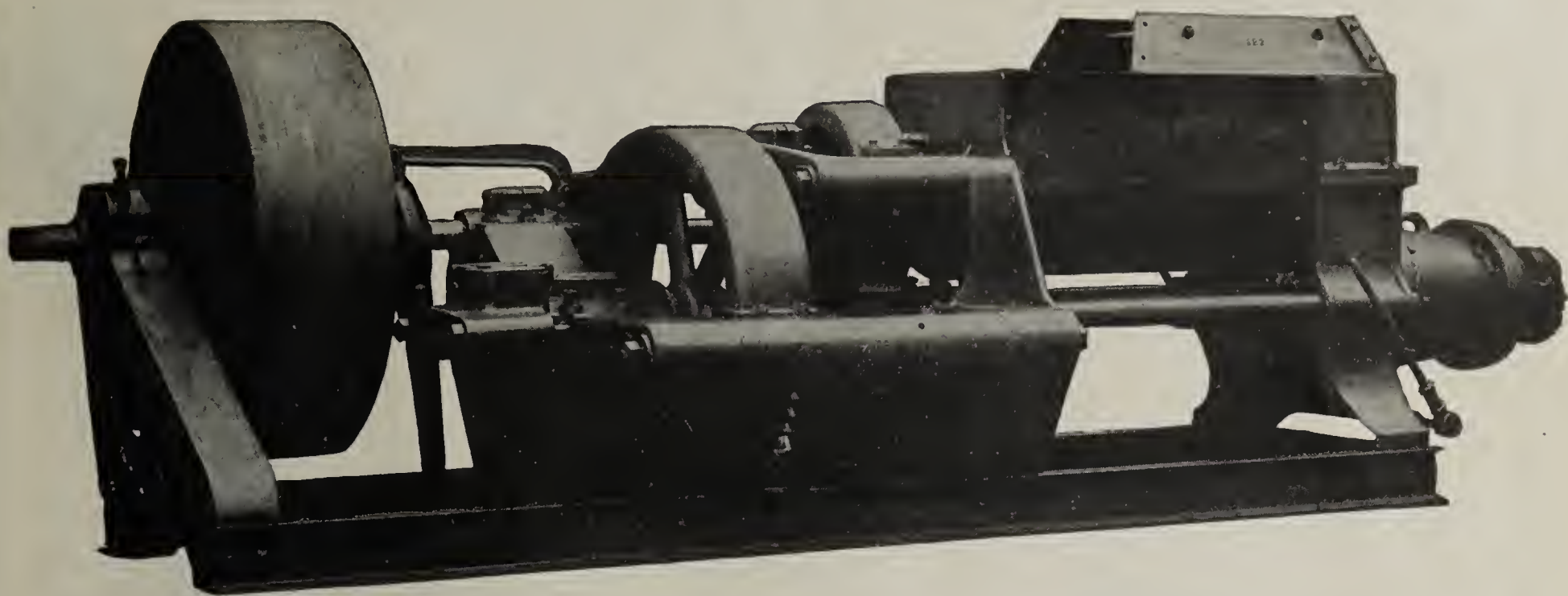


This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



MODEL "K" AUGER BRICK MACHINE

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

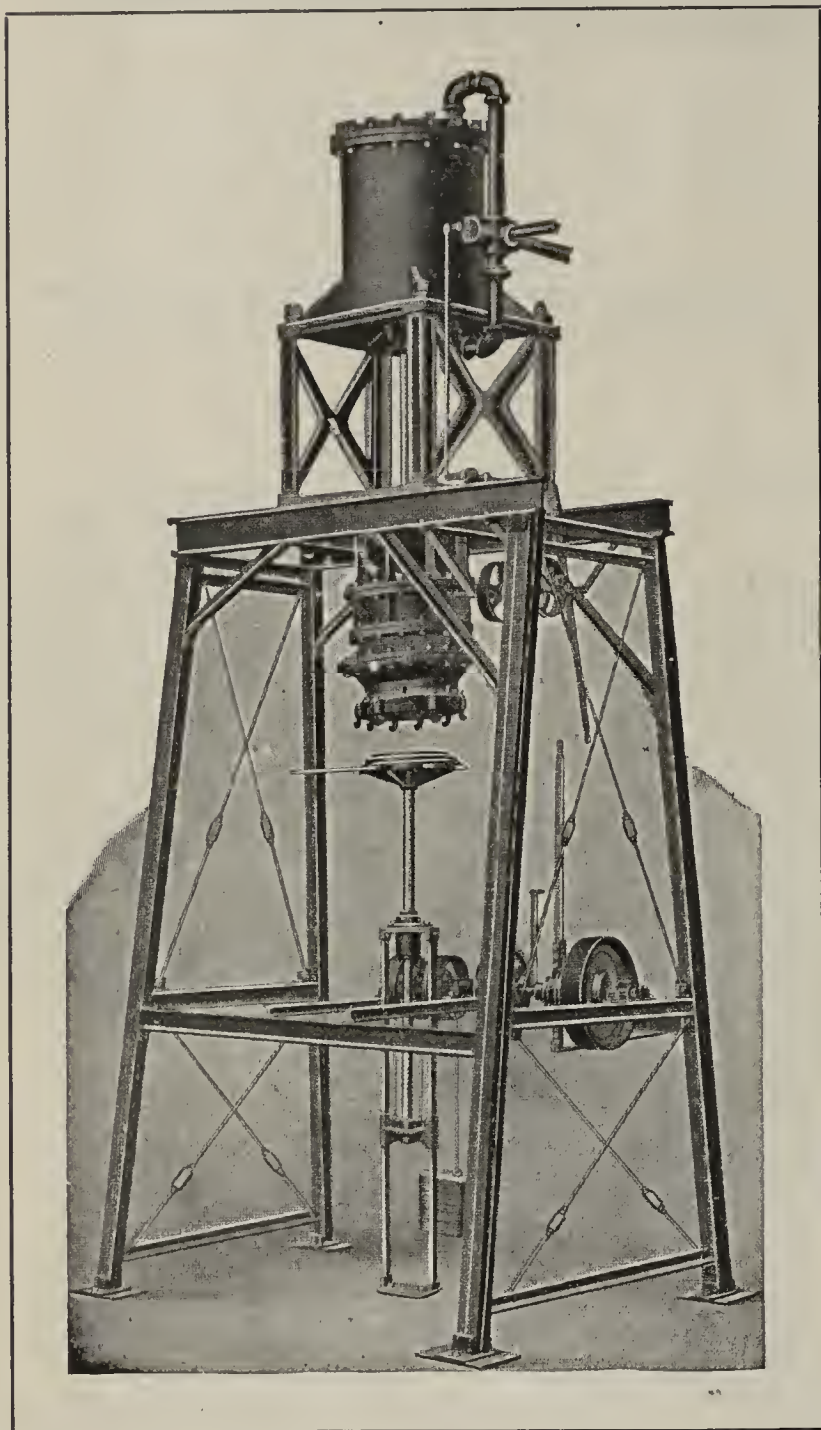
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.

1912 A Drain Tile Year

THERE are off years in drain tile as in the apple crops; but there is every reason to believe that 1912 will be a banner year in the drain tile industry, and it will be wise for all the drain tile manufacturers to prepare themselves accordingly.

Many plants which make good drain tile in the small sizes are unable to bid on contracts calling for the large sizes of tile, and consequently are shut out of much profitable business. Why not get into line to bid on the big business as well as small business? To make large tile at low cost, all you need is the



Stevenson Press

Many of the largest manufacturers of sewer pipe and drain tile throughout the country are equipped with the Stevenson Press, and it is making "Good" wherever installed.

The Stevenson press is made in a number of different sizes to meet all requirements. It will pay you to figure with us and let us tell you what an equipment for your needs will cost. We can give you some facts regarding this matter which will interest you.

THE STEVENSON CO.

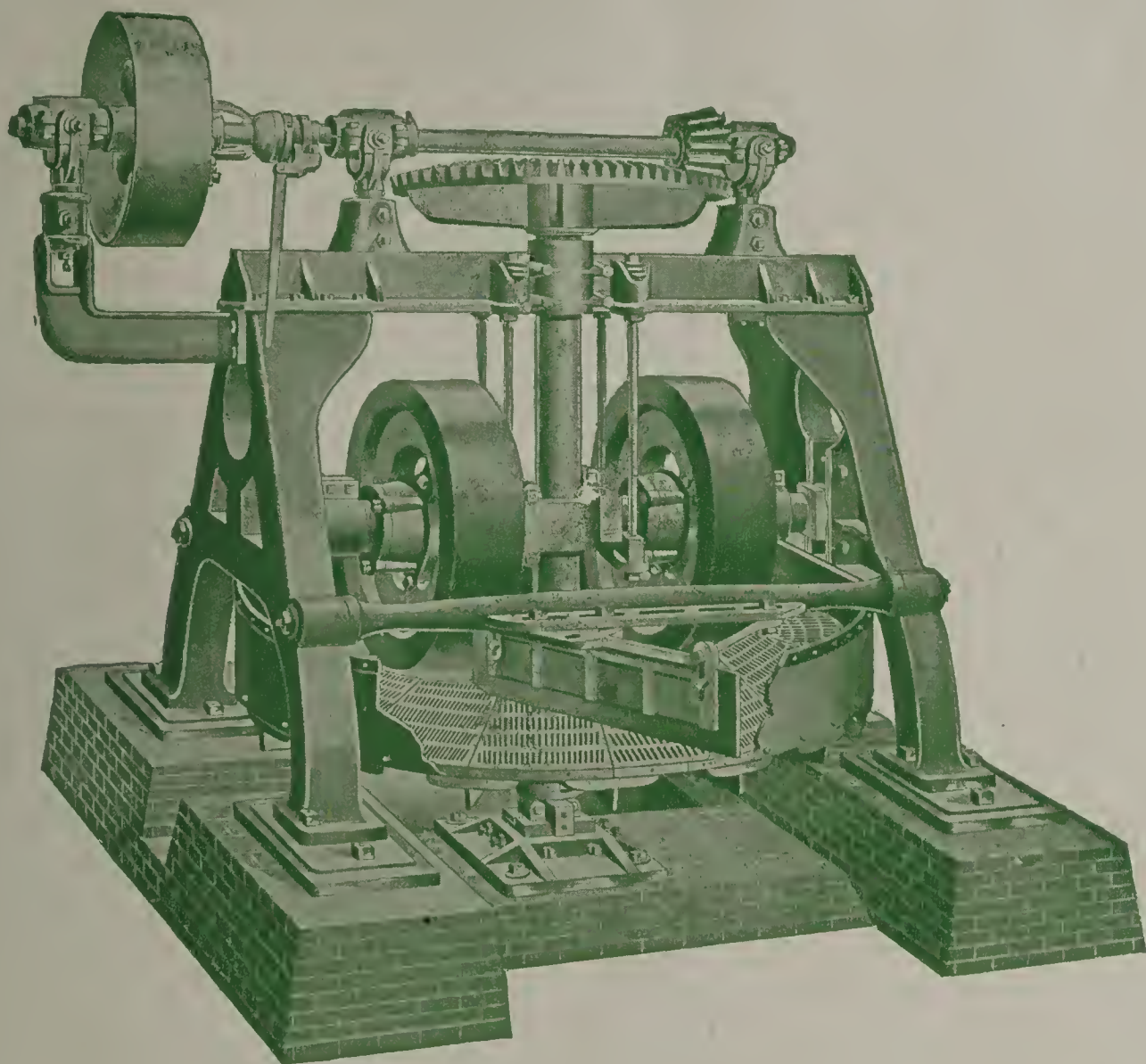
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For Sixty
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The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
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Twenty-four *Frost* Dry and Wet Pans sold during month
of October, 1911, and all of them to experienced workers
in clay.



We sold over twelve thousand horsepower in boilers during the
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Write for Special Bulletins and Specifications.

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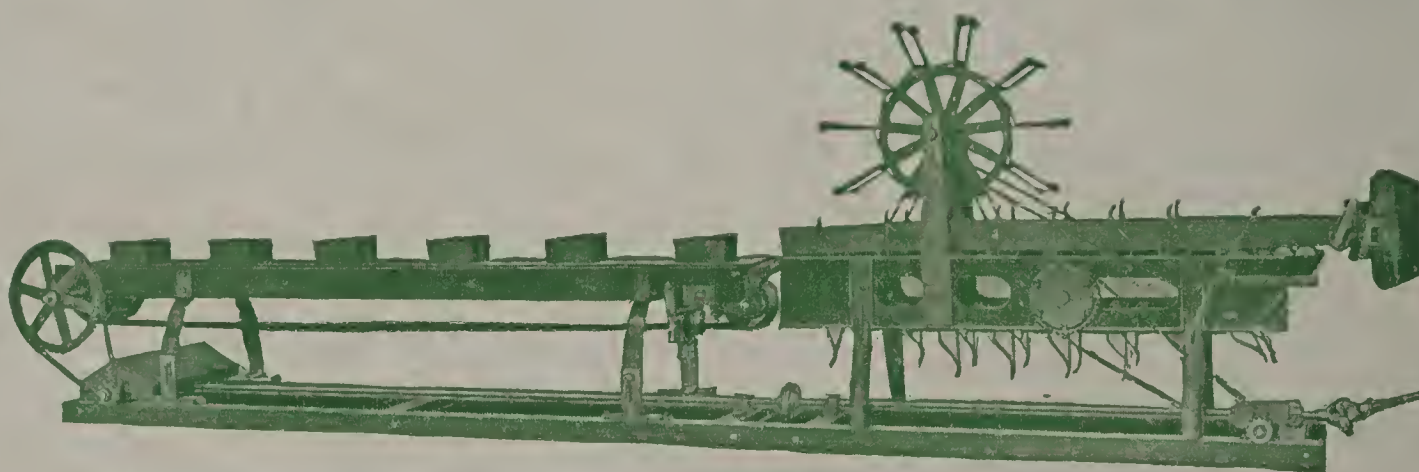
Mention THE CLAY-WORKER.

Two Interesting Pages for Manufacturers



The Fate "Premier" Machine. Too well known to need any description. The best Block or Fire Proofing machine made anywhere by anybody.

The standard Bensing Automatic Tile Table, arranged for cutting Hollow Blocks in sizes from $9\frac{1}{2} \times 4\frac{3}{8}$, but it will cut any block not larger than 10×12 inches. Can be built to cut any length from $12\frac{1}{4}$ to 14 inches.

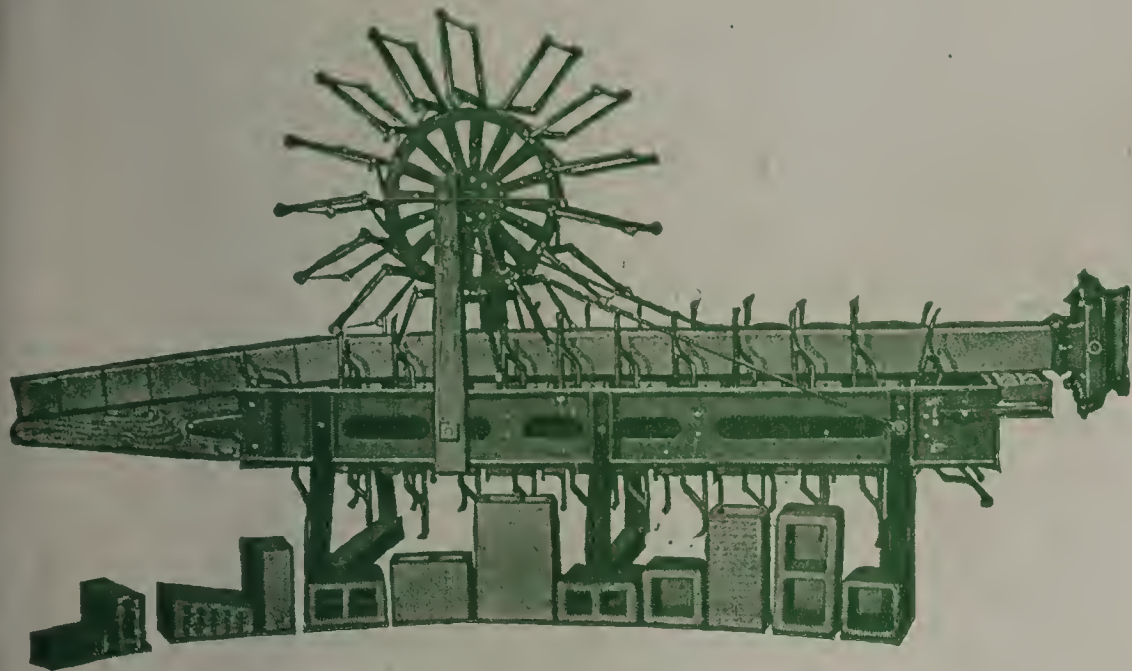


Bensing's End Cut Brick Table, cutting hollow end cut brick. Is equipped with belt delivery and friction device, and is especially adapted for this work.

The J. D. FATE COMPANY

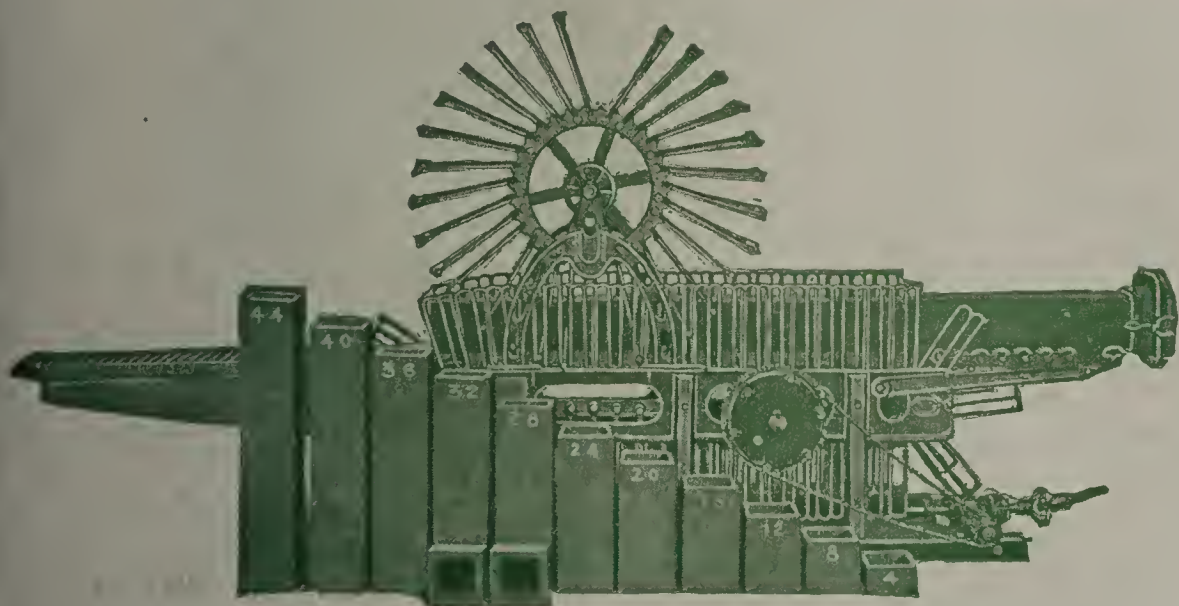
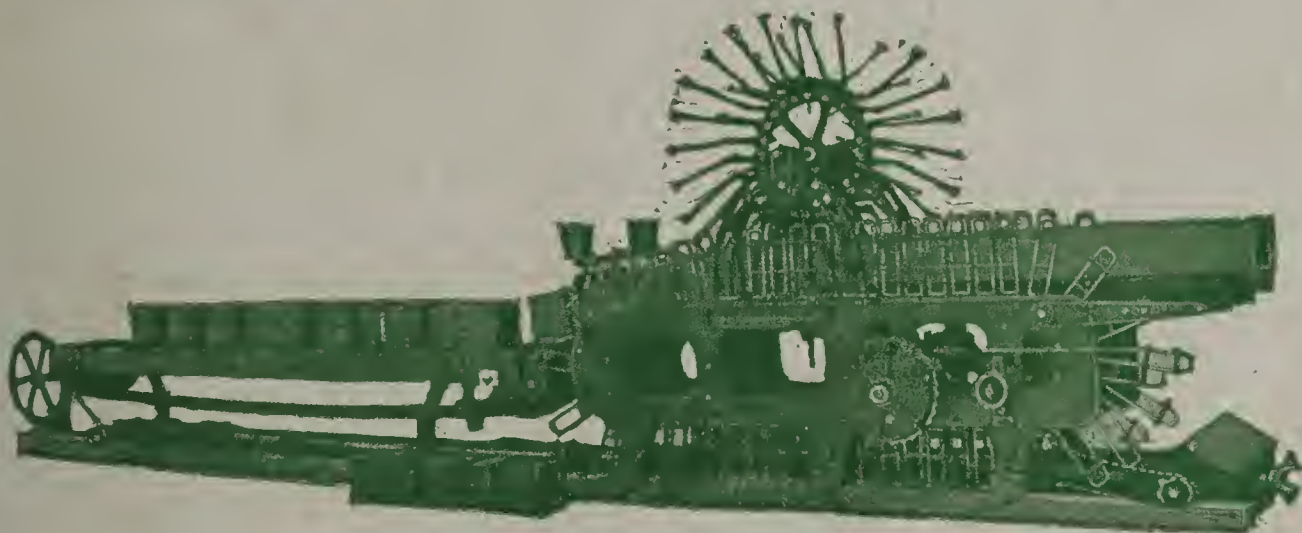
Manufacturers Equipment Co

f All Types of Hollow Building Ware.



This is a special Bensing Automatic Table for large Hollow Blocks. It will handle blocks as large as 18 inches wide by 9 inches high. The length of cut can be anything desired, from 9 inches to 18 inches. Fitted with roller rack delivery.

Bensing Automatic Table for cutting Hollow Blocks, Face Blocks or Hollow Fire Proofing. It will handle blocks 11 inches high by 12 inches wide, and will cut in multiples. It has belt delivery.



This Bensing Automatic Table has roller rack delivery and friction driving device. Can be built for any multiple, and will handle blocks 11 inches high by 13 inches wide.

Plymouth, Richland Co., Ohio

Dayton, Ohio, Sales Agents

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

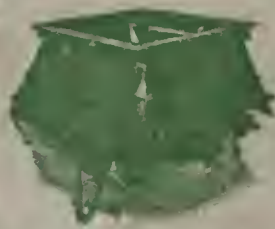
Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO., **Bloomington, Ill.**

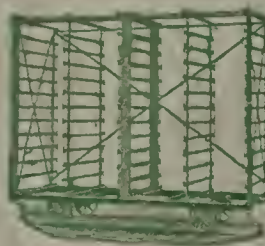
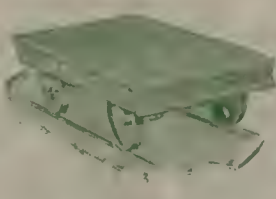


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Our Dump cars discharge quickly and cleanly. Nothing is left in car after tilting. Will not jump the track. All steel. Bodies heavy sheet steel. Reinforced corners and angles. No pins or chains to prevent tilting the car.

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Do not procrastinate.

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